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Social Behavior of Maltreated Children: A Naturalistic Study of Day Care

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THE DEVELOPMENT OF SOCIAL RELATIONS

The developmental study of the young child's relationship with the social environment has typically been centered in the study of the mother-child dyad. Within the context of this relationship, researchers have explored the origins and significance of, as well as changes in, attachment behaviors, separation protest, stranger anxiety, and other related phenomena. Generally, the picture that has emerged is one of early developing and selective responsiveness to social stimuli, so that by the end of the first year of life, the infant shows differential behavior toward various persons in the world. In the presence of an attachment figure, most often the mother, the infant exhibits positive affectional and proximity-maintaining responses. On separation from the mother, the infant frequently reacts with protest and distress, as well as with efforts to regain contact. It has been argued that the attachment relationship has implications for development in other areas as well, among them the infant's exploratory behavior (e. g., Rheingold, 1969), intellectual functioning (e. g., Ainsworth, Blehar, Waters, & Wall, 1978; Clarke-Stewart, 1973), ego development (e. g., Arend, Gove, & Sroufe, 1979; Srouge, 1979), social competence (e. g., Bronson, 1974; Waters, Wippman, & Sroufe, 1979), and psychopathology (Lewin, Feiring, McGuffog & Jaskir, 1984). This work underscores the crucial significance of the mother-child tie in human development.

However, the almost exclusive focus on the mother-child relationship has contributed to a biased picture of the young child and its social milieu (Lewis, 1982/1987; Lewis, Young, Brooks, & Michalson, 1975). It has allowed us to ignore the rich network of social relations into which the infant is born and must adapt. Although under usual circumstances, the mother (or primary caregiver) is one of the first persons with whom the infant forms an intimate, meaningful relationship, she is by no means the only such person. Even during the earliest period in life, other affectional relationships develop that vary in quality, intensity, and function from each other and from the mother-child relationship. In fact, multiple attachments appear to be the rule rather than the exception (Rutter, 1979), occurring with fathers (e. g., Kotelchuck, 1973; Lamb, 1977), siblings (e. g., Samuels, 1980), grandparents (e. g., Schultz, 1980), caregivers in nurseries (e. g., Cummings, 1980), and peers (e. g., Lewis *et al.*, 1975).

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But much less is known about these other systems of relationship. For one, the human peer system in infancy and early childhood has received scant attention since the 1930s. Yet, as Eckerman, Whatley, and Kutz (1975) concluded from their research, "interactions with peers may contribute in their own right to early social development" (p. 42).

The assumption is made that without an adequate mother-infant bond, other social relationships are impossible or markedly impaired. Bowlby (1969), Spitz (1965), psychoanalytic theorists (e. g., Fenichel, 1945; Freud, 1938), and others have suggested that deprivation of the opportunity to form an attachment with the mother, or early distortion of that tie once it is formed, produces psychopathology and an inability to form later meaningful attachments with other social object. This theoretical orientation credits the primacy and intensity of the mother-child relationship as the source of, and prototype for, all subsequent social behavior, including peer relationships. An alternative formulation rejects the mother-infant relationship as the necessary and sufficient condition for all later social behavior (Harlow, 1966; Lewis *et al.*, 1975). Here, the mother-child and peer-child relationships are seen as separate but paralel systems which may or may not share common elements. Such a view minimizes the far-reaching effects of an unsatisfactory mother-child bond on relationships with other social objects. The differences embodied in these formulations underscore the continuing need for research concerning the interdependence of early social experiences.

THEORETICAL APPROACHES

Two models of the development of early social relationships have been proposed (Lewis, 1982, 1987). The most frequently adopted is the epigenetic (Lewis, 1987 or precursor (Vandell, 1980) view, which posits a direct relationship from one set of social interactions to the next in a relatively fixed sequence. An opposing approach, which Lewis (1982) has termed the social network model, argues that different systems of relationships develop concurrently to satisfy differential social needs. We now turn to a detailed consideration of these models.

EPIGENETIC MODEL

In this view, the mother-child relationship, as the initial and primary interpersonal experience to which the infant must adapt, shapes subsequent social relations with other adults and with children as well. The mechanisms for the transmission of these effects are direct (e. g., through response generalization) and/or indirect, through the development of a variety of hypothesized mediating variables (e. g., traits). Long a hallmark of psychoanalytic thinking*, this position is more recently articulated in Bowlby's theory of attachment (1958, 1969, 1973). Here, the infant's characteristic interactions with a specific caregiving figure (usually the mother) lay the groundwork for the growth of a special affectional bond uniting the two in a relationship which is enduring and formative. Drawing upon ethological principles and control systems theory, Bowlby (1969) conceptualizes attachment as the product of species-specific be-

*Freud, in 1938, wrote that the mother is the infant's first object, "unique, without parallel, established unalterably for a whole lifetime as the first and strongest love-object and as the prototype for all later love relations" (p. 188).

havioral systems whose predictable outcome is increasing or maintaining contact with the mother, and whose biological function is protecting the infant from danger. Five classes of behavior describe full-blown attachment in the infant over seven months of age : a) behavior, including greeting, that initiates action with the mother ; b) behavior in response to mother's interactional initiatives and that maintains interaction ; c) behavior aimed to avoid separations ; d) exploratory behavior, especially how it is oriented with reference to the mother ; and e) withdrawal (fear) behavior, also especially how it is oriented with reference to the mother. Stress of any kind is thought to heighten the infant's orientation to the attachment figure, eliciting attachment behaviors to the exclusion of other competing response systems, especially exploration and play.

Because virtually all infants become attached to a significant other, except under the most extreme conditions, it is the quality of this relationship that is thought to have important developmental sequelae. Through her research, Ainsworth (e. g., Ainsworsh, 1972 ; Ainsworth *et al.*, 1978) has concluded that one dimension which meaningfully describes the quality of an attachment is its relative security. Theoretically defined in terms of the balance between the antithetical systems of attachment and exploration, the security of the attachment bond is demonstrated in the infant's ability a) to use the mother-figure as a base for exploration in free play, b) to derive comfort from her when upset so that exploration can be resumed, and c) to utilize her assistance most adaptively (i. e., without undue dependence or avoidance). Guided by these notions, Ainsworth has identified three general patterns of attachment by clustering maternally-directed responses during separation, and especially reunion episodes of a structured laboratory procedure she developed known as the "Strange Situation." In this cumulative stress procedure, securely attached children are generally more active in seeking proximity and contact with mothers during reunion, and more easily able to recover from separation distress and return to play/exploration. On the other hand, insecurely attached children are either avoidant (ignore or avoid contact with mothers) or ambivalent (both seek and resist maternal contact) during reunion.

These attachment patterns have been linked theoretically to various behavioral outcomes in the child. Because of the relationship between attachment and exploration, secure infants who have less difficulty in separating and getting comfort from mothers should consequently be more willing to involve themselves in other aspects of their environment. This encourages the growth of competence and mastery in dealing with both objects and people. Thus, securely-attached infants should be more advanced cognitively, and more sociable and effective in their peer relations. In contrast, it is argued that a poor relationship with the mother is a potent source of stress for her child, strongly activating attachment-related behaviors. Thus, less secure children should be preoccupied with their mothers to an extent that restricts exploratory behavior and interaction with other partners. In general, their intellectual and social functioning should suffer by comparison. Sroufe and Waters (1977) predict that "avoidant babies might be expected to be self-isolated, while ambivalent babies, because of their lack of object skills, low self-esteem, and social hesitancy" (p. 1196) might also relate poorly to peers.

Recent research has attempted to provide empirical support for these conclusions.

In the area of intellectual functioning, studies have shown a relationship between quality of attachment and cognitive development. Bell (1970) found that "mother permanence" preceded "object permanence" in securely but not insecurely attached infants. Ainsworth and her colleagues (1978) have shown that securely attached infants achieve higher developmental quotients in the first year of life and beyond. Matas, Arend, and Sroufe (1978) examined the performances of two-year-olds, who had previously been assessed in Ainsworth's Strange Situation, on a range of cognitive tests. Compared to their anxiously attached counterparts, secure children showed more symbolic play, and more persistence, enthusiasm, and task-orientation on structured, tool-using problems. With their sample, however, no significant differences in overall mental development (as measured by the Bayley Scales) were obtained. Stevenson and Lamb (1979) found that infants who were judged sociable and friendly with mothers and strange adults scored higher on standardized tests of cognitive development than infants who were socially withdrawn. In a longitudinal study of attachment and competence, Weters *et al.* (1979) reported that securely attached three-year-olds showed more self-direction, intellectual curiosity and persistence, and awareness of their surroundings than their anxiously attached agemates. A study by Arend *et al.* (1979) found a relationship between security of attachment at 18 months and measures of ego-control (i. e., neither impulsive nor overrestrained), ego-resiliency (i. e., able to respond flexibly and persistently), and curiosity at four to five years of age. Finally, a recent study by Lewis, Feiring, McGuffog, and Jaskir (1984) found that boys judged insecurely attached at one year showed more psychopathology at six years *if* they also experienced negative environmental stress. Thus, insecure boys who were the product of "unplanned" pregnancies, who were second born, and who had limited social networks of relatives and friends were more likely to develop behavior problems and psychological disturbances than either insecure boys not subjected to these factors or secure boys regardless of their environment. For girls, however, attachment classification was not found to predict later psychopathology.

Research investigating the relationship between quality of attachment and infants' social behavior with others has yielded more equivocal findings. On one hand, Easterbrooks and Lamb (1979) report that more securely attached toddlers were generally more peer oriented in a free play situation where mothers and unfamiliar peers were present; they engaged in more peer interaction, of both a negative and positive type, spent more time near peers, and showed more competent forms of social behavior. Pastor (1981) also found that secure toddlers were more sociable and positively oriented toward both the mother and an unacquainted agemate infree play. Waters *et al.* (1979) related security of attachment measured at 15 months to Q-sort assessments of peer competence in preschool at 3½ years of age. They reported that secure children were less socially withdrawn and hesitant, and more often active participants or leaders in the peer group. On the other hand, Maccoby and Feldman (1972) failed to find a relationship between preschoolers' peer behavior in nursery school and their previously measured attachment behaviors. Clarke-Stewart, Vander Stoep and Killian (1979), studying toddlers in semi-structured naturalistic settings, showed that sociability to another child was not correlated with any of the maternal variables they examined,

including mother-child interaction measures. Lieberman (1977) found that both the quality of attachment *and* the amount of peer experience appeared to affect three-year -olders' competence with peers, but in different ways. Secure attachment correlated with nonverbal measures of peer behavior (e. g., share, touch) while peer experience correlated with verbal measures (e. g., conversational exchanges and responsiveness). Lieberman concludes that "it is apparent that peers may exert a simultaneous influence on peer competence" (p. 1286). Her finding of a high positive correlation between secure attachment and peer experience confounds the issue further : it suggests that mothers who promote positive relations with their children also tend to provide the opportunity for peer interaction.

