CHAPTER 1

The Attachment Behavioral System

Basic Concepts and Principles

> My life's work has been directed to a single aim. I have observed the more subtle disturbances of mental function in healthy and sick people and have sought to infer—or, if you prefer it, to guess—from signs of this kind how the apparatus which serves these functions is constructed and what concurrent and mutually opposing forces are at work in it.
>
> —SIGMUND FREUD (1961/1930, p. 208)

> As my study of theory progressed it was gradually borne in upon me that the field I had set out to plough so lightheartedly was no less than the one that Freud had started tilling sixty years earlier, and that it contained all those same rocky excrescences and thorny entanglements that he had encountered and grappled with—love and hate, anxiety and defense, attachment and loss.
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> —JOHN BOWLBY (1969/1982, p. xxvii)

One of the intellectual landmarks of the 20th century was Sigmund Freud's psychoanalytic theory. In a dramatic and highly creative theoretical move, Freud focused attention on the previously hidden and unmapped (except for literature) unconscious dynamics of the human mind. He traced psychological dysfunctions and psychopathologies to abusive, repressive, or dysfunctional childhoods, and bolstered the emerging Western conviction that an individual, through personal insight and deliberate self-reconstruction, can grow beyond the constraints of a particular family or local culture. In a unique way, Freud combined the seemingly incompatible themes of Darwinian evolutionary biology (with its emphasis on selfishness, sex, and aggression), the importance of personal and cultural narratives (life stories, clinical case studies), and the possibility that insight and enlightened rationality can reshape a person's self-control of body, mind, and behavior. Despite the lashing Freud has received from critics, in his own lifetime and down to the present day, no one looking objectively at his achievements can doubt that he was a major force in 20th-century intellectual life.

Following in Freud's footsteps, while also doing battle with some of Freud's intellectual offspring (and in one case a biological daughter, Anna Freud), John Bowlby, a British

psychoanalyst working from 1940 to 1990, significantly altered and updated psychoanalytic theory by combining insights from then-current object relations psychoanalytic theories, post-Darwinian ethology, modern cognitive-developmental psychology, cybernetics (control systems theories), and community psychiatry to create attachment theory, an attempt to explain why early childhood relationships with parents have such a pervasive and lasting effect on personality development. Assisted by astute theoretical and methodological insights contributed by his American colleague, Mary Ainsworth, Bowlby laid the foundation for what has become one of the most heavily researched conceptual frameworks in modern psychology.

The purpose of this book is to show how this research has recast our understanding of the adult mind, its goals and strategies for attaining particular life outcomes, and its strong propensity for forming close relationships with other embodied minds and symbolic figures, such as past relationship partners, religious deities, and cultural groups. Unlike Freud's theory, the one proposed by Bowlby and Ainsworth has proven to be eminently testable and subject to adaptation for new purposes, both scientific and therapeutic. By applying some of the best methods of ethology and experimental psychology to the study of children's emotional attachments to parents, Ainsworth set the stage for thousands of subsequent studies, conducted by researchers whose courage and confidence were based partly on Ainsworth's ideas and accomplishments.

Our own perspective on human attachments has arisen in the context of contemporary personality and social psychology, which focuses on adolescent and adult development and social relationships. To extend attachment theory from child development to this new territory, we have had to invent and adapt methods taken from many areas of modern psychology, such as neuroimaging, physiological recording, behavioral observations, questionnaire surveys, and laboratory experiments. The rapid acceptance of our ideas, methods, and research findings has resulted in a large and sprawling literature that, we suspect, is no longer familiar to any one person.

Our goal in this book is to survey this large and unwieldy literature, organize it for readers, and provide a solid foundation for new investigators, as well as for clinicians who wish to apply what has been learned in scientific studies. The literature now ranges from physiological and developmental psychology through academic personality and social psychology to clinical and counseling psychology, and even to applications in organizations and work settings. What began as a theory of child development is now used to conceptualize and study adult couple relationships, work relationships, and relations between larger social groups and societies. Fortunately, although the theory has proven its value in this wide range of settings, its concepts and principles are straightforward and easy to comprehend. It should be possible for any serious reader of this book to understand the theory, evaluate its uses in research and clinical settings, and think of novel ways to extend and apply it.

