

PART I

LOOKING BACK

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CHAPTER 1

The Discovery of the Human Newborn: A Brief History

J. KEVIN NUGENT

It is perhaps difficult for the twenty-first century researcher or clinician to imagine how much our understanding and appreciation of the human newborn has changed since the time the Neonatal Behavioral Assessment Scale (NBAS) was first published in 1973. The dominant view for much of the earlier part of the twentieth century, as Berry Brazelton and many authors in this volume point out, was that infants were generally passive recipients of sensory stimulation, responding to environmental input with innate reflexes. There was scant evidence that learning could be demonstrated in the first few weeks or even months of life. Newborn assessment tools reflected these assumptions, so that the earlier neonatal scales, which emerged from the field of neurology, focused on the assessment of the so-called primitive reflexes and postural reactions.^{1,2,3} Because it was assumed that the newborn infant was indeed a “blank slate,” a reflex organism operating at a brain-stem level, the classic tests of intelligence, such as the *Gesell Developmental Schedule*, the *Cattell Infant Intelligence Scale*, and the *Griffiths Mental Development Scale*, for example, did not include any items designed to assess newborn behavior.

However, a number of advances, especially in the fields of psychology and psychiatry, contributed to a major shift in thinking about newborn behavior and development and, indeed, to the notion that the newborn period might be a critical time in the development of the parent-infant relationship. In the early 1960s, it was assumed that the newborn could see only shadows at birth. And then, Robert Fantz demonstrated that the newborn infant could not only see but also had clear-cut visual preferences.⁴

In terms of auditory capacities, the prevailing assumption among both researchers and clinicians was that newborns' fluid-filled ears impaired their hearing for the first few days. However, in 1963 a report appeared in *Science* showing that newborns could orient toward a sound as early as 8 hours after birth.⁵ In the previous year, Murphy and Smyth had demonstrated that infants respond to auditory stimuli even before birth.⁶

The notion that the baby could see, hear, and respond differentially to positive and negative stimuli inspired a new body of scientific research on newborn behavior and development. While innovative thinkers from the emerging field of infant mental health, such as John Bowlby, Donald Winnicott, and Selma Fraiberg, studied the mother's role in the development of early parent-infant relations, a new generation of researchers, among them Jerome Bruner, Peter Wolff, Jerome Kagan, Robert Emde, Kathryn E. Bernard, and Arnold Sameroff, stimulated by the work of Jean Piaget, began to study learning in infancy in an effort to determine how early and under what conditions infants could learn. In the 1960s and 1970s, a new body of research on newborn capabilities emerged, which provided a rich empirical database for subsequent conceptualizations of newborn and infant development. Researchers such as Lewis Lipsitt, William Kessen, T. G. R. Bower, and Rachel Keen developed innovative research methods to demonstrate that newborns could, indeed, learn from the very beginning. This new body of data, which provided evidence that the newborn infant was competent and complex, contributed significantly to the development of the NBAS. However, it was Berry Brazelton's clinical experience with parents and his work at the Children's Hospital in Boston that led to a pivotal concept in the thinking about how to assess newborn and infant development—the concept of individual differences. As Brazelton himself explains it, the challenge he faced was how to describe, identify, and ultimately code these differences in a reliable manner. He had provided evidence for differences in crying patterns in his own research and later presented his ideas on individual differences to a wider audience in his groundbreaking book, *Infants and Mothers: Individual Differences in Development*.^{7,8} In the preface to that book, Jerome Bruner wrote, "What delights me most is Dr. Brazelton's unflinching sense of human individuality." It was Brazelton's recognition that infants were unique, with their own individual styles of responding, that prompted him to begin the quest for a scale that, on one hand, could do justice to the newborn's capabilities and, on the other hand, could describe the full range of individual differences in newborn behavior.