According to the epigenetic view, however, limited peer exposure is not considered a primary determinant of less adequate peer relations. Instead, antecedent maternal behaviors are responsible for the differential attachment patterns which, in turn, affect the infant's behavior with peers. In her research, Ainsworth (e. g., 1978) has identified dimensions of maternal behavior associated with qualitative differences in attachment ; these include her sensitivity, cooperation, acceptance, and accessibility. Securely attached infants tended to have mothers who were "appropriately" responsive to their cues, accepting and emotionally positive and sensitive during interaction, and accessible, Compared to mothers of anxiously attached infants. Main, Tolan and Tomasini (1979) were also interested in assessing the relationship between attachment patterns and maternal behavior. In their procedure, children were separated into securely, insecurely and intermediately attached groups on the basis of their reunion behaviors at 12 months of age. Later observations of mother-child free play behaviors (at 18 months) indicated that mothers of securely attached toddlers were more sensitive, accepting, and affectively expressive than mothers of insecurely attached infants, who were more angry. Londerville and Main (1981) examined maternal training methods and found that mothers of secure infants were warmer in tone when giving commands and more gentle in physical interventions than were mothers of insecure infants.

SOCIAL NETWORK MODEL

In contrast to the epigenetic view, the mother-child relationship can be seen as one of many constituting a complex social network into which the infant is enmeshed from birth (Lewis, 1979, 1982 ; Lewis *et al.*, 1975). In this formulation, different systems of relationship, while capable of mutual affect, remain relatively independent because of differences in underlying function. Lewis (1982) proposes that the social network can be defined schematically by a matrix in which different social objects (e. g., mother, father, peers, etc.) typically satisfy different social needs or functions (including protection, caregiving, nurturance, play, exploration/learning, affiliation, etc.). Out of the association of people and function comes the simultaneous, rather than sequential, development of varying types of relationships which affect different aspects of social functioning. Because parents serve different needs from peers, the social network model considers that difficulties in the mother-child relationship do not necessarily produce difficulties in the peer system, as long as the social matrix remains flexible (i.

e., includes multiple objects and relationships). Although the cultural context largely determines the flexibility of the social network—the number and nature of the people and the functions they perform—the family unit is the source of considerable individual variation. In most homes the mother becomes a primary attachment figure by providing nurturance, comfort and security, but in isolated families where the child only interacts with its mother in the first years of life she is also called upon to play the role of playmate and friend. In families where other social partners are available, infants tend to form multiple relationships with distinct behavioral manifestations (for example, infants tend to play more with fathers than with mothers, Lamb, 1977). By age 3, children show that they have made connections between certain social objects and functions. Edwards and Lewis (1979) found that children infer parents when they need help, agemates when they want to play, and older children for instruction.

The central importance of the peer system in the growth of social skills and competence has been recognized by Mead (1934), Harlow (e. g., 1966) and more recently, Lewis (e. g., 1975), and Hartup (1979), among others. Lewis et al. (1975) consider that "peers are not substitutes for infant-adult relationships, but rather are just as basic and maybe older in a phylogenetic sense' (p. 61) and just as vital for species survival. Work done in the last decade has established that infants in the first year of life are capable of complex and positive interactions with each other (e. g., Vincze, 1971; Eckerman & Whatley, 1977). Vandell, Wilson, and Buchanan (1980) reported that, even at six months of age, infant peers were able to engage in sequences where both participants acted socially, primarily by using vocalizations, touches, and smiles. Moreover, infants have been shown to prefer children to other social objects. Lewis and Brooks (1974) reported that infants as young as seven months responded differentially to the approach of adult and child strangers, with an adult eliciting only negative responses, while a child elicited positive ones. Eckerman et al. (1975) placed pairs of mother-child dyads in a play setting so that each child could freely interact with his mother, the other adult female, the other child, or several toys. The results clearly indicated that by age 2, social interaction exceeded solitary play and the partner chosen most often was the peer, not the mother (or other adult). The research of Mueller and his associates (e. g., Mueller & DeStefano, 1974; Mueller & Rich, 1976) with one-year-old boys interacting over a three month period, indicates that consistent peer contact is a significant factor in the development of interpersonal skills. Mueller and Lucas (1975) postulated a stage-related course through which initial "object -centered" encounters develop into true social interactions involving first complementary, then reciprocal, responding. Howes (1980) also found that peer interaction becomes more complex as a function of increased experience with peers during play. Repeated peer contact also appears to encourage the growth of some form of friendship as early as the first year of life. In the research of Lewis *et al.* (1975) infants showed differential behavior to familiar and unfamiliar peers: "friends" engaged in more proximal contact, imitative behavior, offering and sharing, and positive affect when compared to infant strangers. Rubenstein and Howes (1976) noted the formation of a positive relationship among toddlers who were acquainted compared to unacquainted peers in the same age range. Certainly by nursery school age, children are involved in meaning-

ful peer relationships (see Hartup, 1970). A recent study by Doyle, Connolly, and Rivest (1980) indicated that social play was more frequent, positive and successful peer-directed behavior more likely, and cognitive level of interactions more advanced, among pairs of familiar vs. unfamiliar three-year-olds. In fact, clinical evidence demonstrates that, in the absence of adults early in life, peers may become primary attachment figures (Freud & Dann, 1951). Furthermore, Furman, Rake and Hartup (1979) have reported that young children can act as "therapists," effectuating adequate peer behavior in socially withdrawn preschoolers.

There is ample evidence from studies of non-human primates that the peer system is crucial for the development and maintenance of all types of adult social behaviors (e. g., Harlow & Harlow, 1965; Goodall, 1974). Suomi and Harlow (1975) reported that the rhesus monkey infant, by its first month of life, begins to leave its mother for increasing periods of time. By four months of age, it displays extensive and complex social interaction patterns with agemates which clearly supersede its interaction with the mother; its predominant social activity is peer play. The importance of this peer play is demonstrated by the finding that monkeys reared with their mothers but deprived of any contact with agemates are unable to develop appropriate social repertoires. Not noly do they fail to play interactively (or to establish affectional relationships) when finally exposed to peers, they are also inadequate in sexual, aggressive, and maternal behavior as adults. However, maternally deprived monkeys, raised alone (Rosenblum, 1961) or with surrogates (Suomi & Harlow, 1974) display normal patterns of social development if they are permitted as little as two hours of peer contact daily. Suomi and Harlow (1975) have concluded that the development of peer relationships is "the most important cog in the socialization process of rhesus monkeys... the primary vehicle for shaping genetically acquired potential into competent and adaptive social activity." (p. 176)

A third line of research indicating the importance of early peer relationships for social-emotional development is the study of group-reared infants. Faigin (1958) presents descriptive material gleaned from observations of 19- to 38-month-old children on Israeli kibbutzim. Peer group pressure was cited as a factor in such achievements as toilet training and self-feeding, accomplished at an early age and without any apparent emotional ill effects. New members were quickly socialized to the group norm of sharing by group pressure, and the children settled disputes among themselves as they arose. However, these findings must remain suggestive at this time, because as Marcus (1971) noted, there has been little carefully controlled experimentation conducted in this area.

In addition to recognizing the importance of peers in social development, the social network model holds that there are significant differences between the mother-child and peer-child systems. Recent research indicates some of the areas in which these differences may arise: (1) The child receives different stimulation from parents and peers. Eckerman *et al.* (1975) conclude, after comparing peer- and mother-directed interactions is a free play situation, that peer stimulation is distinct (and especially attractive) to the child because (a) peers are more responsive, persistent and affectively involved in the child's play than adults; (b) peers' actions and reactions may

be more novel and interesting than adults; and (c) peers, because they are at the same developmental level, may act in ways that are more easily duplicated than adult behavior. Rubenstein and Howes (1976) stress the communality of interests and pleasures shared by young children "in such activities as jumping off a step 20 times and wearing pots as hats—activities which interest the most devoted mother to a far lesser extent" (p. 602).

(2) The child requires different skills to interact with agemates and adults. Mueller and DeStefano (1974) argue against the notion that the social skills learned while interacting with parents are useful in the peer milieu. They suggest that parent-child interaction does not involve equal partners—the adult controls, coordinates and molds the social exchange in a way immature peers cannot—so the skills learned with parents are not readily transferrable to peer interaction. Between agemates, the responsibility for forming and maintaining a social interchange is jointly shared. The child must therefore become familiar with the properties that define peers (for example, that they are spontaneously active and self-directed) and with the rules necessary to regulate interaction with them (for example, that they do not respond to crying as mothers do). Mueller's data indicate the importance of direct peer experience for such learning. Repeated contacts allow young children to discover the contingencies between their own actions and those of their peers, and to develop effective strategies for affecting their partners' behavior. Lewis and Rosenblum (1975) suggest that peers provide the opportunity for "paced, slowly elaborating enlargements of communicative, aggressive, defensive, and cooperative skills" (p. 6). Peers, because they are more closely matched, are more likely partners for practicing developing capacities than are parents.

(3) The child directs different behaviors to mothers and peers. Durfee and Lee (1973), studying the interpersonal strategies of children from six to 12 months of age, concluded that contacts between agemates are "quite different from infant-adult interactions occurring during the same age period" (p. 9). Lewis *et al.* (1975) studied 18-month-old children in a free play situation with mothers, unfamiliar female adults (i.e., other mothers) and unfamiliar peers. Their results suggested the presence of two separate patterns of interaction occurring with mothers and with peers. Interactions with mothers were characterized by proximity-maintaining behaviors, while those with peers consisted of focused attention and visual regard. The infants touched their mothers and looked at their peers for equal amounts of time; there was more social interaction in the form of toy play (take and offer toys) between peers than between children and their mothers. The strange adults, on the other hand, were almost ignored, receiving the least amount of both types of attention. Vandell (1980) also used a free play situation to observe infants with peers and mothers at 6, 9, and 12 months of age. She found that infants were significantly more likely to look at, and vocalize to, peers than mothers, but more likely to touch mothers than peers. There was no indication that children generalized behaviors to peers first shown with mothers or vice versa. In addition, certain variables, such as visit and sex effects, were found in relation to one system only (the mother-child). Mention has already been made of Lieberman's (1977) study of pre-schoolers, in which the mother-child relationship was related to

nonverbal measures of peer competence, while peer experience was related to verbal measures. Finally, Rubenstein and Howes (1976) found that toddlers used peers more frequently than mothers as models for imitation; and further, children's competency with toys was enhanced by the presence of peers as opposed to mothers.

