PSYCHOANALYTIC BOOKS: REVIEWS AND DISCUSSION

Rhythms of Dialogue in Infancy, By Joseph Jaffe, Beatrice Beebe, Stanley Feldstein, Cynthia L. Crown, and Michael D. Jasnow. Boston: Blackwell, 2002; viii + 153 pp., $36.95.

John S. Auerbach, PhD

The last 25 years have seen a revolution in psychoanalytic developmental psychology, and one of the best known names in this transformation is this volume's second author, Beatrice Beebe. In the past quarter century, Beebe and several other researchers, among them Robert Emde, Lewis Sander, Daniel Stern, Colwyn Trevarthen, and Edward Tronick, have completely refashioned our understanding of infant social development, such that terms like primary narcissism, normal autism, and normal symbiosis are now considered untenable as descriptors for early infancy and such also that the infant is now regarded as establishing relationships with caregivers from the moment of birth. And yet it is likely that few readers of this review know the name of Joseph Jaffe, the first author this slim volume, *Rhythms of Dialogue in Infancy*, actually a monograph of the Society for Research in Child Development. Jaffe is a professor of clinical psychiatry in neurosurgery at Columbia University and chief of Communication Sciences at the New York State Psychiatric Institute and for many years, actually decades, has led a research group on nonverbal aspects of communication, a research group that has contained as members both Beatrice Beebe and Daniel Stern, whose landmark *The Interpersonal World of the Infant* (1985) was the book that consolidated the aforementioned revolution in psychoanalytic developmental psychology. In 1970, Jaffe, together with Stanley Feldstein, a psychologist and the third author on the present volume, published *Rhythms of Dialogue*, an analysis of nonverbal aspects of adult conversation. That book, which proposed a model for subdividing adult conversations into sequences of turns, pauses, and switches, is in essence a precursor to the current volume, and its conceptual model in turn underlies the research efforts of Beebe, Stern, and others who, with their transformation of our understanding of infant social behavior, have sparked a reconceptualization of the nature of the clinical dialogue as well. Most people who are interested in psychoanalysis are not interested in grappling with a complex research study like that reported in the volume at hand, yet an understanding of the research presented here tells us a great deal about both developmental and clinical processes, topics that no doubt are of interest to all who are reading this review.

So what do Jaffe and his colleagues (Beebe, Feldstein, psychologist Cynthia Crown, and psychologist and psychoanalyst Michael Jasnow) have to tell us about dialogue in infancy? The authors situate their work in the relational traditions of psychoanalysis, specifically the interpersonal school in the United States and the Middle School among British analysts. Indeed, Jaffe and Feldstein developed their views on the coordination of dialogic rhythms at the William Alanson White Institute in the early 1960s, at a time in which relational views were decidedly in the minority in psychoanalysis. They developed a dyadic systems view of human communication, that is, of communication as a process of joint or bidirectional coordination. At this time, they shifted their focus from the content to the process of spoken communication, and they developed a computerized technology for studying conversational speech timing, specifically, to measure the duration of utterances, pauses, and switches between speakers. Jaffe and Feldstein (1970) conceptualized adult conversation as a series of turns, and because people in conversation often speak at the same time or are silent at the same time, they decided upon the simple rule that whoever vocalizes unilaterally, regardless of the content of verbalization, holds the conversational turn. Because their model focuses on the pragmatics, rather than the content, of verbal communication, it can be applied not only to adult conversations but to vocal interactions between infant and adult—protoconversations that, like adult conversations, unfold as a series of turns between speakers. This model underlies the groundbreaking research by Beebe, Stern, and others on, to use a now familiar phrase, the interpersonal world of the infant, on the way infants and parents mutually regulate their interactions.

Also underlying Jaffe et al.'s research program, therefore, is the concept of mutual regulation. Jaffe and colleagues conceptualize the interaction between mother and infant as a system in which each party influences the behavior of the other, but this interpersonal coordination is considered to be, from a statistical perspective, a set of mutual correlations, rather than mutual causation. That is, it is not known whether the mother's vocalizations determine what the infants will be, or vice versa. Instead, all that is assumed is that mother's vocalizations can be predicted from mother's, and mother's from infant's. To this conceptual model, Jaffe et al. apply the statistical logic of time series analysis. They ask whether mother's vocalizations, controlling for autocorrelation (i.e., correlation with

her own behavior), will predict future vocalizations of the infant and whether the infant's vocalizations, again controlling for autocorrelation, will predict future vocalizations of the mother.