At around the same time, Peter Wolff's seminal work on "newborn behavioral states" led to a greater appreciation of the human newborn as a responsive organism, capable of organized behavior.⁹ Indeed, the idea of "state" was acknowledged as a critical matrix on which to assess all reactions, sensory as well as motor, in the newborn.^{3,10} The first behaviorally based scales for the assessment of the newborn appeared at this time. The Graham Scale and the Graham-Rosenblith Scale were the first to attempt to outline behavioral differences among neonates as they responded to different stimuli.^{11,12}

Shortly after this research was published, the first iteration of the NBAS appeared—the Cambridge Scales—which Brazelton developed along with psychologist Daniel Freedman from the University of Chicago and which he now used to test out the applicability of the concept of individual differences in different settings. Intrigued by the question of how children achieve competence, Brazelton and his colleague, John Robey, went to southern Mexico, where they used the new scale with the Zinacanteco Indians, in the highlands of Chiapas. There Brazelton's ideas on neonatal differences were confirmed. The two colleagues discovered that compared to their Caucasian counterparts, these infants could "pay attention to auditory and visual signals for 30 minutes without a break," and their motor behavior was characterized by smooth fluid movements.¹³ This research was followed by a study by Freedman and Freedman that provided evidence for clear-cut differences between Caucasian and Chinese neonates.¹⁴ Working with Jerome Bruner at the Center for Cognitive Studies at Harvard University and with Mary Louise Scholl from the Department of Neurology at Massachusetts General Hospital, Brazelton began to integrate developmental theory and neurological principles into his clinical understanding of newborn behavior and development. Finally, in 1973, the first edition of the NBAS was published by Spastics International Medical Publications. In the preface of that monograph, Ronald MacKeith and Martin Bax were perceptive when they wrote that they were "happy to predict that people will be using and working with the NBAS for many years to come."¹⁰

Since then, the NBAS has become the gold standard of newborn assessments. It has been used in many studies to examine the effects of a wide range of pre- and perinatal variables on newborn behavior. By the time I joined Brazelton and coauthored the NBAS, numerous studies had demonstrated that the scale was sensitive to variables, such as the effects of intrauterine growth restriction; the prenatal ingestion of cocaine, alcohol, caffeine, and tobacco; the exposure to environmental

polychlorinated biphenyls (PCBs); the effects of different modes of delivery; or the effects of prematurity. The NBAS also stimulated the development of a number of assessment scales for use with different populations and in different settings, a testament to its theoretical richness and its generativity. Heidelise Als, Barry Lester, Berry Brazelton, and Ed Tronick, for example, used the concepts of the NBAS to develop the Assessment of Preterm Infants' Behavior (APIB).¹⁵ Barry Lester and Ed Tronick also used the NBAS as the basis for the Neonatal Intensive Care Unit Network Neurobehavioral Scale (NNNS), which was designed for the neurobehavioral assessment of drug-exposed and other high-risk infants, especially preterm infants.¹⁶

While the NBAS has been used in hundreds of research studies as an outcome measure and continues to be used as a means of assessing pre- and perinatal influences on newborn behavior, we began to realize, in the 1980s, that the NBAS was a powerful teaching tool and could be used as a form of intervention. A series of studies, summarized by Nugent and Brazelton,^{17,18,19} showed that demonstrating the newborn infant's behavioral capacities to parents can serve as a mechanism for helping parents learn about their new infant, thereby strengthening the relationship between parent and child and supporting family adjustment. Specifically, a number of studies consistently have reported positive effects of exposure to the NBAS on variables such as maternal confidence and self-esteem, paternal attitudes toward and involvement in caregiving, parent-infant interaction, and developmental outcome.