PERSONAL BACKGROUND

This book can best be understood if we explain briefly how we came, individually, to attachment theory, then began to influence each other and eventually work together. Both of us were attracted to psychoanalytic theory as undergraduates, despite the hard knocks it had taken from critics. Anyone who opens his mind to what goes on in real people's lives, or who reads novels or poems, or watches artful films, realizes that the issues raised by psychoanalysts, beginning with Freud, are extremely important: sexual attraction and

desire; romantic love; the development of personality, beginning in infant–caregiver relationships; painful, corrosive emotions such as anger, fear, jealousy, hatred, and shame, which contribute to intrapsychic conflicts, defenses, and psychopathology; and intergroup hostility and war.

When we first began studying academic social and personality psychology, it seemed disappointingly superficial and dry compared with psychoanalysis. But its strong point—and the weak point of psychoanalysis—was a collection of powerful and creative empirical research methods. Psychoanalytic theorists seemed capable of endlessly inventing and debating hypothetical constructs and processes, without being constrained by operational definitions, sound psychometrics, or replicable empirical studies. Both of us began our careers as experimental researchers pursuing existing topics in the field (stress and learned helplessness in Mikulincer's case, self-awareness and fear of success in the case of Shaver), but our interest in psychoanalytic ideas never abated. When Bowlby's books began to appear, we realized that a psychoanalytic thinker could pay attention to the full range of scientific perspectives on human behavior, seek empirical evidence for psychoanalytic propositions, and emend or reformulate psychoanalytic theory based on empirical research. Ainsworth's development of a laboratory "Strange Situation" assessment procedure, which allowed her to classify infants' attachment patterns systematically and relate them to home observations of parent–child interactions, added to our confidence that research on an extension of attachment theory to adults and adult relationships might be possible.

In the mid-1980s, Shaver was studying adolescent and adult loneliness (see, e.g., Rubenstein & Shaver, 1982; Shaver & Hazan, 1984) and noticing both that attachment theory was useful in conceptualizing loneliness (e.g., Weiss, 1973) and that patterns of chronic loneliness were similar in certain respects to the insecure infant attachment patterns identified by Ainsworth et al. (1978). Building on this insight, one of Shaver's doctoral students, Cindy Hazan, wrote a seminar paper suggesting that attachment theory could be used as a framework for studying romantic love—or "romantic attachment," as they called it in their first article on the topic (Hazan & Shaver, 1987).

That article caught the eye of Mikulincer, who had become interested in attachment theory while studying affect-regulation processes related to learned helplessness, depression, combat stress reactions, and posttraumatic stress disorder in Israel. He noticed similarities between (1) certain forms of helplessness in adulthood and the effects of parental unavailability in infancy; (2) intrusive images and emotions in the case of posttraumatic stress disorder (PTSD) and the anxious attachment pattern described by Ainsworth et al. (1978) and Hazan and Shaver (1987); and (3) avoidant strategies for coping with stress and the avoidant attachment pattern described by these same authors. In 1990, Mikulincer, Florian, and Tolmacz published a study of attachment patterns and conscious and unconscious death anxiety, one of the first studies to use the preliminary self-report measure of adult attachment style devised by Hazan and Shaver (1987), and the first to show its connections with unconscious mental processes.

From then on, both of us continued to pursue the application of attachment theory to the study of adults' emotions, emotion regulation strategies, close interpersonal relationships, and the accomplishment of various life tasks, noticing that we were both interested in the experimental study of what might be called attachment-related psychodynamics: the kinds of mental processes, including intense needs, powerful emotions and conflicts, and defensive strategies that had captivated the attention of both Freud and Bowlby. In recent years we have pooled our efforts to craft a more rigorous formulation of our theoretical ideas (e.g., Mikulincer & Shaver, 2003; Shaver &

Mikulincer, 2002a), clarify and extend our model of the attachment system, test it in many different ways, and move it in the direction of positive psychology's emphasis on personal growth and social virtues (e.g., Gable & Haidt, 2005; Seligman, 2002), such as compassion, altruism, gratitude, and forgiveness. In our opinion, attachment theory comfortably incorporates both "positive" and "negative" psychologies by considering all of the psychological forces that arise and collide in the human quest for security and self-control. In this book we summarize what we have learned to date, placing our own work in the context of the large and still growing literature on adult attachment.

