

# The Development of Temperament During the First Three Years of Human Life

The study of how personality develops among infants has reached a level of sophistication that makes the oft-repeated parental grievance about the “terrible twos” seem hopelessly quaint. While the topic stretches back to Freud’s description of the psychosexual stages in the first three years of life, any serious conversation about the formation of temperament thrusts forward into the realm of neuroscience, touching on phenomena such as oxytocin and the chemical processes that illuminate how bonding occurs between humans. This brand of groundbreaking scientific detail was at the forefront of the roundtable *The Development of Temperament During the First Three Years of Human Life*, held on January 19.

Moderator **Donald Pfaff**, Professor and Head of the Laboratory of Neurobiology and Behavior at Rockefeller University, began the discussion by describing recent laboratory work with rats that has contributed to a deeper understanding of the neurological factors involved in the formation of temperament. Male rats castrated at birth and female rats given high levels of testosterone were found to exhibit reversed gender behavior later in life. **Frances Champagne**, Assistant Professor of Psychology at Columbia University, conducted a separate experiment with rodents, which focused on mother-infant interactions. Dr. Champagne noted among the study’s conclusions that when a mother engaged in a higher frequency of licking and grooming behavior with her offspring, they went on to exhibit greater resiliency in dealing with stress situations, which in turn affected their reproductive behavior as adults. In addition, these rats were prone to higher-frequency licking and grooming with their own offspring.

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**Sue Carter**, Professor of Psychiatry and Co-Director of the Brain Body Center at the University of Illinois at Chicago, explained that her original interest in the effects of oxytocin came through her own experience as a mother. She was given doses of the hormone to induce the birth of her first child and avoid a cesarean section. Many years later, in an effort to better understand the effects of oxytocin on humans, she began her research on prairie voles, noting however, “You can’t do to animals what you do to humans. It would be unethical.” She described oxytocin as the hormone that “allows us to be human” by facilitating the passage of our large heads through the birth canal. It is released by the brain and other tissues during birth, lactation, and sex, and has been linked to the formation of love relationships. Most importantly, as Dr. Pfaff emphasized, too much or too little of it affects normal bonding behavior. A child’s early bonding experience is crucial in determining behavior in later life, notably the degree to which he or she is able to bond with other adults. Dr. Carter stressed that the ability to bond does not have to involve sex or marriage, simply the capacity to form feelings about another individual. “It might even be someone you don’t know,” she elaborated. “People bond in the strangest ways. They can bond to Brad Pitt!”

While not all of the panelists agreed that a fantasy relationship could be an example of healthy bonding, **Daniel Schechter**, Assistant Professor of Clinical Psychiatry in Pediatrics at the Columbia Univer-



*Donald Pfaff*

sity Medical Center, noted that there is a broad spectrum of human relationships. “If you have a good enough early attachment,” he went on, “it affects all relationships. It affects relationships to God, to community, to teachers, and at least permits those relationships to occur. If you have an early relationship that doesn’t allow flexibility and adaptability, that’s when you get stuck and can’t form these bonds and end up with various social problems.” Center Director Edward Nersessian then asked how successful attachment could be defined. **Susan Coates**, Clinical Professor of Psychology at the Columbia University College of Physicians and Surgeons, responded that in order for attachment to go well, a mother has to be sensitive to a child’s needs, in particular when the child exhibits negative affect. When treatment of the child is inconsistent, she went on, the child becomes insecurely attached.

Steering the conversation toward factors outside of child-parent bonding, pediatrician and child psychiatrist **Nadia Bruschweiler-Stern**, who directs the Brazelton Centre in Switzerland, commented that it’s difficult to isolate the causes for variations in temperament. She pointed out that studies have shown that heightened irritability among infants depends in many cases on acid reflux. Dr. Coates, however, noted that parental behavior was the most reliable predictor of whether a child will develop social anxieties, noting that maternal depression skews child behavior in the direction of inhibition. Coates went on to raise the possibility that shy children have an empathic advantage over bold children, citing an experiment in which inhibited infant monkeys unexpectedly rose to assume dominant hierarchical roles in relation to more aggressive monkeys. Dr. Bruschweiler-Stern asserted that certain behaviors, such as habits of movement and self-soothing mannerisms, appear to be passed through genetics, rather than through parental bonding. Coates conceded that in some cases mothers are not well matched temperamentally with their own babies.

After the panelists delved into the various character traits that begin to form in children under the age of three, such as extreme novelty seeking, obstinacy, and hyperactivity, questions from the audience prompted a discussion of the impact on babies of the natal event itself, as well as the pre-natal environment. The acknowledgement of such factors highlighted the stark contrast to early Freudian thought on the subject of temperament, which placed an emphasis on constitutional factors, but did not address the infant’s early relationship with the mother. An earlier comment by Dr. Coates shed some humor on this contradiction. “Psychoanalysts,” she quipped, “do not believe in temperament until they have their second kid.” *A.L.*