Just as the NBAS was adapted to assess different at-risk populations, as in the case of the APIB and the NNNS, it has also been adapted or modified to render it more effective as a teaching tool for parents. A number of approaches based on the NBAS were developed for use in clinical environments as a form of parent education or intervention. The first of these modifications was by Tiffany Field and her colleagues who developed the Mother's Assessment of the Behavior of the Infant.²⁰ The Newborn Individualized Developmental Care and Assessment Program (NIDCAP) training process, developed by Heidelise Als, has profoundly changed the way in which neonatal intensive care unit (NICU) staff, particularly nurses, are trained in the observation and care of the premature infant.²¹ By incorporating behavioral items and concepts from the NBAS into the routine physical pediatric examination, Constance Keefer developed the Combined Physical Exam and Behavioral Exam (PEBE),²² while João Carlos Gomes-Pedro and his colleagues, in their efforts to sensitize parents to the behavior of their newborns, effectively tested a shortened version of the

NBAS for use as the newborn pediatric discharge examination.²³ Ida Cardone and Linda Gilkerson used the concepts of the NBAS to develop the Family Administered Neonatal Activities (FANA).²⁴ Finally, the recently developed Newborn Behavioral Observations (NBO) system also comes from this tradition and was developed by myself, Constance Keefer, Susan Minear, Lise Johnson, and Yvette Blanchard, as a relationship-building instrument, to sensitize parents to the capacities and individuality of the newborn infant and to foster the relationship between parent and child and between clinician and parent.²⁵

This brief description of the origins of research on newborn and infant development and of the transforming influence of the NBAS on clinical and research endeavors sets the stage for the wide range of reports that appear in this volume.

INTERNATIONAL PERSPECTIVES ON RESEARCH, EARLY INTERVENTION, AND TRAINING

The chapters that follow represent many disciplines from many countries and examine the effects of different perinatal and cultural influences on behavior and the relationship between newborn behavior and later outcome. These studies also attest to the shift in emphasis toward intervention that begins ever earlier in the child's life. These reports embrace an approach to children and families that eschews the classic deficit-seeking medical model and is committed instead to interventions that are both family-centered and relationship-based.

One of the questions that continues to challenge theorists, researchers, public policymakers, and educational planners is whether there is a relationship between newborn behavior and later development, especially in the case of high-risk infants. Karin Stjernqvist from the University of Lund in Sweden examines the relationship between newborn behavior and later developmental outcomes in her longitudinal study, "Predicting Development for Extremely Low Birthweight Infants" (Chapter 2) In this chapter, she reports a positive correlation between the newborn orientation capacities at term, Developmental Quotient (DQ) at 4 years of age, and IQ at 10 years, despite the fact that in the neonatal period, instability in physical, physiological, and behavioral systems is pronounced, and neonatal assessments are thought to be less predictive.

The sensitivity of the NBAS as an outcome measure has been demonstrated in numerous studies conducted by Tiffany Field and

her colleagues at the University of Miami. Field, one of the pioneers in infancy research, in particular, in the role of touch, describes a series of studies in different settings, in which she and her colleagues examined the effects of infant massage on newborn behavior. She reports the effects of a recent meta-analysis of data from 19 of these studies, which revealed that 72% of the massaged infants were positively affected. Most of them experienced greater weight gain and better performance on the NBAS. In addition, she points out that the use of the NBAS seems to be an important demonstration to the parents of how their infants' behavior can improve following massage therapy. This, in turn, seems to encourage parents to continue massage therapy at home.

At the Universitat Autònoma de Barcelona, Carme Costas-Moragas has established an impressive research tradition by conducting numerous research studies on the effects of a wide range of perinatal factors on developmental outcome. Chapter 4 provides a review of this body of research, describing studies on the effects of acute fetal distress, gestational and pregestational diabetes, cesarean section, intrauterine exposure to lead, neonatal hyperbilirubinemia, low birthweight, and prematurity.

At the invitation of Dr. Tomitaro Akiyama from the Department of Rehabilitative Medicine at the University of Nagasaki, Berry Brazelton and I began a collaborative longitudinal study of Japanese infants in the Goto Islands in 1985. Dr. Akiyama's research goal was to identify the origins of cerebral palsy as early as possible in a child's life. In Chapter 5, along with his colleague, Shohei Ohgi, he describes their research on the early assessment of infants at risk for developmental disorders, such as cerebral palsy and mental retardation. In a series of longitudinal studies, Shohei Ohgi and the Nagasaki research group have provided consistent evidence for the capacity of the NBAS to identify neonates who are at high risk for later developmental disabilities, including cerebral palsy.