Although the social network model argues against the notion that peer relations are determined by, or grow out of, the attachment relationship, nevertheless the mother-child dyad can affect the peer system. For example, there is evidence to suggest that mothers who are unable to promote secure attachment also curtail the opportunity for peer contact (Lieberman, 1977). The resultant lack of peer experience is demonstrated in the infant's inadequate peer behavior. That this may have sustained consequences for future peer relations is suggested by Mueller and Brenner's (1977) short-term longitudinal study which compared unacquainted vs. acquainted toddler playgroups. They found that, "besides being retarded in their peer relations, (unfamiliar) toddlers showed on tendency to catch up faster" (p. 858), remaining consistently behind in their ability to sustain social interchanges. Poor mothering which also involves some degree of abusiveness may lead to a general fearfulness of social objects, which, in turn, inhibits the infant from making contact with peers and developing appropriate interpersonal skills. The epigenetic view would hold that such generalized fear is the natural consequence of an impaired attachment relationship where the mother can not be used as a "secure base"; the social network model would suggest that generalization of fear is more likely to occur in infants who are socially isolated and not given the opportunity to discriminate among the behavior of multiple social objects. Although no research is directly available that speaks to this issue, studies of child maltreatment document the socially isolated existence of such families (e.g., Elmer, 1967; Young, 1964).

CHARACTERISTICS OF THE MALTREATED CHILD

Age. The most severe cases of child abuse and neglect are seen in children under three years of age (Blumbers, 1974; Elmer, 1977; Galdston, 1965; Green, 1978; Kempe et al., 1962; Walters, 1975). Although maltreatment has been documented through adolescence (Gelles, Straus, & Steinmetz, 1979; Gil, 1970) one-half to two-thirds of reported cases involve children under six years of age (Gil, 1970; Johnson & Morse, 1968). Many factors have been linked to this finding. Evidence of maltreatment in younger children may be more obvious or medically serious due to the higher levels of physical and developmental vulnerability in early life. In addition the preverbal child is unable to provide information to others about his life experiences or to significantly alter, through his own initiatives, the amount of contact he has with maltreating adults. Finally, maltreating parents are particularly associated with daily living with younger children, whose "normal" behaviors can include sustained crying, feeding disruptions, demands for attention, toilet-training accidents, temper tantrums, irritability, and unreasoned disobedience (Blumberg, 1974; Kempe & Kempe, 1978; Weston, 1974). Exacerbated by socioeconomic, marital, or personal stresses, the frustrations inherent in raising young children may be potent elicitors of abusive reactions from parents.

Sex. In those studies where sex differences have been found, boys are more often

reported to be targets of abuse than girls (Gelles et al., 1979; Gil, 1970; Green, 1978). This may be due to the fact that boys three months or younger sleep considerably less, and cry and fuss significantly more than girls (Moss, 1967). Other sex differences in behavior appearing in the preschool years that may have impact on children's manage ability and consequently on child maltreatment include differences in aggression and in compliance. Maccoby and Jacklin (1974) conclude that boys from as early as two years of age are more aggressive both physically and verbally, more likely to engage in bursts of strenuous physical activity, and less compliant to the demands and directions of adults than are girls. These behaviors may function directly as elicitors of parental violence or they may indirectly encourage child abuse by heightening parental stress and loss of control.

Birth History. The prenatal and neonatal histories of maltreated children suggest several factors that may contribute to child abuse and neglect. Although rates of illegitimacy do not appear to differentiate abused from nonabused children (Johnson & Morse, 1968), investigators agree that children resulting from unplanned or unwanted pregnancies are more likely to be maltreated (Blumberg, 1974; Gelles, 1973; Jacobs & Kent, 1977).

In addition, the incidence of prematurity found in samples of abused and neglected children, typically ranging from 22% to 30%, is significantly higher than the 7-8% average for the population at large (Elmer, 1977; Jacobs & Kent, 1977; Klein & Stern, 1971). Elmer (1977) reports that low-birth-weight infants are "known to be more difficult to care for than full-term babies" (p. 49) for a number of reasons: because of immature digestive systems, they eat less and must be fed more frequently; and because of immature nervous systems, they tend to be more irritable and to cry more often. That excessive crying may be extremely stressful to adults is suggested by Frodi, Lamb, Leavitt, and Donovan (1978). They presented parents with six-minute videotapes of crying and smiling infants and found that infantile crying elicited significant increases in autonomic arousal and negative feelings such as anger, distress and discomfort in the adults. In addition to problems in management, low birth weight increases the likelihood of neonatal medical complications. Prematurity continues to be associated with the delayed development of intellectual, verbal, social, and physical skills and the increased likelihood of behavior problems such as hyperactivity through infancy and early childhood (Caputo & Mandell, 1970; Elmer, 1977).

Beside its effects on the appearance and behaviors of the neonate, prematurity has ramifications for the earliest interaction between mother and child because it necessitates extended periods of mother-infant separation. Evidence from both animal and human studies that early postpartum separation may in deed produce disturbances in the later development of parent-child attachment has been reported in a number of instances (Kennell, Gordon, & Klaus, 1970; Liefer, Lederman, Barnett, & Williams, 1972). After their review of research on the premature infant, Parke and Collmer (1975) conclude that "the burden, stress, and disappointment associated with the birth and care of a low birth weight infant could increase the probability of abuse" (p. 552).

Individual Differences. There is evidence from a variety of sources that the maltreated child is often developmentally or physically different from siblings and peers. It is unclear whether these differences are a significant cause, rather than largely the result, of child abuse and neglect. Gil (1970) reported that during the year preceding the abusive incident, 29% of abused children showed disturbances in social interaction and general functioning, 14% displayed physical handicaps of some degree, and an additional 8% revealed impairments in intellectual functioning. Similarly, Johnson and Morse (1968) reported that 70% of their samples of abused, inner-city children had shown physical or developmental deviation prior to their injury. These findings strongly suggest that deviation in the child is a precursor to maltreatment; and in some cases, where congenital defects, deformities, or other inborn impairments are present from birth, it is clearly so (Blumberg, 1974; Green *et al.*, 1974). However, in most instances, the etiology of the deviation is not obvious, and most probably involves the interplay of both hereditary and environmental factors.

Research on neonates and infants indicates that, even within normal limits, there are large hereditary individual differences in such temperamental qualities as activity level, adaptability, irritability, soothability, and preferred modes of interaction (e. g., Carey & McDevitt, 1978; Korner, 1974; Moss, 1967). It appears that those infants who are more difficult to care for—who are colicky, irritable, demanding, poor feeders, resistive to physical contact, less adaptable, and hard to satisfy—run an increased risk of being maltreated (Blumberg, 1974; Green *et al.*, 1974). The relationship between difficulty in management and child maltreatment continues through childhood, with extremely active, restless, and aggressive children reported to be more vulnerable to abuse and neglect (Dubanoski, Evans, & Higuchi, 1978; Green *et al.*, 1974; Johnson & Morse, 1968). Several investigators (e. g., Elmer, 1977; Green et al., 1974) conclude that certain otherwise normal characteristics of the child seem to hold special significance and triggering potential for the abusive parent; these characteristics include biologically-determined attributes (e. g., the sex or ordinal position of the child), particular age-appropriate behaviors (e. g., sexual behavior), selected physical trait (e. g., facial resemblance to the parent), or physical unattractiveness.

Regardless of the source of the behaviors, abused and neglected children have been described as whining, fussy, listless, chronically crying, restless, demanding, stubborn, resistive, unresponsive, pallid, sickly, emaciated, panicky, fearful, and unsmiling (Johnson & Morse, 1968); apathetic, unappealing (Galdston, 1965); particularly prone to develop violent behavior as a character trait (Gabdston, 1971); shy, hypervigilant, either highly compliant or extremely aggressive, untrusting, withdrawn, severely depressed, negative, hyperactive (Kempe & Kempe, 1978); frequently sad, dejected, self-deprecatory, self-destructive, low in self-esteem and frustration tolerance, engaging in provocative, belligerent, and limit-testing behaviors which elicit beatings and punishment from parents, other adults, and peers (Green, 1978); and anxious, hostile, and low in empathy (Feshbach, 1973). In addition, Kempe and Kempe (1978) estimate that 20% to 50% of abused children are significantly neurologically damaged so that they lag behind age mates in language development and the attainment of physical skills. Other investigators have noted the higher incidence of mental retardation,

cognitive deficits, and aberrant or defective speech patterns (Elmer, 1977; Green, 1978). By school age, the number of abused and neglected children placed in grades below their age level, in mental institutions, and in special education classes for the learning disabled, emotionally disturbed, or mentally retarded is noteworthy (Gil, 1970; Green, 1978; Kline, 1977).

However, the same serious methodological criticisms that can be made of the research aimed at isolating the distinctive personality characteristics of abusive parents apply with even greater strength to these studies of maltreated children. The lack of representative samples and the failure to use control or comparison groups or to conduct statistical tests of significance on observed differences render the reported findings tentative and inconclusive; when, in fact, research is properly designed, the results are often remarkably at variance with the majority of the literature. Elmer (1977), in a follow-up study of traumatized children, compared abused subjects with a comparison group of accident children and with a control group of subjects with no history of trauma; subjects were matched with regard to age, sex, race, socioeconomic class, language development, self-concept, intellectual functioning, and various personality characteristics. She found that "when pertinent demographic variables were taken into account, the abused children differed significantly from their peers only in weight and in some measures of impulsivity. Each of these differences was in relation to *either* [control or accident children, respectively], not to both groups, a fact that tends to weaken the results" (p. 107). The majority of all the children studied showed some degree of disturbance, but this was evenly distributed across the groups. Thus, 70% of the entire sample experienced speech problems and 39% were doing poorly in school; in addition, all the children looked sad, fearful, and anxious. The author concluded that "lower class membership, with the stresses produced by grossly insufficient income, poor housing, poor health, etc., may be as potent as abuse for the subsequent development of the child" (pp. 108-109).

The review indicates several important factors which can be summarized as follows: (1) economically disadvantaged children are more maltreated than those from higher social classes; (2) maltreated children are more likely to have some individual difference which marks them off from other children—for example, they are premature; and (3) maltreating parents were likely themselves to have been maltreated.

One way to examine the competing models of social development is to examine the social relationship of abused/neglected and normal infants. If the epigenetic view is correct, poor peer and caregiver relationships will be the consequence of the poor maternal relationship. On the other hand, if the social network model is correct, abused/neglected infants should not differ from normal infants in regard to these other relationships, in particular, in regard to their peer relationships.