In the present study, Jaffe and his colleagues had three main goals: (a) to describe the nature of the infant's dialogue with adults at age 4 months, (b) to determine, using time series analysis, whether a mutual regulation model accurately describes infant-adult verbal interaction (i.e., whether adult and infant vocalizations mutually predict each other), and (c) to determine whether the nature of infant-adult dialogue when the infant is 4 months old predicts infant social and cognitive development (i.e., infant attachment style and infant mental skills, a precursor to IQ) at age 12 months. To do this, they designed a complex but elegant study. In their sample of 4-month-old infants, they studied face-to-face vocal interactions among 3 communicative dyads (mother–infant, stranger–infant, and mother–stranger), in 2 sites, at home and in the laboratory. They audiotaped the infant–adult dialogues, such that each voice was on a separate channel. They used their computer system to code the vocal interactions into four possible states (both parties silent, adult vocalizing with infant silent, infant silent with adult vocalizing, both parties vocalizing), and from this coding, they were able to determine the duration of the sounds and silences—of the vocalizations, pauses (i.e., where the same person resumed speaking), and switching pauses (i.e., where the turnholder pauses and the other partner begins)—of each partner.

Jaffe et al. found that the nature of the infant–adult dialogue was regulated by both the infant's interactive partner, mother or stranger, and the place where the interaction took place, home or the laboratory. Adult vocalizations were longer in the lab, and switching pauses were longer at home, with both results suggesting greater activity on the part of adults in the laboratory setting. Infants, meanwhile, displayed shorter pauses and switching pauses when interacting with a stranger, with shorter durations indicating greater activity on the part of the infant when the partner was unfamiliar. Indeed, infants were least active in conditions of double familiarity (i.e., interacting with mother at home) and most active in conditions of double novelty (i.e., interacting with a stranger at the lab). Furthermore, Jaffe et al. found that infant-adult activity levels, as measured by the ratio of the speaker's vocalization duration to pause duration, were significantly correlated, regardless of whether the interaction was between infant and mother or between infant and stranger and also regardless of whether the interaction occurred at home or in the lab. In other words, both parties in the interaction accommodated their respective activity levels to each other's.

Using time series analysis to partial out each speaker's autocorrelations (i.e., correlations with his or her own vocal activity), Jaffe et al. then found, in confirmation of the mutual regulation model, that individual infant–adult dyads showed *coordinated interpersonal timing* (CIT). The authors considered this to be a particularly important result because previous research on this matter had demonstrated only a group effect, that is, bidirectional coordination between groups of infants and groups of adults. They argued, however, that bidirectional coordination is a phenomenon that, if meaningful, occurs also within individual infant–mother dyads, with each party influencing the behavior of the other. In the present research, Jaffe et al. replicated the aforementioned group correlations between infants and adults, but more important is that they also found within–dyad correlations. Although these correlations were by no means ubiquitous (i.e., that not all dyads showed coordination), Jaffe et al. found that within–dyad coordination of vocalization increased with novelty. That is, there was more coordination in stranger–infant dyads in the lab than in mother–infant dyads at home—a finding consistent with the idea that greater nonverbal coordination is needed when things are unfamiliar.

Finally, Jaffe et al. found that CIT at age 4 months predicted both social and cognitive development at age 12 months. Using the Strange Situation (Ainsworth, Blehar, Waters, & Wall, 1978) to assess attachment and the Mental Development Index (MDI) of Bayley (1969, 1993) Scales of Infant Development (BSID) to measure cognitive development, Jaffe et al. found a significant negative correlation between the MDI and the Degree of Insecurity Scale (Richters, Waters, & Vaughn, 1988), a continuous rating scale applied to infant behavior in the Strange Situation, with higher scores on this measure indicating greater insecurity. Thus, as attachment theory in specific, and psychoanalytic developmental theory in general, would predict, attachment security and cognitive development in 1-year-olds are positively correlated. But despite this linkage between attachment and cognition, it turns out that the relationship between infant–adult CIT when infants are 4 months and infant-mother attachment when infants are 12 months is very different from the relationship between CIT and cognitive development.