In Korea, Yeonghee Shin and Byunghi Park designed a study to provide normative data on Korean newborn behavior. In Chapter 6 they describe the cultural context of the transition to parenthood in Korean society and discuss their study of a sample of Korean newborns, explaining what their research reveals about the universals of newborn behavior, and the behavioral characteristics that are specific to the Korean cultural setting.

In her research and clinical practice in Geneva, pediatrician and psychiatrist Nadia Bruschiweiler-Stern discusses the significance of what she refers to as "moments of meeting" in promoting mother-infant attachment, beginning in the newborn period.

She defines these crucial interactions as micromoments of change in the mother-infant relationship, moments when the relationship is transformed and moves to a higher level. She goes on to describe how she promotes these moments of meeting between parent and infant and how the infant can become an “interlocutor” in this process. In a series of clinical reflections taken from her practice, Dr. Bruschiweiler-Stern demonstrates how this approach can be used with a wide range of families and how fathers can be engaged in these relationship-building encounters.

Anthropologist Sara Harkness and psychologist Charles Super introduced the concept of the infant’s “developmental niche” to our understanding of the relationship between child and culture. In Chapter 8, they discuss their work with Kipsigis herders and farmers in Kenya and offer some observations on research with parents and children in the United States, as well. They focus on the process of discovery of parental ethnotheories and their instantiation in parenting practices. In the developmental niche framework, the culturally constructed environment of the child is conceptualized as consisting of three components or subsystems: (1) the physical and social settings in which the child lives; (2) culturally regulated customs of child care and childbearing; and (3) the psychology of the caretakers, including parents and others, such as teachers or child-care providers.

INTERNATIONAL PERSPECTIVES ON EARLY INTERVENTION INITIATIVES

The NBAS has inspired intervention initiatives in many settings around the world. In her work in Denmark, for example, psychologist Hanne Munck discusses how her research on fathers helped establish the practice of fathers being encouraged to stay in the hospital after delivery, so that they would have the opportunity to become more involved in the care of the young infant. She also describes how the NBAS and the APIB were used to demonstrate the capacities and individuality of full-term newborns and prematurely born infants. She explains how the insights from these assessments played a significant role in modernizing hospital routines and practice in Denmark as part of the preventive health-care system.

In Britain, psychologist Joanna Hawthorne and occupational therapist Betty Hutchon report that, with funding from the government’s early intervention project, Sure Start, several community-based teams in deprived areas are being trained in providing

supportive intervention to mothers in deprived areas in their follow-up home visits. In a brief survey of parents who participated in follow-up professional education sessions, they report that all the parents who responded to the survey said that they found the principles of the NBAS helpful and would recommend it to other parents. The U.K. experience demonstrates that the NBAS can provide a supportive intervention to parents of premature babies, parents of babies with various syndromes, and parents with babies who may be difficult to read.

Physical therapist Yvette Blanchard describes how the NBO system, which was inspired by the NBAS, is being used in early intervention settings in the United States and how the NBO neuro behavioral concepts can be integrated into Early Intervention (EI) evaluation and service planning. While many states require a score from a standardized tool in order to determine eligibility for EI, the information gathered during the NBO can be used to provide clinical information needed by the early interventionist to substantiate eligibility on the basis of clinical judgment. The integration of the NBO into the evaluation of high-risk infants allows the EI providers to meet the three goals of a developmental assessment: (1) The infant's attempts to self-regulate and successes at self-regulation are indicators of the current level of developmental maturity and robustness; (2) the infant's behavioral manifestations of disorganization or loss of self-regulation are indicators of developmental vulnerabilities and sensory thresholds; (3) the type and amount of support offered by the clinician forms the basis of the individualized intervention strategy and educational approach needed to support the developmental agenda and goals of this infant and to promote the relationship between the infant and his parents and the relationship between the provider and the parents.