ORIGINS OF ATTACHMENT THEORY IN THE LIVES OF BOWLBY AND AINSWORTH

Although our own backgrounds are worth taking into account, it is obviously even more important to know something about Bowlby and Ainsworth, the originators of attachment theory. John Bowlby was born in 1907, in England, to well-off and well-educated parents. His father was a physician, and Bowlby eventually became one, too—a psychiatrist. But long before that, he served as a volunteer at a school for maladjusted children and began to form impressions and opinions that became the seeds of attachment theory. As Bretherton (1992) explained:

> [Bowlby's] experience with two children at the school set his professional life on course. One was a very isolated, remote, affectionless teenager who had been expelled from his previous school for theft and had had no stable mother figure. The second child was an anxious boy of 7 or 8 who trailed Bowlby around and who was known as his shadow (Ainsworth, 1974). Persuaded by this experience of the effects of early family relationships on personality development, Bowlby decided to embark on a career as a child psychiatrist. (p. 759)

These boys' different reactions to inadequate parenting led Bowlby, throughout his later writings, to try to understand the development of what we call "avoidant" and "anxious" attachment styles. This initial focus of his interest is what continues to occupy us and many other researchers who are trying to understand adolescent and adult attachment.

While studying to become a child psychiatrist, Bowlby undertook psychoanalytic training with a then-famous mentor, Melanie Klein, and was psychoanalyzed for several years by Joan Riviere, Klein's close associate. From those mentors Bowlby learned a great deal about the importance of early relationships with caregivers; the tendency of troubled children to deal with painful experiences, especially separations and losses, by defensively excluding them from conscious memory; and the emotions of anxiety, anger, and sadness. Despite absorbing many of Klein's and Riviere's ideas, however, Bowlby seemed from the beginning not to accept their extreme emphasis on fantasies at the expense of reality, and on sexual drives rather than other kinds of relational needs. (See Karen [1994] for a detailed account of this part of Bowlby's professional training.)

Their fundamental disagreement came to a head, at least for Bowlby, when Klein forbade him to speak with or focus attention on a child client's schizophrenic mother, because Klein thought child psychoanalysis should deal with the child's conflicts and fantasies, not with the actual experiences Bowlby thought had probably caused and certainly contributed to them. Recalling these events years later, in 1979, Bowlby said, "It was regarded as almost outside the proper interest of an analyst to give systematic attention to a person's real experiences" (p. 5). In his own work, Bowlby emphasized each child's

actual experiences, especially the experience of what he called "maternal deprivation"—separation from or loss of one's mother early in life. One of his first publications (1944), "Forty-Four Juvenile Thieves," used a combination of statistics and clinical case notes to show that juvenile delinquents often came from backgrounds that included loss of the mother, repeated separations from the mother, or being passed from one foster mother to another.

Attachment theory grew gradually out of Bowlby's experiences as a family clinician at the Tavistock Clinic in London and the author of a report for the World Health Organization (WHO) on homeless children following World War II. At the Tavistock Clinic, Bowlby directed a research unit focused on separation from parents. There, he collaborated with a talented social worker, James Robertson, who made powerfully moving films of children who had been forcefully separated from their parents, either because a child had to be hospitalized for medical treatment and the parents were not allowed to visit, or because a parent (usually the mother) had to be hospitalized and the child was not allowed to visit. Besides contributing to Bowlby's early theorizing, these research ventures and films helped to change visitation policies in British hospitals as well as hospitals in other parts of the world.

Bowlby's interest was not only in children who suffered "maternal deprivation" but also in the effects their wounds might have on communities and society more broadly. In 1951 he concluded an essay as follows: "Thus it is seen how children who suffer deprivation grow up to become parents deficient in the capacity to care for their children and how adults deficient in this capacity are commonly those who suffered deprivation in childhood" (pp. 68–69). This insight has been central to attachment research ever since and is now called the "intergenerational transmission" of insecurity (e.g., de Wolff & van IJzendoorn, 1997). Bowlby's suggestions regarding psychotherapy (e.g., summarized in his 1988 book, *A Secure Base*) can be viewed as an attempt to heal the attachment injuries of children, adolescents, and adults, and at the same time break the intergenerational cycle that otherwise extends the plague of insecurity to subsequent generations.