METHOD OF STUDY

In the present study, a naturally occurring separation took place when the mother dropped her child off at the center in the morning (departure) and was no longer present (separation). Similarly, a natural reunion occurred when the mother returned to the center to pick her child up at the end of the day (reunion). While maintain-

ing their salient features, these conditions differ from traditional laboratory situations in a number of important ways. First, day care based departures and reunions were separated by a full day; the targeted child was never left alone in a room; and maternal behavior was not experimentally manipulated in any way. These procedures allowed for the assessment of children's separation and reunion behaviors which were less contaminated by extraneous stress factors. Second, the adult stranger with whom the child is left in laboratory procedures was replaced by the familiar caregiver in the day care setting. It was thus possible to study children's responses to adults other than their mothers without the issue of "strangeness" confounding results. Finally, in the present research, different types of social partners were present in the playroom at the same time. This special feature of the day care setting permitted a comparison of the concurrent social relations of young children with their mothers, caregivers and peers. The present research studied the peer behavior of young children in the context of a full-time day care center. In addition to being familiar and natural environments for the children who attend them, day care centers provide infants with the opportunity to interact with peers on a regular basis without their mothers. In order to ensure familiarization with the caregivers and peer group, and adjustment to the center's routines, children were observed only after prior attendance of at least two months. Children's naturally occurring behaviors were sampled at intervals throughout the day during free and structured play.

SUBJECTS

The 26 children who served as subjects in the present study attended a full-day day care center in Trenton, New Jersey. Since eligibility for this urban center was based upon economic need as defined by Title XX of the Federal Social Security Act, all subjects came from families in the lower socioeconomic categories who lived in the immediate vicinity of the center. Most of the children (88%) were from minority groups, none were physically disabled, and all were living with their natural mothers. This was the first day care experience for all of the children.

Twelve of the children (46% of the sample) had been identified by the New Jersey Division of Youth and Family Services as maltreated and in need of day care placement. For the present sample, this assignment was based largely on the documentation of chronic and severe maternal neglect. Although some of these children also experienced frequent or inappropriate physical punishment, the occurrence of the most extreme forms of physical abuse had not been established. The 14 children who served as the control group (54% of the sample) had no reported history of either abuse of neglect; their mothers had voluntarily enrolled them in day care.

The children in both groups ranged in age from 8 to 32 months. At the center, they were separated into two classes on the basis of age; those children under 18 months were in the infant room (N=10; Mean Age=12.7), while those over 18 months were in the toddler room (N=16; Mean=26.0). Both rooms were large, modern, and equipped with developmentally appropriate toys and furnishings. Three female caregivers staffed each room at any given time; each had received special training in early childhood education and most were minority group members. The child to caregiver

ratio was about 1 : 3 in the infant room, and about 1 : 5 in the toddler room.

A check was made for differences between the maltreated and control groups on a number of salient variables. In terms of child-related characteristics, the groups did not differ significantly in the mean age of their members. Since the day care center was an ongoing facility, many of the children had been enrolled for considerably longer periods of time than the minimum criterion of two months' attendance required by the study. The groups were not found to differ in the mean length of time members attended day care. There was also no significant difference in the sex composition of the groups. For this reason, and because preliminary examination revealed no major sex differences in the behaviors under study, the data from both sexes were combined for all analyses. Finally, the percentage of maltreated and control children with siblings at home was not found to differ significantly. The maltreated group averaged two children per family, the control group 1.86.

No significant differences were found in the percentage of maltreating and control mothers who were over 21 years, who were married, whose family income was at or below the poverty level, and who worked outside the home. Thus, except for their maltreatment histories, the groups were quite similar.

PROCEDURE

All data were collected by observation of the children interacting with their mothers, caregivers, and peers in the context of the day care center. Permission to observe her child in the classroom was obtained from each mother, and there were no mothers who refused to participate.

Frequent visits were made to the center by the observers before the data collection began. During these visits, mothers and caregivers were cautioned against interacting with observers, and such overtures by the children were gently ignored. During this period the scoring procedures were clarified and refined, and observers became proficient and reliable in their use.

To record observations, the observer positioned herself as unobtrusively as possible with the freedom to follow subjects when necessary. By the time actual data collection began, the children, mothers and caregivers were accustomed to the presence of the observers and were able to ignore them for the most part.

Four different conditions commonly used in the experimental study of young children's social relationships were investigated in the present research. Because of our interest in studying these conditions as they occurred naturally, certain modifications in the usual experimental paradigms were necessary. These conditions, as they occurred in the day care center, were :

Departure Conditions

Observation began with the entrance of each mother-child pair into the playroom and continued until the mother took her leave. Mothers received no special instructions about how to behave but were told to follow their usual routines. In this condition, mothers and their children had the opportunity to interact with each other as well as with the caregivers and other children present. To ensure this, no mother-child

dyad was observed when they were the first arrivals of the day. Both maternal and child behaviors were recorded during departure; these will be considered in detail later. For each target pair a total of three departure episodes on non-consecutive days were recorded. Data analyses were conducted on the sums of the values over the three episodes.

Separation Condition

Each child was subsequently observed for the two-minute period immediately following maternal departure. In this period children were free to interact with caregivers and peers, to search for mothers, and to play with toys, etc. Observations from three separation episodes were recorded for each child.

Reunion Condition

A naturally occurring reunion took place when the mothers returned at the end of the day to pick up their children. Observation began when the target child first took notice of the mother, and ended when the pair left the playroom. Both maternal and child behaviors were recorded during reunion. A total of three reunion episodes, occurring on nonconsecutive days, were obtained for each pair, with the additional constraint that departures and reunions were not observed on the same day for any pair.

Free Play Condition

Young children's social and nonsocial behaviors in the day care center were recorded during the free play condition. Each subject was observed for twelve five-minute periods for a total of 60 minutes. Observation periods were randomly assigned with the following constraints: for each child, data collection occurred across different days and different situations (e.g., unstructured play, play in teacher-organized activities, etc.); and a target child was observed at its assigned time as long as the child was in a situation where social contact was possible, whether or not such contact actually occurred. This permitted an investigation of both the quantity and nature of spontaneous social behavior.

DATA COLLECTION

Observers were instructed to record the target subject's behaviors in as much detail as possible. For this purpose, time-locked behavioral check sheets were constructed which listed the specific behaviors applicable to each condition to be observed. The check-sheets were divided into six 10-second time periods, representing one minute per sheet. A portable tape recorder with an earplug attachment beeped off the 10-second intervals for the observer.

Behaviors were scored as they occurred rather than following a discrete observation period. Each instance of observed behavior was recorded either by a check to designate its occurrence or by a symbol to specify its social referent, "p" for peer, "m" for mother, and "c" for caregiver (for example, "p" in touch row when child touches peer). Behaviors not specifically listed on the sheet were noted in a space so designated. More than one kind of response could be scored (e.g., smile and touch peer) in

each 10-second period, but only one instance of a given behavior could be recorded for each period.

Using this procedure, about 30 child behaviors and 20 maternal behaviors were distinguished and recorded. For each condition, composite categories of behavior were created for subsequent data analyses, since others have found these broad categories more useful than single behaviors (Coates & Lewis, 1980; Vandell, 1979).

Length of Departure and Reunion

Although the total amount of time a child was observed in the separation and free play conditions was fixed by experimental design (i.g., minutes for three episodes in separation, 60 minutes in total for free play), the time of departure and reunion varied in each episode for each mother-child pair. For departure, episodes lasted on the average less than two minutes (X=115 seconds), but the range was from 37 to 227 seconds per pair. It was decided that the last 30 seconds (i.e., the final three 10-second periods) prior to mother's exit from the playroom would be the time period in which to assess the departure behaviors of both mother and child. Considerations of both a conceptual and practical nature led to the selection of this time frame. First, the primary interest of the present research is in studying one type of mother-child interaction: the response of mothers and children to the specific task of leaving each other. This was felt to be most clearly delineated in the period *immediately* prior to maternal departure. Second, although no dyads separated in less time, 23% of the mothers stayed with their children no longer than 30 seconds in at least one departure episode. This interval became the lowest common denominator which could be met by all mother-child pairs in all episodes. That this empirically-derived interval has validity in assessing departure styles is supported by recent research. A study by Weinraub and Lewis (1977) found that, when they were encouraged to respond naturally, departing mothers took a mean of 23.4 seconds to leave their young children in a playroom.

Reunion episodes also averaged less than two minutes (X=111 seconds), ranging from 32 to 350 seconds for individual mother-child pairs. In order to assess *only* reunion behaviors, the first 30 seconds following the mother's perceived (by the child) entry into her child's room was the interval chosen for data analysis. Although no pairs left the playroom in less time, 31% stayed no longer than 30 seconds from the beginning of the defined reunion period during at least one episode. As in the departure condition, 30 seconds was also the longest interval which could be met by all reuniting pairs in all episodes.

MATERNAL BEHAVIOR IN DEPARTURE

Maltreatment as a Variable

The attachment literature suggests a relationship between antecedent maternal behavior and the quality of her child's attachment. It has been found in general that mothers of insecure children are less responsive and accessible and more rejecting and emotionally negative than mothers of securely attached children (e.g., Ainsworth *et al.*, 1978; Main *et al.*, 1979). Several recent studies have specifically investigated the kinds of behavior shown by maltreating mothers. Hyman and Parr (1978) observed abusive

and matched control mothers interacting with their infants in the Strange Situation paradigm. Compared to controls, abusing mothers less often responded to or elicited a response from their infants, so that their interactions were generally less reciprocal. Burgess and Conger (1978) observed abusive, neglecting, and control families while performing experimentally-created tasks in their homes. The results indicated that abusive and neglecting families differed significantly in patterns of interaction from control families, these differences largely determined by maternal behaviors. Overall, neglecting parents were the most negative and least positive in their family interactions across the three groups; abusive parents, compared with controls, had less contact both physically and verbally with their children and relatively more aversive interactions. The behaviors of mothers were particularly significant. Although their rates of physical and verbal responding to their children were similar, neglecting mothers directed substantially more negative, and less positive, contacts to their children than did control mothers. Abusing mothers, on the other hand, had less verbal, as well as less positive, interactions with their children than did controls.

In the present study, maternal behavior toward her child prior to her leaving the daycare center showed marked differences as a function of whether or not the mother was a maltreating parent. A multivariate analysis of variance indicated a significant difference in the overall responses of maltreating and control mothers, $F(8, 15)=2.91$, $p \leq .04$.

Group differences were apparent in a number of behaviors; maltreating mothers tended to spend less time staying near their children, $F(1, 22)=3.96$, $p \leq .06$. Compared to 7% of control mothers, 33% of maltreating mothers were never near their children at any time during departure, $X^2(1)=2.85$, $p \leq .09$. Although levels of overall verbalization were comparable, the groups differed in the content of their speech. Fewer maltreating mothers gave information to their children, $X^2(1)=2.73$, $p \leq .10$, and their remarks were less directly focused on the current situation. Similarly, they less often informed their children that they were leaving, by waving and/or saying bye, $F(1, 22)=6.01$, $p \leq .03$. While 71% of control mothers engaged in these behaviors, only 25% of maltreating mothers did so, $x^2(1)=5.57$, $p \leq .02$.