Psychologist Beulah Warren has spent her life working in early intervention settings in Australia and has devoted a great deal of that time to the training of early intervention and infant mental health specialists who work with infants and families in the first years of life. In Chapter 12 she describes her work with infants who are at risk for developmental disabilities and explains how she uses an individualized, developmentally appropriate approach to support her young patients, their parents, and even their extended families.

As a young pediatrician, Nittaya Kotchabhakdi spent the first 6 months of her pediatric rotation in the northeastern province of Thailand, where she gained firsthand experience working with children and families affected by poverty, malnutrition,

and preventable diseases. To reduce malnutrition, she initiated developmentally based breastfeeding programs for mothers and infants in these rural communities. In Chapter 13 she describes the NBAS-inspired education programs she implemented, which were designed to sensitize mothers to their babies' interactive competencies, with a view to supporting a positive mother-infant bond and resultant success in breastfeeding.

Nurse Researcher Kristie Brandt points out that for more than 3 decades, the principle underlying the NBAS has informed the discipline of nursing—guiding both the development of clinical care models and the refinement of specific intervention, facilitation, and support strategies. She explains how, in the programs she has initiated for parents in the first 8 weeks after birth, the maternal-child-family nurse is able to “showcase and observe the newborn's individuality as expressed in his or her mastery and clarity of cues, and other behavioral repertoire.”

INTERNATIONAL PERSPECTIVES ON PROFESSIONAL DEVELOPMENT

In recent years, the individualized and positive-adaptive approach to infants and families, derived from the NBAS, has been used to inform curriculum development in medical education and professional development settings worldwide. The notion central to the Touchpoints Approach to professional training which was developed by Berry Brazelton and his colleagues, is that a child's development is characterized by predictable periods of disorganization that occur prior to bursts in development. Because all development occurs within caregiving relationships, the extent to which the system supports these relationships has a direct impact on the child's developmental potential. Brazelton Touchpoints faculty members Ann Stadtler and John Hornstein describe the newborn Touchpoint as “the prototypical touchpoint” because it is the time of greatest vulnerability, as well as the time of greatest opportunity for professionals working with parents. They go on to explain how the Touchpoints training model has been applied to different settings and how its goal of supporting providers and communities in changing the system of care for families has been implemented.

The name of João Carlos Gomes-Pedro is synonymous with medical education in Portugal. In Chapter 16 Dr. Gomes-Pedro reviews the dramatic changes taking place in contemporary Portuguese society and describes how he developed an individualized

behaviorally based approach to support new parents and to help health-care providers offer the kind of informational and emotional support parents need today. He also describes his approach to medical education and resident training and his efforts to implement a more positive model of patient care.

Psychotherapist Drina Candilis-Huisman and pediatrician Marie Fabre-Grenet write about their approach to parents in their respective practices in France. Dr. Huisman describes her work with mothers in the maternity ward. She looks at this relationship as a threesome, in which the clinician retains a flexible and distinctly different role with both the mother and the infant. She shows that the success of this approach depends not only on the clinician's ability to accurately assess the infant's capacities but also on the dynamic relationship that emerges among the different partners. The clinician's effectiveness depends on his or her flexibility, "an essential quality about which we need to conduct more research." Dr. Grenet explains her use of the NBAS in her pediatric practice as a response to the tendency of the medical system to "hypermedicalize pregnancy." The observation of the behavior of the neonate that is formalized in the NBAS enables the practitioner to focus on the baby as an individual. Dr. Grenet believes that the NBAS can be used during this time and that early first contact in the hospital sets the foundation of a real therapeutic alliance.