As Bowlby's clinical observations and insights accumulated, he became increasingly interested in explaining what, in his first major statement of attachment theory, he called "the child's tie to his mother" (Bowlby, 1958). In formulating the theory, he was especially influenced by Konrad Lorenz's (1952) ideas about "imprinting" in precocial birds and the writings of other ethologists and primatologists, including his friend and mentor Robert Hinde (1966). These authors, along with Harry Harlow (1959), had begun to show that immature animals' ties to their mothers were not due simply to classical conditioning based on feeding, as learning theorists (and, using different language, psychoanalysts) had thought. Instead, Bowlby viewed the human infant's reliance on, and emotional bond with, its mother to be the result of a fundamental instinctual behavioral system that, unlike Freud's sexual libido concept, was relational without being sexual. Because Bowlby relied so heavily on animal research and on the notion of behavioral systems, he was strongly criticized by other psychoanalysts for being a "behaviorist." He nevertheless continued to view himself as a psychoanalyst and a legitimate heir to Freud, which is the way he is largely viewed today.

After publishing his 1958 paper on the attachment bond (i.e., the child's tie to his or her mother), Bowlby published two seminal papers: "Separation Anxiety" (1960a) and "Grief and Mourning in Infancy and Early Childhood" (1960b). Over the subsequent decades, each of these foundational articles was developed into a major book, forming a trilogy that is now widely recognized as a major contribution to modern psychology, psychiatry, and social science. The first volume was published in 1969 and revised in 1982: *Attachment and Loss: Vol. 1. Attachment*. The second volume, *Attachment and Loss:*

Vol. 2. Separation: Anxiety and Anger, was published in 1973, and the third, *Attachment and Loss: Vol. 3. Loss: Sadness and Depression*, in 1980. These books were accompanied in 1979 by a collection of Bowlby's lectures, *The Making and Breaking of Affectional Bonds*, which is a good place for readers unfamiliar with Bowlby's work to begin, and were capped in 1988 by Bowlby's book about applications of attachment theory and research to psychotherapy, *A Secure Base*. In 1990, he published a biography of Charles Darwin, focusing on the possible effects of the death of Darwin's mother when he was around 10 years of age on Darwin's subsequently poor physical health. (Bowlby attributed his symptoms to hyperventilation, a physiological effect of unresolved grief.) This set of writings is, by any standard, a monumental contribution to our understanding of human relationships and the human mind.

Bowlby's major collaborator, especially in his later years, Mary Salter Ainsworth, was born in Ohio in 1913 and received her PhD in developmental psychology from the University of Toronto in 1939 after completing a research dissertation on security and dependency inspired by her advisor William Blatz's security theory. In her dissertation, *An Evaluation of Adjustment Based on the Concept of Security* (1940), Ainsworth mentioned for the first time the central attachment-theoretical construct of a "secure base":

> Familial security in the early stages is of a dependent type and forms a basis from which the individual can work out gradually, forming new skills and interests in other fields. Where familial security is lacking, the individual is handicapped by the lack of what might be called a secure base from which to work. (p. 45)

Interestingly, in light of Ainsworth's subsequent career, her dissertation included a new self-report measure of security and dependency, as well as coded content analyses of autobiographical narratives. After World War II, Ainsworth participated in Rorschach workshops with Bruno Klopfer, a famous Rorschach expert, because she had been asked to teach a personality assessment course. Out of these workshops came an influential book on the Rorschach Inkblot Test (Klopfer, Ainsworth, Klopfer, & Holt, 1954). Ainsworth was therefore familiar with a variety of research methods and a fruitful theory of security before she ever met John Bowlby.