In terms of emotional tone, maltreating mothers were more aversive than their control counterparts due to the combination of higher levels of negative, and lower levels of positive interactions with their children. Maltreating mothers directed more specifically negative behaviors to their children than did control mothers, $F(1, 22)=3.71$, $p \leq .07$. *Only* maltreating mothers (25%) were observed to scold or ignore their children, $X^2(1)=3.96$, $p \leq .05$.

In addition, maltreating mothers displayed fewer types of positive behavior to their children. In considering separately the five behaviors making up the category of positive maternal behavior, it was found that mothers did not differ in soothing or kissing their children. However, no maltreating mothers smiled, praised, or played with their youngsters, while 29% of control mothers did so, $x^2(1)=3.86$, $p \leq .05$.

Interestingly, caretaking behaviors showed an age x maltreatment interaction effect, $F(1, 22)=5.44$, $p \leq .03$; of all groups, maltreating mothers of younger children engaged in the most caretaking activities. Rather than reflecting greater concern for

their infants, however, this finding is a further indication of the maltreating mothers' greater neglect. Shcool policy requires that each child be dressed and cleanly diapered before being left at the center in the morning. While control mothers routinely carried out these activities at home, maltreating mothers did not, and were compelled to perform them in the daycare center.

In summary, maltreating mothers were distinguishable from controls because of their higher levels of negative responses and their lower levels of proximal contact, positive behaviors and affect, and leave-taking behavior. These findings suggest that: (1) the two groups—control and maltreating mothers—determined by the State Division of Youth and Family Services, reflect real differences in maternal behavior; and (2) maltreatment affects less obvious aspects of a mother's behavior, including the way in which she handles natural separations from her child.

CHILDREN'S BEHAVIOR TO MOTHERS IN DEPARTURE

Maltreatment as a Variable

The departure condition provided the opportunity to study maltreated and normally reared children with their mothers in the context of an impending separation. Although no significant maltreatment effect was found in the MANOVA conducted on children's overall behavior, maltreated and control children differed in a number of specific behaviors. Maltreated children looked significantly less at their mothers, $F(1, 22)=5.60$, $p\leq .03$, and tended to stay further away from them, $F(1, 22)=4.08$, $p\leq .06$, than did their control counterparts. Fewer of the children who were maltreated stayed near their mothers at any point during the departure interval, $x^2(1)=2.85$, $p\leq .09$. Toy play, an activity which reduced involvement with the mother, showed a significant age x maltreatment interaction effect, $F(1, 22)=4.84$, $p\leq .04$. With increasing age, maltreated children focused more attention on toys than did control children whose toy play in the presence of mothers decreased with age. Maltreated children were also less likely to display any form of "farewell" behavior in response to their mothers' leaving, $F(1, 22)=3.51$, $p\leq .08$.

Childrdn's affective responses during departure were also sensitive to the effects of maternal maltreatment. As groups, maltreated and control children showed similar overall levels of positive and of negative affect. However, when these categories were combined, it was found that fewer of the children who were maltreated expressed any kind of affect in the presence of their mothers; while 57% of control children smiled, laughed, fretted, cried, or showed protest/anger during departure, only 25% of maltreated children did so, $x^2(1)=2.79$, $p\leq .10$. Furthermore, group differences emerged in the patterning of affective behavior. In the control group, no child displayed *both* positive and negative affect, while in the maltreated group, children who were emotionally reactive showed both types of affect, $x^2(1)=7.2$, $p\leq .01$. Thus, control children were more affectively consistent as individuals, while maltreated children appeared more ambivalent.

Age as a Variable

A MANOVA indicated that younger and older children did not differ significantly in their overall behavior to mothers. Similarly, univariate ANOVAs showed no significant age changes in the occurrence of proximity-related behaviors (staying near or physically contacting mother), distal behaviors (looking at or vocalizing to mother), and resposes to mother's leaving (hugging/kissing or "farewell behaviors".)

CHILDREN'S BEHAVIOR TO CAREGIVERS IN DEPARTURE

Maltreatment as a Variable

Clinical studies in the area of child abuse and neglect have often reported that children develop obvious impairments in their social relationships, and multiple behavioral problems with teachers and peers, as a direct consequence of maltreatment by mothers. However, recent experimental research focusing on the maltreated child's social interactions within the family has indicated that the effects of a maltreating mother-child relationship do not generalize to children's respenses to fathers and siblings (Burgess & Conger, 1978). The data from the present research extend these preliminary findings from family-based studies to children's interactions with secondary caregivers and peers.

Children's first meeting of the day with their caregivers occurred as mothers were preparing to depart. In general, maltreated children were indistinguishable from controls: a MANOVA failed to find a significant group difference in overall behavior to caregivers, and analyses of separate categories and behaviors produced similar results. However, when the categories of staying near and physical contact were combined, it was found that maltreated children avoided close contact with caregivers, at least in their initial encounter of the day. Compared to 29% of controls, no maltreated children were observed to stay near and/or touch their caregivers, $x^2(1)=3.86$, $p \leq .05$.

CHILDREN'S BEHAVIOR TO PEERS IN DEPARTURE

Maltreatment as a Variable

Children's responses to other children did not differ markedly as a function of whether or not they were maltreated by their mothers. It was found that maltreated children did not differ significantly from controls on any of the proximal, distal, or play behaviors shown to peers. A MANOVA performed on all categories of behavior found no difference between the groups in overall peer behavior. Thus, while maternal maltreatment affected children's behaviors to mothers during departure episodes, it did not affect children's peer behaviors.

Maltreatment and Social Behavior

The effects of maltreatment on overall social behavior, and on patterns of interaction across social objects were examined.

The first issue to be considered is whether maternal maltreatment affected children's overall sociability in the playroom. When a MANOVA was performed on all categories of behaviors, no significant difference between the groups in their overall sociability was found. In addition, ANOVAs failed to find significant group differences

for any of the separate behavioral categories. There was, however, a tendency for control children to stay near others more than did maltreated children, $F(1, 22) = 3.29$, $p \leq .09$.

However, maltreatment was found to affect the patterning of this sociability, when the relative responses to mothers, caregivers and peers were compared. Figure 1 shows the sum of the mean frequencies of all responses directed to each of the social objects. It may be seen from the figure that, in general, maltreated children engaged in less contact with mothers but had more contact with peers when compared to control children, who showed the reverse pattern of interaction. Caregivers received the same overall attention from the two groups. A significant group x social object interaction effect was found when all social behaviors were considered, $F(2, 46) = 3.46$, $p \leq .05$.

Although the overall amount of socially-directed visual regard was not significantly different for the two groups, maltreated children looked more at peers than mothers, while controls looked more at mothers than peers, $F(2, 46) = 2.78$, $p \leq .07$. A similar pattern emerged for children's most common proximal behavior, staying near others. Maltreated children tended to stay near mothers less but near peers more than did their control counterparts, $F(2, 46) = 2.46$, $p \leq .09$.

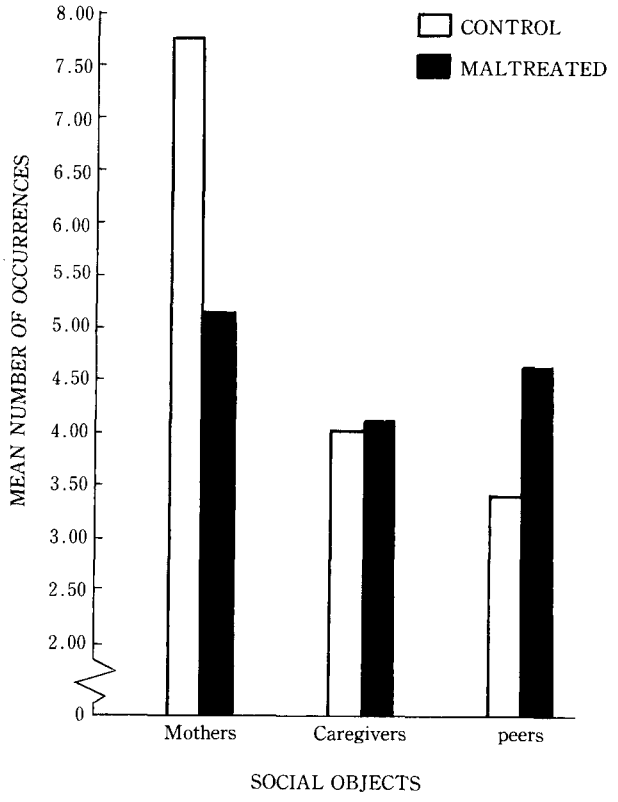

FIGURE 1 Total mean number of occurrences of all behavior shown by control and maltreated children to different social objects in departure.

CHILDREN'S FREE PLAY BEHAVIOR

As our earlier review of the maltreatment literature indicated, systematic observations of the actual behavior of abused and neglected children has rarely been done. Available findings, drawn largely from clinical reports and case studies, have tended to be inferential in nature and globally descriptive (e. g., Galdston, 1971; Green, 1978). With rare exception, these studies have reported impairments in the social behavior of maltreated children which run the gamut from hyperaggressive to unresponsive to extremely fearful reactions. Yet without the direct experimental analysis of social interaction, or the use of control groups for comparison, the generalizability of these findings remains unknown.

More reliable investigations in this area have, in fact, yielded discrepant results. For example, George and Main (1979) compared the social interactions of 10 abused toddlers in their special daycare centers with those of 10 control children attending other centers. Although both groups approached peers equally, the abused toddlers showed significantly more avoidant, approach-avoidant, and aggressive behaviors to other children. Group differences were even more pronounced for behaviors directed to caregivers. These results are quite different from the findings of Burgess and Conger (1978), who compared social interaction among the members of abusive, neglecting and control families. Despite more negative parent-child interaction in the maltreating homes, no remarkable behavioral differences were found among the children studied, and patterns of sibling interaction did not differ significantly over the three family types. These data suggest that child maltreatment, while affecting parent-child behaviors directly, may not disturb the interactions among other family members. Primate research has yielded similar findings. Seay, Alexander, and Harlow (1964) compared the peer behaviors of normal, ferally-reared monkeys with those of monkeys raised by mothers who had subjected them to life-threatening levels of maltreatment. In general, the infant-infant social interactions were remarkably similar in the abused and normal groups, with both groups developing and maintaining effective contact and play patterns. The authors concluded that "inadequate or abusive mothering was a variable of little importance in the long-term development of the infant-infant social interactions." (p. 351)

In our previous examination of children's behavior during maternal departures and reunions, a general orientation to the mothers emerged as the overriding social response. This necessarily limited interaction with other partners. During free play episodes, children could be observed without their mothers and the stress of separation in a familiar setting filled with peers, caregivers and toys. It is important to emphasize that the 60 minutes of free play data were collected only during periods in which the target child was free to initiate or participate in activities and interactions of his/her own choice. Specifically excluded from consideration were those intervals when caretaking tasks were being performed (e. g., diaper changing, feeding), since these routines were almost never initiated by the child. Our focus was, therefore, on the child's self-initiated behaviors as they occurred within a social context.