In North Carolina in the United States, James Helm and Marie Reilly have been training early intervention professionals for many years. Their training programs includes NIDCAP-based, developmentally supportive, family-centered care of infants and families in the intensive care nursery (ICN), a developmental follow-up clinic, and an early intervention program that begins in the hospital and follows the family home. In Chapter 18 they describe how the NBAS contributes to each of these services and how the NBAS is also used to help identify program goals and activities with families as an integral part of the follow-up program

"What is relationship-based care?" is the question posed by Constance Keefer, Lise Johnson, and Susan Minear in their discussion of the role of the pediatrician in hospital newborn care. They point out that practitioners are charged with nurturing two distinct relationships in the newborn period—that of the parent and child, and that of the clinician and family. Both are necessary components of effective medical care. Over the years, at least two important clinical tools gradually evolved from the NBAS to promote these relationships—the PEBE and the NBO systems, each of which took

the relational aspects of the NBAS a step further. The use of these approaches is discussed, and the roles of each in fostering the bonds between parent and infant and between clinician and family are also presented. With the PEBE, the practitioner weaves observations and a narrative of the infant's behavior into the standard newborn physical exam, which he or she performs in the presence of the parents. Meanwhile, the NBO was designed primarily as a relationship-building tool that can help sensitize parents to their newborn's capacities and individuality. The authors go on to discuss the use of the NBO as a concrete tool for the professional clinician in training.

Since the NBAS is an examination that demands an extraordinarily high level of observational and handling skill, it can be used as a model for training professionals in working with infants and their families. This challenge is specifically addressed by NBAS master trainer Jean Cole and NBAS trainers Cecilia Matson and Thembi Ranuga in Chapter 20, "Preparing Professionals to Work with Newborns." They present their firsthand experiences as trainers and their recommendations for the training of examiners. They emphasize the importance of examiners being well versed in neurodevelopmental principles before they even approach the actual assessment of the infant. Then they focus on the need for examiners to have good observational and handling skills to be able to elicit the infant's "best performance." Finally, they describe the different training models used to prepare professionals to use the NBAS reliably and sensitively.

At Anna Meyer Children's Hospital in Florence, Italy, Gherardo Rapisardi, a neonatologist and pediatrician, and Adrienne Davidson, a pediatric physical therapist and developmental specialist, have been training a wide range of health-care specialists since the beginning of the 1980s. The training programs focus on the clinical application of a global neurodevelopmental assessment and an early intervention program that incorporate the principles of the Touchpoints model. In addition, there are training courses in the NBAS concepts for all types of health professionals throughout Italy who are involved in neonatal care. In Naples, Drs. Roberto Paludetto and Giuseppina Mansi have conducted research on the effects of neonatal jaundice, the effects of prematurity, and the effects of cigarette smoking on newborn behavior. They have incorporated the general concepts of the NBAS into the physical examination of the newborn, paying special attention to the orientation, Response Decrement, Self-Quieting, Consolability, and Cuddliness items.

LOOKING TOWARD THE FUTURE

In the final section of the book, we look toward the future and address the question of how this new body of information can help researchers, clinicians, and policymakers better understand the needs of infants and families as the twenty-first century moves ahead. As we review the past and attempt to plan for the future, Rachel Keen, a pioneer in the infancy field and still one of its leading researchers, reminds us that there is a great need for researchers to bring their work closer to practitioners and policymakers. She believes that the gap can be bridged, but it will take sustained, deliberate efforts on both sides. Researchers need to make their results and implications more easily available beyond their own circles, and they need to talk to social workers, pediatricians, nurses, and other personnel who intervene in children's lives. Above all, collaborative research should be the core of continued communication. This volume is designed to promote these kinds of collaborative endeavors. To use her own words, "only when the lines of communication are freely open and flowing will we have the knowledge exchange we so badly need."

John Kennell who with Marshall Klaus introduced the concept of parent-infant bonding,²⁶ challenges us to consider the value of simple interventions in the perinatal period, even as he acknowledges that health-care professionals and clinicians are being asked to care for an ever-larger number of children with developmental/behavioral problems of increasing complexity. He describes doula support as a low-tech, centuries-old intervention that significantly reduces the need for cesarean delivery, analgesia, and other interventions; shortens the length of labor; enhances mother-infant interaction; and helps promote successful breastfeeding. He presents evidence from his own work that the promotion of parent-infant bonding by providing doula support results in fewer child behavior problems. Almost 40 years of research have shown that when mothers have continuous emotional support by a doula during labor, and when they have early and extended contact and interaction with their babies, significant benefits can result.