Ainsworth's husband, Leonard, needed to move to London to complete his doctoral studies, and she moved with him. (In those days, a husband's career was generally considered more important than a wife's career.) Once in London, Mary Ainsworth answered a newspaper advertisement for a research position with Bowlby, having not known about him or his work beforehand. Part of her job was to analyze some of Robertson's films of children's separation behavior. These films convinced her of the value of behavioral observations, which became a hallmark of her contributions to attachment research from then on. When her husband decided to advance his career by undertaking psychocultural research in Uganda in 1953, Mary Ainsworth moved there as well, and began an observational study of mothers and infants, repeatedly visiting them every 2 weeks for 2 hours over a period of several months. Eventually, after returning to North America and working at Johns Hopkins University in Baltimore, Maryland, she published a book in 1967, *Infancy in Uganda: Infant Care and the Growth of Love*. (She was also divorced from her husband Leonard, which caused her to enter a several-year psychoanalysis that she subsequently praised very highly, and that seemed to allow her to move out from under Leonard's harmful shadow and become much more creative and productive. See Isaacson, 2006, for a psychobiography of Ainsworth based on personal correspondence.)

One of the historically significant features of Ainsworth's 1967 book is an appendix

that sketches different patterns of infant attachment, which Ainsworth linked empirically with observable maternal sensitivity or insensitivity at home. Although these patterns were not precisely the same as the three types for which Ainsworth later became famous (in this book we call them *secure*, *anxious*, and *avoidant*; see Ainsworth et al., 1978), some definite similarities are evident. The three main patterns of attachment delineated later on, derived from studies of middle-class white infants in Baltimore, involved extensive home observations during the infants' first year of life, supplemented by a laboratory assessment procedure, the "Strange Situation" (now typically capitalized in writings about attachment theory and research, to help readers remember that it is a formal measure, not simply an "odd" situation). Ainsworth et al.'s 1978 book explained how to code an infant's behavior toward the mother in the Strange Situation, and also showed how the three major categories of infant attachment behavior were associated with particular patterns of maternal behavior in the home. The measures and ideas advanced in the 1978 book, in conjunction with Bowlby's theoretical trilogy on attachment and loss, form the backbone of all subsequent discussions of attachment processes and individual differences in attachment style.

Over the years, Ainsworth and Bowlby continued to correspond frequently and meet for extended face-to-face discussions, and both regularly modified their ideas and research efforts in line with the other's discoveries. (One of Bowlby's reasons for creating a revised version of the first [1969] volume of his *Attachment and Loss* trilogy, in 1982, was that he wished to include empirical evidence from Ainsworth's studies. In 1988 he expressly honored Ainsworth and her ideas by titling his book on attachment-oriented psychotherapy *A Secure Base*.) In our opinion, Bowlby's work, no matter how brilliant, would not have had the enormous impact it has had on the discipline of psychology without the theoretical insights and psychometric and empirical contributions of Mary Ainsworth. Many other object relations theories proposed by British psychoanalysts of Bowlby's era did not generate anything like the research literature inspired by attachment theory, partly because they were less clearly stated, less subject to operationalization, and less connected with other scientific literatures.

In 1989, both Bowlby and Ainsworth received the American Psychological Association's Distinguished Scientific Contribution Award. Ainsworth single-handedly completed an article for the *American Psychologist* accepting the award on behalf of both scholars, because Bowlby died before the article was completed (Ainsworth & Bowlby, 1991). Their joint contributions to psychology and psychiatry are remarkable for many reasons, not the least of which is that their work is increasingly cited in psychoanalytic books and articles, despite the cool (and in some cases, hostile) reception Bowlby's ideas initially received from his psychoanalytic colleagues. Not only was he not a behaviorist, but thanks in part to Ainsworth, he also turned out to be the most important psychoanalytic theorist of his or, except for Freud's, any other generation.

NORMATIVE ASPECTS OF THE ATTACHMENT BEHAVIORAL SYSTEM

With the preceding two biographical sections behind us, we can turn to attachment theory itself, placing special emphasis on Bowlby's notion of the "attachment behavioral system." There are two crucial parts of attachment theory, one of which is called "normative" because it deals with normal features of the attachment behavioral system and its

development that can be observed in all people, and the other of which concerns "individual differences" in the attachment system's operation. We begin our account of the theory by focusing first on its normative component.