In general, infant–adult interactions (both infant–mother and infant–stranger) in the midrange of bidirectional coordination predicted secure attachment, but low and high levels of CIT predicted insecure attachment. That is, infant–mother interactions that were in the midrange of bidirectional coordination (i.e., at a level in which there was room for novelty, uncertainty, or play) predicted secure attachment, but a high degree of bidirectional coordination in infant-mother interaction predicted disorganized attachment, with very high levels of bidirectional coordination

indicating vigilance, wariness, or an attempt to counteract some interactive disturbance. Meanwhile, a low degree of unidirectional infant coordination with a stranger predicted avoidant attachment, as if the infant had withdrawn from dyadic regulation to self-regulation, and differentiated avoidant from secure attachment. Finally, as regards social development, a high degree of unidirectional stranger coordination with the infant predicted resistant attachment, again differentiating it from secure attachment. On the other hand, when it came to cognitive development, a high degree of bidirectional coordination, particularly between infant and stranger when interacting in the laboratory, rather than at home, predicted high scores on the Bayley MDI. Jaffe et al. interpreted this finding as consistent with the proposition that adaptive response to novelty—interacting with stranger in a lab is more novel than interacting with mother at home—is a central manifestation of intelligence at any age.

In sum, Jaffe et al.'s research study, although complex, tells us a great deal about a subject of great interest to psychoanalysis—the effect of early infant-mother interaction on infant socioemotional and cognitive development. In grappling with this volume, readers of this review are likely to struggle with Jaffe et al.'s complex multivariate statistics, as well as with the book's lack of clinical material. Nevertheless, those who persevere with this book will be rewarded with a deep understanding of the research basis underlying the revolution in psychoanalytic developmental psychology. Fortunately, they are likely to be helped by two commentaries include in the volume, one by developmental psychologist and infancy researcher Philippe Rochat and one by Daniel Stern. In his commentary, Stern emphasizes the importance of Jaffe et al.'s finding that a midrange of mother–infant coordination predicts secure attachment; he proposes that this same midrange of interpersonal coordination is the optimal condition for mother–infant play because play requires a certain openness and lack of predictability. Rochat meanwhile states that Jaffe et al.'s findings are "another wake-up call to the danger of splitting the cognitive from the social" (p. 133). In an argument that is highly consistent with the intersubjectivist and relational turn in psychoanalysis, he makes "a theoretical plea for the socially grounded nature of cognition" (p. 133).

For my own part, I find that there is so much to praise in Jaffe et al.'s research that it is hard to come up with criticisms of their efforts. Nevertheless, from a statistical perspective, one concern about this study is that it involves numerous significance tests but contains no adjustments for Type I error. Jaffe et al. say that their study is exploratory and that they usually specified their hypotheses in advance, but nevertheless I fear that, in a study as complex as this, some of their fascinating findings might prove to be statistical artifacts. Another criticism is that the greatest strength of Jaffe et al.'s conceptual model for rhythms of dialogue, elegant though it is, is perhaps also its greatest weakness. That is, their model ignores the representational or symbolic dimension of language, a dimension that differentiates human conversation from other forms of communication, and here I would note that, for example, it was Main, Kaplan, and Cassidy's (1985) move to the level of representation that made it possible for us to understand the transmission of attachment style from parent to child by linking adult representation of attachment to the child's attachment behavior. On the other hand, this criticism is unfair insofar as (a) Jaffe et al. set out to study only the prerepresentational infant and (b) it is, after all, through the preverbal, affective dimension that attachment representations—internal working models—are first constructed.

Thus, Jaffe et al.'s *Rhythms of Dialogues in Infancy* is no doubt a difficult read, especially if one's interest is in analysis of transference, rather than in multivariate analysis of variance, and it would surprise me not at all if most readers would prefer Beebe and Lachmann's (2002) *Infant Research and Adult Treatment*, with its clinical focus instead. Nevertheless, I would say that one important reason for psychoanalytic clinicians to have first-hand familiarity with a research study such as this is that we live in a world in which biological psychiatrists and cognitive-behavioral psychologists increasingly assume that psychoanalysis has no empirical support, a world in which our colleagues increasingly regard what we do as an irrelevancy, and I note in this context that, in preparing this review, I surveyed some 40 of my colleagues, psychiatrists and psychologists, in the small Appalachian city in which I live and found that only one of them had even heard of Beatrice Beebe, a researcher with an international reputation. Here, however, we have a research study that confirms a basic psychoanalytic proposition--that the cognitive cannot be separated from the social, that interpersonal interaction predicts both cognitive development and attachment--and in an age in which our colleagues claim that psychoanalysis has no empirical support, it behooves psychoanalytic clinicians to know of research findings such as Jaffe et al.'s.