In all, approximately 35 behaviors were recorded. These included the kinds of contact, play, and affective responses that other investigators have observed in free

play contexts (e. g., Bronson, 1981 ; Eckerman *et al.*, 1975 ; Lewis *et al.*, 1975 ; Mueller & Brenner, 1977). To assess the effects of maternal maltreatment and children's age, behaviors were analyzed both separately and in composite categories. We begin with an examination of children's affect, movement, and toy play, and then consider their caregiver- and peer-directed behaviors. Following this, a general discussion of the effects of social object on children's free play behavior is presented.

CHILDREN'S AFFECT, MOVEMENT, TOY PLAY IN FREE PLAY

Maltreatment as a Variable

Children's playroom behaviors during separation from their mothers were sensitive to the effects of maltreatment. As reported previously, during the first two minutes without their mothers, maltreated children showed less affect and more behavior that was not socially oriented (e. g., toy play, movement) than control children. That these group differences indicate differential reactions to maternal loss rather than the long-term effects of maltreatment on these behavioral systems in suggested by the children's subsequent free play behaviors.

There were no significant differences in any of these behaviors as a function of maltreatment, in terms of either frequency of occurrence or percentage of children so responding. A MANOVA on these categories failed to indicate an overall difference between maltreated and control groups.

Age as a Variable

There were age differences in children's playroom behaviors during free play episodes. A MANOVA conducted on the behavioral categories indicated a significant difference between younger and older children, $F(6, 17)=3.56$, $p \leq .02$. Older children engaged in more gross motor activity than infants, $F(1, 22)=8.48$, $p \leq .008$, although toy play did not increase in frequency with age. Overall amounts of negative and positive affect showed no age differences. However, when the four behaviors in the negative affect category were considered separately, it was found that younger children fretted, $F(1, 22)=6.27$, $p \leq .03$, and cried, $F(1, 22)=7.13$, $p \leq .02$ more than older children, while older children showed more anger than the infants, $F(1, 22)=15.00$, $p \leq .001$.

CHILDREN'S BEHAVIOR TO PEERS IN FREE PLAY

Maltreatment as a Variable

Of particular interest for the present research were differences in the kinds and quantity of freely occurring peer behaviors shown by maltreated and control children.

To compare the peer behaviors of maltreated and control children, analyses were performed on each of the categories of free play behavior, and within each category on the individual behaviors. Subsequently a MANOVA was conducted on all seven categories in order to consider overall response to peers. The most striking finding from all these analyses was the lack of difference in the peer behavior of maltreated and control children. No significant maltreatment effects were revealed in the overall MANOVA or in the ANOVAs on the categories of behavior. Thus, maltreated children did not differ from controls in staying near, physically contacting, looking at, or

vocalizing to their peers.

The groups also did not differ in their overall positive or negative peer behavior. However, maltreatment effects were found in several of the individual behaviors within these categories. In terms of negative behavior, children who were maltreated more often resisted agemates' attempts to take their toys away, $F(1, 22)=11.88$, $p\leq.003$. But this effect was primarily due to the behavior of younger groups, as indicated by a significant age x group interaction effect, $F(1, 22)=8.25$, $p\leq.10$.

Thus, the two younger groups showed the most extreme difference (.50 for younger control subjects vs. 3.25 for younger maltreated subjects) ; in the older groups, levels of resisting takes were similar ($X=1.63$ for older control subjects vs. 1.88 for older maltreated subjects).

In their positive behaviors, control children tended to share more, $F(1, 22)=3.95$, $p\leq.06$, but the percentages of children in each group who did so were comparable (64% for the maltreated group vs. 75% for controls). Control children also showed more imitating, playing with, and following, while maltreated children showed more offering, accepting, and showing objects ; none of these differences were significant.

Age as a Variable

Responses to peers during free play were markedly affected by children's age. A MANOVA conducted on all categories indicated a significant difference between younger and older children, $F(7, 16)=5.34$, $p\leq.003$. In general, with increasing age, social behaviors directed towards peers became more common.

Older children stayed near peers more, $F(1, 22)=12.44$, $p\leq.002$, and also tended to look at them more, $F(1, 22)=3.82$, $p\leq.06$, than did younger children. Vocalizing became more social with development. Speech directed to other children increased markedly with age, both in terms of number of occurrences, $F(1, 22)=7.44$, $p\leq.02$, and number of children showing the behavior, $x^2(1)=5.43$, $p\leq.02$, while vocalizing without a clear social referent did not increase significantly with age.

Despite the expanded degree of peer contact demonstrated by older children, negative beahvior did not increase with age. No group differences were found for any of the individual behaviors or for the composite category of negative behaviors shown to peers.

What did show a dramatic age-related increase, occurring almost eight times more often in the older group, was the positive behavior category, $F(1, 22)=26.01$, $p\leq.001$. Particular behaviors were found most likely to change during the first three years of life. Playing with other children (e. g., in fantasy play, doll play, building together with blocks, etc.) jumped from a mean occurrence of 1.70 in the younger group to 55.19 in the older group, $F(1, 22)=24.38$, $p\leq.0001$, becoming the most frequent form of positive peer behavior in the playroom. Almost 88% of older children, compared to 40% of younger children, engaged in some type of play with peers, $x^2(1)=7.85$, $p\leq.01$. Older children also imitated, $F(1, 22)=8.50$, $p\leq.01$, and followed, $F(1, 22)=11.62$, $p\leq.003$, their peers more than did infants. In terms of group percentages, twice as many older children imitated peers, $x^2(1)=4.50$, $p\leq.05$, and eight times as many followed them, $x^2(1)=15.35$, $p\leq.001$. While offering toys to agemates occurred

only slightly (and non-significantly) more often in the older group, actively accepting such offers was almost seven times more frequent among older children, $F(1, 22) = 5.78$, $p \leq .025$. While 56% of older children accepted toys from their peers, only 10% of infants did so, $x^2(1) = 5.38$, $p \leq .03$.

Two forms of peer interaction showed no pronounced age effects. Showing something to another child remained a low frequency behavior at all ages. Sharing with another child showed only a small and non-significant increase with age.

In summary, there were definite developmental changes in peer sociability during the first three years of life. Children were more likely to stay near, look at, and vocalize directly to peers as they grew older. The positive peer behaviors (of imitating, following, playing with and accepting toys from agemates) also increased reliably with age. Conversely, negative peer contacts, as seen in hitting, taking toys from, pushing, etc., did not become more frequent with age.

CHILDREN'S BEHAVIOR TO CAREGIVERS IN FREE PLAY

Maltreatment as a Variable

In general, maltreatment by mothers did not strongly affect the way children responded to their caregivers in free play.

A MANOVA performed on all categories of behavior indicated no difference in the overall behavior of maltreated and control children.

Significant group differences were found in particular categories of behavior. Following a trend established during their initial contacts of the day, maltreated children continued to engage in less physical contact with their caregivers during free play, $F(1, 22) = 4.79$, $p \leq .05$. However, staying near caregivers showed a group x age interaction effect; that is, with age, maltreated children were somewhat more likely to stay near their caregivers, while this behavior diminished in control groups, $F(1, 22) = 3.74$, $p \leq .07$. Finally, children who were maltreated tended to look at their caregivers more $F(1, 22) = 3.94$, $p \leq .06$.

Age as a Variable

As with their peer behavior, children's behaviors to caregivers during free play differed as a function of their age group. A MANOVA on all categories indicated a significant difference between younger and older children, $F(7, 16) = 16.64$, $p \leq .0001$.

Although staying near caregivers showed no age effects, younger children engaged in more direct physical contact with caregivers, $F(1, 22) = 37.79$, $p \leq .001$, and tended to hug and kiss them more, $F(1, 22) = 3.22$, $p \leq .09$. Older children, on the other hand, vocalized to their caregivers more often, $F(1, 22) = 5.32$, $p \leq .0.4$.

There was no marked difference in the overall amount of positive behavior the older and younger children directed to caregivers, although this category increased dramatically with age when the focus was peers. However, two particular positive behaviors showed significant age effects. Compared to infants, older children followed caregivers more, $F(1, 22) = 10.40$, $p \leq .004$, and were more likely to imitate them; $x^2(1) = 10.12$, $p \leq .001$.

In summary, there was a significant change with age in children's overall behav-

ior toward caregivers during free play. In particular, while infants engaged in more physical contact, older children spoke more to caregivers. In their positive contacts, Younger children hugged and kissed caregivers more often, while older children imitated and followed them more often.

COMPARISON OF SOCIAL BEHAVIORS DURING FREE PLAY

Social Object as a Variable

Figure 2 shows the mean number of occurrences of the social responses directed to caregivers and peers by the entire sample of children during free play episodes. It may be seen that children's preference for peers over caregivers in this condition was marked. Repeated measures analysis of variance performed on each variable indicated that children stayed near, $F(1, 25)=182.97$, $p \leq .0001$, looked at, $F(1, 25)=21.04$, $p \leq .0001$, engaged in positive behavior, $F(1, 25)=18.34$, $p \leq .0002$, and negative behavior, $F(1, 25)=78.39$, $p \leq .0001$, more with peers than caregivers.

Maltreatment and Social Behavior

To assess the impact of maternal maltreatment on overall sociability in free play, composite mean frequencies were obtained for each response category. A MANOVA performed on all categories indicated no difference in the overall sociability of maltreat-

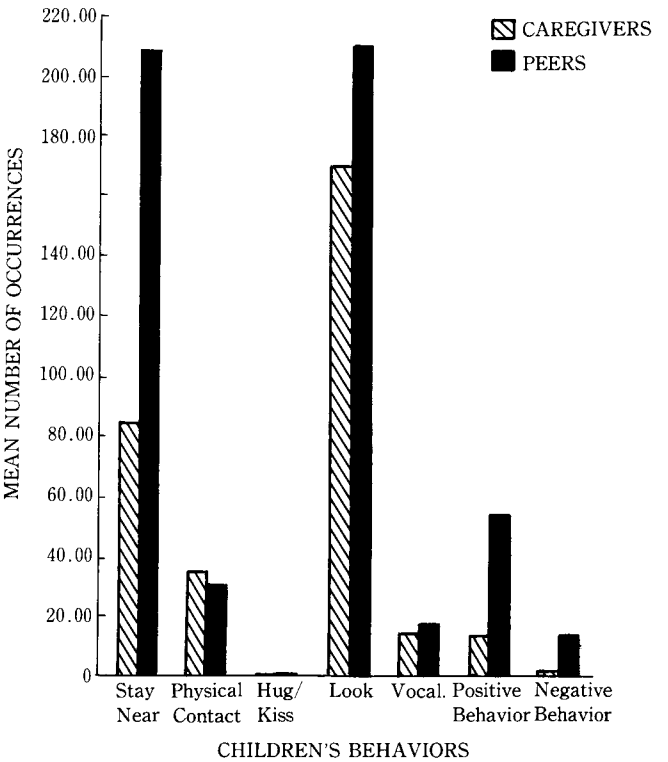

FIGURE 2 Mean number of 10-second periods of occurrence of children's behaviors to caregivers and peers in free play.

ed and control children. In addition, there were no significant group differences found for separate categories of behavior, with one exception: maltreated children tended to avoid direct physical contact with others, when compared to controls, $F(1, 22) = 4.09$, $p \leq .06$.