In rejecting the concepts of drive and psychic energy in classical psychoanalytic theory and attempting to replace them with concepts more compatible with the ethological and cognitive psychological theories of his time, Bowlby (1969/1982) borrowed from ethology the concept of *behavioral system*, a species-universal, biologically evolved neural program that organizes behavior in ways that increase the chances of an individual's survival and reproduction, despite inevitable environmental dangers and demands. Theoretically, the attachment behaviors observed when a person encounters threats or stressors—for example, vocalizing distress, seeking proximity or clinging to a caregiver, and relaxing once proximity and support are provided—are due to a hard-wired "attachment behavioral system," just as a caregiver's reactions to a relationship partner's (especially a dependent child's) distress signals and attachment behaviors are due to an innate "caregiving behavioral system." By dividing motivational systems into functional types such as attachment, caregiving, exploration, affiliation, and sex, Bowlby was able to conceptualize links among, and functional and dysfunctional properties of, these systems in a wide variety of life situations and across all phases of life. By conceptualizing each behavioral system as an innate, functional, goal-directed (or as he said, goal-corrected) process, Bowlby was impelled to think about how each system evolved, what function it served in the context of survival and reproduction, and how it was activated, governed, and deactivated in particular situations.

According to the theory, these behavioral systems govern the choice, activation, and termination of behavioral sequences aimed at attaining particular "set-goals"—states of the person–environment relationship that have adaptive advantages for individual survival and genetic reproduction. The adaptive behavioral sequences are "activated" by certain stimuli or kinds of situations that make a particular set-goal salient (e.g., sudden loud noises, darkness, the presence of a stranger or predator) and are "deactivated" or "terminated" by other stimuli or outcomes that signal attainment of the desired goal state (emotional support or protection, in the case of the attachment system). This cybernetic conception of behavioral systems was quite different from theories based on concepts such as "instincts," "drives," or "needs," because there is no assumption that a person experiences, say, increasing needs for attachment over time the way a person becomes hungry over time without food. (Both Freud and Lorenz had imagined that pressure builds up in need systems, causing energy or pressure to leak out or trigger an explosion, but there is no such "balloon-under-pressure" metaphor in attachment theory.) Also, instead of viewing behavior as forced into expression by fluid drives that have to be channeled or repressed, behavior is viewed as "activated" by "signals," and the behavior itself is preorganized into generally functional patterns with identifiable set-goals. Behavior is "terminated" when its set-goal is attained, rather than being exhausted by depletion of psychic energy or libido.

In the following passage, Bretherton (1992) explains the differences between Bowlby's conception of behavioral systems and the views of earlier psychoanalytic and instinct theorists:

> Behaviors regulated by such systems need not be rigidly innate, but—depending on the organism—can adapt in greater or lesser degrees to changes in environmental circumstances, provided these do not deviate too much from the organism's environment of evolutionary adaptedness [EEA, for short]. Such flexible organisms pay a price, however, because adaptable

> behavioral systems can be more easily subverted from their optimal path of development. For humans, Bowlby speculates, the environment of evolutionary adaptedness probably resembled that of present-day hunter-gatherer societies. (p. 766)

Conceptually, a behavioral system has six components or aspects: (1) a specific biological function, which in the EEA increased the likelihood of survival or reproductive success; (2) a set of activating triggers; (3) a set of interchangeable, functionally equivalent behaviors that constitute the primary strategy of the system for attaining a particular goal; (4) a specific set-goal—the change in the person–environment relationship that terminates the system's activation; (5) the cognitive processes involved in activating and guiding the system's functions; and (6) specific excitatory or inhibitory neural links with other behavioral systems. Although akin to the evolutionary psychological construct of a mental "module" (e.g., as used in the volume edited by Barkow, Cosmides, & Tooby, 1992), the behavioral system construct is more complex, applies to a broader range of behavior, is "goal-corrected," and is more evident in its behavioral effects. For example, evolutionary psychologists have tended to focus on postulated mental modules that reason in certain ways, detect cheating, cause people to be attracted to sexual partners with "good genes," and arouse jealousy of particular kinds. Bowlby, in contrast, focused on complex and fairly flexible behavior patterns such as seeking proximity to a caregiver (e.g., by crying, smiling, reaching, crawling, or doing whatever else is necessary), exploring the environment curiously and, as a result, building up a complex repertoire of physical and mental skills, and empathizing with people in distress and engaging in a variety of actions to comfort them.