After a description of his involvement in the NBAS in the early years, Ed Tronick looks toward the future and urges a word of caution in Chapter 24, "The Brazelton Baby: The Other Side of the Coin." He points out that while the NBAS has made us aware of the infant's competencies, we also need to recognize the anomalies and medical conditions that may disrupt development. The competent infant can also be the incompetent infant, the pathologic infant, he tells us. He challenges researchers to think about

functional pathologies and to begin to examine the pathologic effects of functional compromises because “doing so may help us understand an often times disregarded fact: Most infants and young children with mental health, neurobehavioral, and neuropsychological problems were clinically normal newborns.”

Bonnie Petrauskas addresses the challenges facing families in today’s society. She discusses the effects of poverty and the consequences of inadequate health care in many societies across the world. She then describes the challenges faced by parents today, their sense of isolation, and their need for support. She examines the changing role of fathers and the need for inclusive intervention strategies that are family centered and community based. She concludes by saying, “Healthcare professionals, educated in a strength-based approach to neonatal assessment, can take the leadership role in providing parents with accurate, consistent, *and* personalized information about their children.”

Daniel Stern, whose work straddles the fields of psychoanalysis, psychotherapy, philosophy, developmental psychology, neuroscience, and infant mental health, and Nadia Bruschiweiler-Stern, who has also contributed elsewhere in this volume, maintain that advances in neuroscience will be enriched by the kind of behavioral observation techniques pioneered by the NBAS. As they look toward the future, they argue that Brazelton’s concept of “optimal performance” provides a unique observational approach that makes it possible to study the full complexity and unpredictability of “the present moment” in parent-child interactions, what they refer to as “the temporal dimension of experience” and the “complex melodic line of experience.” They suggest that combining the observational techniques of the NBAS and emerging imaging techniques will allow for more comprehensive exploration of brain functioning, which will tell us more about the developing nature of intersubjectivity. Finally, they acknowledge the seminal role of Berry Brazelton’s contribution to our current understanding of infancy, ending their chapter by saying that his work “will guide and provide ideas for our field in its future dialogues with the neurosciences.”

In Chapter 27, Berry Brazelton himself tells his own story—the story of how he came to discover the human newborn, not only as competent and unique but also as a social organism, ready to interact with the caregiver from the very beginning. He shares his original vision for the NBAS and how it came to be realized, and he introduces the people who influenced him and those who helped him realize his dream. As Dr. Brazelton looks toward the future, his

concern is focused on how to better prepare pediatric professionals and educators to support parents and their children, beginning in the newborn period. He presents his *Touchpoints* model as a framework for realizing this vision, as a way of helping the practitioner “deepen his or her relationship with parents, which means that parents and provider are better able to collaborate effectively in the care of the child.”

CONCLUSION

In this chapter, I have taken a look back at the field of infancy research and practice and the pivotal role played by the NBAS in its evolution and, indeed, its transformation. I have described how our understanding of the newborn infant has been enriched by Brazelton’s work and that of his colleagues and how our appreciation of the significance of early experiences has been deepened and expanded.

The research and clinical work described in this volume, coming as it does from a wide range of disciplines and gathered in very different cultural settings, demonstrates how much this body of work has influenced clinical work with families across the world. These original reports—written by pediatricians, nurses, psychologists, psychiatrists, physical therapists, early education and infancy specialists, occupational therapists, and psychotherapists—also attest to the shift in emphasis toward intervention that is both family-centered and relationship-based and that begins in the newborn period and before. It is our hope that this new approach will inspire an even deeper understanding of the infant as an individual and as a person and will lead to a greater appreciation and respect for the role parents play in supporting their infants’ adaptation and development.

Finally, we hope that these reports can serve as a challenge to researchers and policymakers alike to work together toward forging comprehensive family-centered social policies that support children and families everywhere.

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