Few differences were found in the way the groups patterned their social responses during free play. That is, both maltreated and control children showed less caregiver and more peer behavior. A repeated measures ANOVA conducted on the total of all responses directed to peers and to caregivers failed to show a significant group x social objects effect. However, two distal behaviors, looking and vocalizing, did reveal such effects. Although visual regard of peers predominated in both groups, maltreated children looked at caregivers more and peers less relative to controls, $F(1, 23) = 5.97$, $p \leq .03$. In their social speech, both groups were equally responsive to peers. This was an increase over caregiver-directed vocalizations for controls but a decrease for maltreated children, $F(1, 23) = 5.00$, $p \leq .04$.

CHILDREN'S FREE PLAY BEHAVIOR

The Role of Social Objects

During free play episodes, peers were the clear focus of interpersonal activity. For the entire sample of children every category of behavior, with the exception of direct physical contact, was directed more often to peers than to caregivers. Previous research has indicated that, while adult-child social behaviors decrease from one year of age on, it is not until age three that peer interaction exceeds caregiver interaction (e. g., Finkelstein, Dent, Gallacher, & Ramey, 1978; Holmberg, 1980). In our research, both, younger and older children directed more behavior overall to peers than to caregivers. However, it was only in the older group that this difference became highly significant. In fact, preference for peers was so pronounced in older children that no individual or category of behavior was found to be more frequent with caregivers.

Several variables showed the most significant social object effects. All the children stayed near and looked at peers more than caregivers, especially so with increasing age. These are two of the behaviors which have been found to lead to, or facilitate, social interaction (e. g., Eckerman & Stein, 1982). It is not surprising, therefore, that actual play interactions, of both a positive and negative nature, occurred significantly more often with peers than with caregivers. In free play, caregivers continued in their role as comforters first observed during the separation condition. Especially for the younger children, they provided close physical contact, hugging and kissing. But in this low stress environment with toys, agemates, and adults, children were more interested in playing, and the partner to choice was the peer.

Moreover, no evidence could be found to suggest that children first developed social skills with caregivers and then transferred them to peers. In fact, some behaviors such as sharing were seen first in peer interactions. Instead, our data suggest that the patterns of interaction displayed with peers and caregivers differed even at the earliest stages of social development. These interactive differences appear to be related in part to differences in the roles played by social objects in the child's life.

Maltreatment Effects

It was found that only minor differences emerged in the peer behavior of maltreated and control children and, moreover, that these differences tended to dissipate with age. This finding is perhaps all the more surprising in light of the data from the departure and reunion conditions, which suggest that maltreated children were continuing to experience a more aversive interaction with their mothers than were controls. Both maltreated and control groups showed a preference for peers over caregivers during free play episodes. For control children, this represented a reversal in interpersonal focus from earlier conditions (departure and separation) in which attention was centered primarily on adults. For maltreated children, however, there was no such reversal, and peer interest was consistently maintained throughout conditions.

The groups also did not differ in their overall behavior to caregivers in free play. However, compared to controls, maltreated children avoided actual physical contact with caregivers, and tended to look at them more. Again, these behavioral defferences decreased with age. In general, there was little evidence to suggest that children with less positive maternal relationships showed either disturbed peer behavior or severely impaired relations with other adults during low stress free play,

DISCUSSION

Maltreatment and Social Development

The ability of young children, even in the first year of life, to engage in relatively sophisticated interactions with a range of social partners has been documented by research conducted in the last decade (e. g., Durfee & Lee, 1973; Eckermann & Whatley, 1977; Vandell *et al.*, 1980). A central issue in the study of these early social relations concerns the extent to which experiences with the mother determine the child's subsequent relationships with others. The epigenetic and social-network models described in this paper offer opposing views on this question. As a result, they disagree over whether a poor mother-infant relationship necessarily leads to impairments in the child's relations with other children or adults. In the current research, this theoretical difference was articulated in contrasting predictions concerning the effects of maternal maltreatment on the peer and caregiver relationships of young children enrolled in a day care facility. This setting provided the opportunity to examine the social consequences of poor mothering in the light of early, consistent, and extensive exposure to peers and other adults. But a full day program designed for infants and toddlers which also accepts children identified as maltreated is rare indeed; as a consequence, our sample is small, urban-based and lower-class. Because of these limitations, the subjects under study cannot be said to represent all maltreated children. However, our sample of children, because of their maltreatment histories, may be said to have generally experienced a less positive and less satisfactory relationship with their mothers than normally-reared children. The present study is one of a few controlled, naturalistic investigations of the mother, caregiver, and peer relations of maltreated children to date.

Mother-Child Relationship

Both the epigenetic and social network models share the belief that maternal maltreatment disturbs the bond between mother and child. Our findings show significant behavioral differences between maltreating and control mothers as they separated and reunited with their children in the daycare center. To begin with, maltreating mothers tended to avoid contact with their children more than did control mothers: they maintained less proximity, spoke less to their children, greeted them less upon meeting, and said good-bye less in departures. In emotional tone, maltreating mothers were more aversive than control mothers, directing both more negative and fewer positive behaviors to their children. It is noteworthy that no maltreating mothers praised, smiled at, or hugged their children, while only maltreating mothers scolded or ignored bids for attention. In their overall behavior, this sample of maltreating mothers closely resembled groups of normal mothers studied by Ainsworth (e.g., Ainsworth *et al.*, 1978) and Main (e.g., Main, 1977) who reject their infants. Although these findings are based on the particular situations of separation and reunion in the daycare center, they are remarkably similar to the findings of Burgess and Conger (1978), who studied abusive and neglecting families doing a variety of tasks in their homes. These investigators also found that maltreating mothers were more aversive, and less likely to engage in physical or verbal contact with their children. Together, these results support the conclusion that the behavioral correlates of maltreatment extend beyond the particular episodes of violence or neglect to define a mode of maternal responding that is generally less adequate and more negative across a range of situations.

The effects of maltreatment were also evident in children's responses to their mothers. When separating from them, maltreated children were less likely to maintain visual or proximal contact with their mothers, to say good-bye or follow them, or to express any affect. Upon reunion, fewer maltreated children greeted, spoke to touched, or displayed positive affect to their mothers compared to control children. No analysis of the attachment pattern of individual subjects was undertaken because the traditional Strange Situation procedure was not used in the present research, and because the number of subjects was small. However, our findings would seem to support George and Main's (1979) suggestion that maltreated children are most similar to maternally rejected infants in normal samples who display an insecure, mother-avoidant pattern of attachment in laboratory separation studies. More directly, our data point to a striking behavioral similarity between maltreated children and their mothers, with both members limiting the amount of social contact and positive feelings within the dyad. This kind of reciprocal social withdrawal was also noted by Burgess and Conger (1978) and may be a general feature of mother-child interaction in maltreating families. Some investigators (e.g., Johnson & Morse, 1968; Kempe & Kempe, 1978) have emphasized the child's role in this equation, suggesting that some infants have behavioral atypicalities which make them more difficult to care for and more susceptible to maltreatment. Our data cannot speak directly to this question, since we have no information concerning the neonatal period. However, it should be noted that for our sample, group differences in overall behavior were more pronounced for the mothers than for

their children, and, further, that maltreated children maintained comparable levels of overall sociability even in the presence of their mothers when other social objects were available for contact. Thus, there was little evidence of inherent behavioral abnormalities at the time our sample of maltreated children was studied.

Child-Caregiver Relationship

To examine whether maternal maltreatment affected children's relations with other adults, their responses to familiar caregivers at the daycare center were analyzed. Previous studies have indicated that kibbutz (e. g., Fox, 1977) and daycare (e. g., Ragozin, 1980 ; Ricciuti, 1974) children may form attachmentlike relationships to their caregivers. More specifically, Cummings (1980) concluded that, in the day care setting, "children seemed to form a sort of intermediate attachment to caregivers, somewhere between the strong relationship developed with the mother and the lack of a relationship evident toward strangers" (p. 36). The children in the present study appeared to have formed such a relationship with their caregivers. In the absence of their mothers, especially during periods of stress, children tended to seek out contact with caregivers. However, separating and reuniting with caregivers at the day care center did not evoke the strong reactions observed with mothers.

There was little evidence in our data to suggest that maltreatment markedly inhibited or impaired children's relationships to their caregivers. Maltreated and control children did not differ significantly in overall behavior, or in most of the specific behaviors, shown to caregivers under and of the conditions studied. However, group dffferences appeared in the patterning of physical closeness which were noteworthy. Control children showed more direct physical contact (e. g., touching, lap sitting) with caregivers, immediately after separating from mothers and during free play. In contrast, maltreated children engaged in relatively more proximal contact than did controls, staying closer to caregivers throughout the day, and also looking at them more. Thus, it appeared that maltreated children, with more reason to find danger in direct physical contact, displayed their attachment to caregivers through increased proximity ; controls, on the other hand, had less need to engage in such indirect behavior. Even so, it can be seen that maltreated children made important distinctions between their mothers and caregivers so that the groups were more similar in their caregiver-directed than in their maternally-directed behaviors. Rather than transferring, in total, the avoidant pattern of interaction characterizing their maternal relationships, maltreated children appear to have generalized a fearfulness of touching adults when compared to control children.

Peer Relations

In examining the broader social consequences of maternal maltreatment, peer relations are of special theoretical concern. In the social network model, the peer system is viewed as functionally different and relatively independent from the mother-child system, so that adequate peer-interaction skills develop through direct experience with agemates (Lewis, 1982). If this is the case, then the maltreated and control children in the present study should be similar in their peer behavior, since both groups were com-

parable in peer experience. In the epigenetic view, the two systems are causally and sequentially related, with an adequate mother-child relationship acting as a necessary precursor to peer competence (e. g., Ainsworth *et al.*, 1978). Therofore, children who experienced a poor relationship with their mothers because of maltreatment should show corresponding difficulties in their peer relations. We studied peer behavior by watching the children at play during the course of several months. Casual observation revealed little difference between children based on their maltreatment classification. In neither of the classrooms did the maltreated children stand out as different, either in their sociability or play with peers. There were no obvious signs of withdrawn, passive, or overly hostile behavior which could be used to identify these children. In the 60 minutes of formal observations obtained for each child during the free play condition, there were few statistical differences over a wide range of peer-directed behaviors that could be attributed to maltreafment. In general, the groups did not differ in their proximity-seeking, physical contact, looking, vocalizing and overall positive or negative behavior directed to peers. Maltreated children were more resistant to having their toys taken from them, and tended to share less. But differences in these particular behaviors were most extreme for the younger groups, and diminished with age. As such, they may not reflect enduring behavioral characteristics associated with maltreatment, or they may be attenuated through peer experience.