The Biological Function of the Attachment System

The presumed biological function of the attachment system is to protect a person (especially during infancy and early childhood) from danger by ensuring that he or she maintains proximity to caring and supportive others (*attachment figures*), especially in dangerous situations. In Bowlby's view, the innate propensity to seek out and maintain proximity to attachment figures (people he called "stronger and wiser" caregivers) evolved in relation to the prolonged helplessness and dependence on caregivers of human infants who cannot defend themselves from predators and other dangers. According to Bowlby's evolutionary reasoning, infants who maintained proximity to a supportive caregiver were more likely to survive and eventually reproduce, causing genes that fostered proximity seeking and other attachment behaviors in times of danger to be selected for and passed on to subsequent generations.

We now know that the action of these genes is mediated by neuroendocrine hormones and physiological "axes" or systems, such as the neuropeptides oxytocin and vasopressin, the stress hormones adrenaline and cortisol, the amygdala, and the hypothalamic–pituitary–adrenal (HPA) axis, that respond to threats and stressors (for details, see the volume edited by Carter et al., 2005). Interestingly, oxytocin plays a role in both child–parent attachments and later romantic/sexual "pair-bond" attachments (Carter, 2005) and is measurably low in former orphans who were neglected or poorly treated before being adopted into caring families (O'Connor, 2005). (This may be one of the mediators of clinically significant "reactive attachment disorder," which is the technical term for a disorder involving inability to form normal child–caregiver attachments after having been severely neglected or treated abusively early in life.) Another example: Cortisol levels are especially high and labile in both young children and adults who are

separated from attachment figures, or are simply asked to think about such separations and losses (e.g., Gillath, Shaver, Mendoza, Maninger, & Ferrer, 2006; Gunnar, 2005). Thus, attachment researchers are well on the way to understanding the physiological processes that account for some of the effects Bowlby and Ainsworth observed in the behavior of clinical cases and participants in laboratory studies.

Although the attachment behavioral system is most evident and perhaps most important early in life, Bowlby (1988) assumed it is active over the entire lifespan and is manifested in thoughts and behaviors related to seeking proximity to attachment figures in times of threat or need. He specifically argued against the idea that dependence on others is immature or pathological at any age, or that grieving a loss is pathological or undesirable. He understood that even fully mature and relatively autonomous adults—especially when they are threatened, in pain, lonely, or demoralized—benefit from seeking and receiving other people's care. He also argued that mature autonomy is attained partly by internalizing positive interactions with attachment figures. In other words, the ability to self-soothe is based largely on having been comforted by caring attachment figures earlier in life for empirical evidence that this is the case even in adulthood (see Mikulincer & Shaver, 2004).

Bowlby, along with Harlow (1959), also rejected psychoanalytic and Pavlovian conceptualizations of social attachment as a secondary effect of being fed by a parent, which Freud and Pavlov attributed to drive reduction and classical conditioning. In line with "object relations" approaches to psychoanalysis (reviewed by Greenberg & Mitchell, 1983), Bowlby viewed human beings as inherently relationship seeking, naturally oriented to seek what Harlow (1959) called "contact comfort" (in his well-known studies of infant monkeys' attachments to and reliance on real and cloth-surrogate mothers), and naturally inclined to seek proximity to familiar, comforting figures in times of threat, pain, or need. That is, Bowlby viewed proximity to and contact with affectionate, trusted, and supportive attachment figures as a natural and functional human phenomenon, and he viewed the loss of such proximity and contact as a natural source of distress and psychological dysfunction. In this book, we show that successful bids for proximity and the attainment of felt security are important aspects of all satisfying close relationships, regardless of a person's age.