There was also no indication that maltreatment adversely affected peer contacts which occurred while mothers were preparing to leave the daycare center. However, immediately following maternal departure, maltreated children hit their classmates more, although in other peer behaviors they were comparable to controls. Our data indicate that the routine maternal separations in the daycare center, while easily tolerated by most children, were still relatively stressful events. For example, separation was found to elicit the highest degree of caregiver-oriented behavior of the four conditions studied. Since investigators agree that maltreating parents, in the face of stress, express aggressive impulses too freely (e. g., Parke & Collmer, 1975), it is not surprising that their children may do so as well. Because peers were relatively "safe" objects upon which to vent such aggression, they became its immediate targets. With the absence of this stress in free play episodes, maltreated children were no more likely than controls to display aggressive behavior. This suggests that the increase in peer aggression which occurred in the initial minutes following mothers' leaving reflected a separation reaction.

Previous reports of battered and neglected children have described them as unusually aggressive or withdrawn—in either case, unable to engage in satisfactory interactions with other children (e. g., Galdston, 1971 ; Green, 1978). In general, these studies have lacked an adequate methodological base, and have relied upon indirect measures of behavior, such as clinical impressions, maternal reports, etc. For the most part, they have provided little direct information on the social environment or the peer experiences of the children studied. It is thus impossible to consider the extent to which poor peer relations are a function of other factors than poor mother-infant interactions. Yet we know that maltreating families tend to be personally and socially isolated from extended family and community ties, and that these mothers,like other inadequate

mothers studied, may restric the opportunity for peer contact.

Two recent studies have used controlled, observational techniques to study child -child interaction in maltreated samples and have yielded contradictory results. Burgess and Conger (1978) were unable to find significant differences in the sibling interactions occurring among abused, neglected, and control children. In contrast, George and Main (1979), who studied abused and normal children in their respective day care centers, found more avoidance, approach-avoidance and direct assualt behavior among abused peers. However, no differences were found in approach behavior or in four other categories of aggressive behavior. Several factors may account for the discrepancies between these findings and our own. First, on the average, our sample of maltreated children started day care earlier and had almost four months more of continuous peer experience than the abused children in George and Main's study. In fact, the control groups in their study had significantly more daycare experience (over two months) than the abused groups. Numerous studies have shown an association between peer experience and more positive, successful and sophisticated peer behaviors in early childhood e. g., Mueller & Brenner, 1977; Rubenstein & Howes, 1976; Shea, 1981; Vandell, Whalen, 1981). Thus, differential peer exposure may be contributing to the discrepancy in results. Second, the day care centers in which the observations were made differed in the two studies. The several centers used by George and Main enrolled *either* abused or nonabused children, while the center in the present research enrolled nearly equal numbers of both in each of the classrooms studied. It is possible that maltreated children, who may come to the playroom with more limited social experiences, do not as quickly learn adequate interactional skills when left in the company of other such children. As Furman *et al.* (1979) have shown, normal preschool children may function as "therapists', encouraging peer interaction and providing adequate role models.

While maltreated and control children did not appear to differ markedly in their caregiver or peer behaviors, it is possible that group differences were shown in the patterning of social behavior. If, for example, it could be shown that maltreatment decreased the likelihood of both mother-directed and peer-directed behaviors, then a linear relationship between the systeme might exist, despite the fact that absolute behavioral differences reached statistical significance only in the former system. On the other hand, if these systems are relatively independent, as the social network model holds, then maltreatment should affect these interactions differentially. Children's concurrent responses to mothers, peers, and caregivers were compared (i. e., the results of group x social object interaction) in the two conditions where mothers were present. During departure, compared to controls, maltreated children showed much less maternal contact but the same, or somewhat more peer contact, when all their behavior was considered, and also with regard to the particular responses of looking and proximity. In reunion, total social behavior could not be compared since only one behavior was displayed to peers. Even so, maltreatment did not affect visual regard in the same way for the mother-child and peer systems. While maltreated children looked at mothers more, they looked at peers less than did their control counterparts.

Determinism in Social Relationships

The results of this study of maltreated children lead to the belief that poor infant-maternal relationships do not of necessity lead to poor peer relationships. These findings together with the work of Harlow (Carlow, 1969; Harlow & Harlow, 1965; Novak & Harlow, 1975; Suomi & Harlow, 1972), Hartup (Furman *et al.*, 1979; Hartup, 1979), and Lewis (Lewis, 1979, 1982; Lewis & Feiring, 1979; Lewis *et al.*, 1975; Weinraub, Brooks & Lewis, 1977) raise serious questions about the epigenetic view of social development. In the present study, maternal maltreatment was found to directly and adversely affect the interaction between mother and child; in fact, maltreated children as a group appeared to be insecurely attached compared to the control group. Nevertheless, they were able to engage in successful peer relations as long as they were able to engage in peer behavior. Harlow's studies of monkeys reveal the same finding—as long as infants were allowed peer contact, they had normal peer relations independent of the maternal-infant relationship.

These findings are difficult to interpret within an epigenetic framework. In attributing a causal role to the mother-child relationship, this model suggests that all subsequent relationships, such as those with peers, grow out of and are a consequence of the infant's tie to its mother. In a deterministic perspective, maternal experiences do not only affect other relationships, they shape them directly. As a result, poor attachment is hypothesized to have a "ripple" effect, its inherent dysfunction broadening out to impair newly developing systems of interaction. Children who display an avoidant pattern of attachment to mothers are expected to isolate themselves from peers, while those who are ambivalently attached will transfer their social hesitancy and insecurity to their peer relations (Sroufe & Waters, 1977). None of these predictions were supported by the present research. Maltreated children were neither withdrawn, nor hesitant, nor inadequate in their peer interaction; ovearll they were at least as interested in their peers as were controls, and in some conditions comparatively more peer-oriented.

Some investigators (e. g., Arend at al., 1979; Easterbrooks & Lamb, 1979; Waters *et al.*, 1979) have reported an association between the quality of attachment and later peer competence, interpreting this to mean that the mother-infant relationship determines the nature of peer relations. But deficiencies in peer behavior may be related to poor attachment without being directly caused by it. For example, it has been found that mothers who fail to promote secure attachment in their infants also limit their contact with peers (Lieberman, 1977). Without exposure to peers, poorly attached children do not have the opportunity to learn and rehearse skills necessary in the peer system. Poor mothering, especially if it is associated with mistreatment of negative interaction, may produce a general social fearfulness in children which, in turn, inhibits them from making contact with peers. In both cases, it is the lack of peer experience, rather than the failure of attachment, that causes poor peer adjustment.

All theories of social development hold that maternally-derived experiences affect the child's subsequent interpersonal relationships. But research showing that appropriate peer behavior is exhibited when infants are raised by peers alone (Harlow, 1969),

when treated by peer "therapists" (Furman *et al.*, 1979; Suomi & Harlow, 1972), or when placed in a daycare setting, suggests that peer relations are not predicated on successful maternal relations. Instead, different systems of relationship may be seen as developing in tandem but as the results of different experiences, capable of mutually affecting each other but formatively significant in their own right. In the present study, such a perspective yields three predictions concerning the social consequences of a poor mother-child relationship. These are: (1) maltreated children will show greater impairment in their maternal relations than in their other relationships; (2) maltreatment may affect particular respenses to peers and caregivers, but will not adversely affect the overall quality of success of these relationships; and (3) maltreatment is likely to affect different aspects of peer and caregiver interaction, since these systems are functionally independent from each other. Our data supports these hypotheses. Maltreated children functioned most poorly in their interactions with mothers. However, they did not differ significantly from controls in their overall sociability with either peers or caregivers. While particular responses to others were sensitive to the effects of maltreatment, these were not the same for peers and caregivers. Thus, compared to controls, maltreated children showed more aggression to their peers following separation from mothers, but generally touched their caregivers less.

The present interpretation may be challenged on the grounds that these findings reflect the operation of compensatory coping mechanisms which come into play early in life to make up for a poor mother-infant relationship. In this explantion, children are seen as substituting others, such as peers, to fulfill needs unmet by mothers. Thus, it can be argued that, while both control and maltreated children may show similar external behaviors to peers under certain circumtiances, they have taken different paths of development, with consequent differences in internalized ego structures, to achieve this outcome. In this argument, children's social behavior is still seen as causally determined by their maternal relationships, and as we have indicated, such an assertion may be unwarranted.

Social Development in the Social Network Model

We feel our data require a broader view of social development than the eqigenetic model provides. As crucial as the mother-child relationship assuredly is, an accumulating body of research suggests that other systems of interaction and relationship may play a significant role in the development of different social capacities. These systems of interaction are present from birth and constitute the social network of the child. Lewis (1987) has proposed that the social network is best characterized by a matrix of social objects, i. e., those individuals with whom the child interacts, and of functions related to the child's developmental needs. The relationship between objects and functions is determined broadly be the culture, and more idiosyncratically by the family, and so varies considerably. Even so, there is evidence to suggest that parents and peers are generally associated with different social functions (Edwards & Lewis, 1979). To the extent that parents are involved in caregiving and meet the security and dependency needs of the child, an attachment relationship develops. But attachment is just one of a wide set of important functions necessary for adequate socialization.

Research indicates that peer interaction facilitates the development of play (e. g., Mueller & Rich, 1976), some forms of learning and object skills (e. g., Rubenstein & Howes, 1976), and is important for the growth of friendships (e. g., Lewis et al., 1975). Without it, there appears to be a greater risk for dysfunctional social behavior in adulthood (e. g., Cowen, Pederson, Balijian, Izzo & Trost, 1973; Harlow, 1969). Such findings support Hartup's (1979) contention that "peer interaction is central in childhood socialization and the growth of social competence, and the suspicion grows that such competencies are direct derivatives of early experiences in the peer culture" (p. 285).

For some children, the mother may be the sole object in the infant's world; as such she must satisfy all functions and needs. In such a matrix, the outcome of this single relationship will determine all others. However, if the matrix includes such as fathers, siblings, and peers, the social consequences of the mother-child relationship may be modified. As long as flexibility in the social network is maintained, difficulties in one relationship need not produce difficulties in others, especially when different functions are considered. Thus, poor maternal relationships are most likely to lead to poor peer relations when the lack of peer experience intervenes.

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