Activating Triggers of the Attachment System

Originally, Bowlby (1969/1982) claimed that the attachment behavioral system is activated by environmental threats that endanger a person's survival. Encounters with such threats arouse a need for protection provided by other people and automatically activate the attachment system. When no threat is present, there is no need to seek care from others, so no proximity-seeking tendency is activated, at least not for the purposes of protection. (A person may seek proximity to others for the purpose of some other behavioral system, such as affiliation or sexual mating.) When no threat is present, it is often advantageous not to seek care, but instead to devote time to other activities, such as exploration, food gathering, or mating. In subsequent writings, Bowlby (1973) extended this reasoning by proposing that the attachment system is also activated by "natural clues of danger"—stimuli that are not inherently dangerous but that increase the likelihood of danger (e.g., darkness, loud noises, isolation)—as well as by attachment-related threats such as impending or actual separation from, or loss of, an attachment figure. In his view, a combination of attachment-unrelated sources of threat and lack of access to an attach-

ment figure compounds distress and triggers the highest level of attachment-system activation.

Although the same kinds of processes occur in adulthood, the threshold for activation of the attachment system is generally higher than in childhood, because most adults have developed an array of coping and problem-solving capabilities that can be exercised autonomously, and have developed a strong capacity for symbolic thought. These abilities to self-soothe and regulate emotions allow adults to imagine being calmed by an attachment figure or to postpone comfort seeking until such support is available.

The Primary Attachment Strategy

According to Bowlby (1969/1982), proximity seeking is the natural and primary strategy of the attachment behavioral system when a person needs protection or support. This strategy consists of a wide variety of behaviors that have similar functions (establishing and maintaining proximity to a protective attachment figure) and serve similar adaptive functions (protection from danger, injury, or demoralization). Among these behaviors are signals (interaction bids) that tell a relationship partner one is interested in restoring or maintaining proximity; overt displays of negative emotion (e.g., anger, anxiety, sadness) that call upon a partner to provide support and comfort; active approach behaviors that result in greater physical or psychological contact, including what Harlow (1959) called "contact comfort"; and explicit requests for emotional or instrumental support. According to Bowlby (1969/1982), these behaviors are not all likely to be manifested in every threatening situation. Rather, they are part of a repertoire of behaviors from which an individual can "choose" (consciously or unconsciously) the most appropriate means of attaining protection in a given situation.

In infancy, these strategies of the attachment behavioral system are largely innate (e.g., crying when frightened, reaching out to be picked up and held), but as a person develops and enters more complex social relationships, the goal-corrected behavior motivated by the attachment system has to become increasingly flexible, context-sensitive, and skillful. A child who has been appropriately "coached" (Gottman & Declaire, 1998) and guided by attachment figures in a wide variety of situations is more likely to develop such skills (e.g., expressing emotions appropriately, communicating needs and feelings coherently and clearly, regulating need expression in line with preferences and role demands of an attachment figure) and is therefore more likely to be successful in getting hiss or her needs met in subsequent relationships.

In adulthood, the primary attachment strategy does not necessarily require actual proximity-seeking behavior. It can also include activation of mental representations of relationship partners who regularly provide care and protection. These representations can create a sense of safety and security, which helps a person deal successfully with threats; that is, mental representations of attachment figures can become symbolic sources of protection, and their activation can establish what might be called "symbolic proximity" to supportive others. Mental representations of the self come to include "incorporated" or "introjected" traits of security providing attachment figures, so that self-soothing and soothing by actual others become alternative means of regulating distress (Mikulincer & Shaver, 2004). For example, a student undergoing a difficult examination can call to mind the beneficial support provided on previous occasions by security-providing attachment figures, and can regulate anxiety and focus attention partly by calming herself in some of the same ways her attachment figure previously calmed her.

At the end of the exam, having worked hard and effectively, the student can call her attachment figure on the phone and share the joy of hard work that ends happily. Of course, at times—during painful illnesses or injuries or in the midst of traumatic events—when these strategies are insufficient, even generally secure adults often seek immediate, actual proximity to an attachment figure.

The Set-Goal of the Attachment System

Bowlby (1969/1982) specified the set-goal of the attachment system and described the typical cycle of attachment-system activation and deactivation. The goal of the system is a sense of protection or security (called "felt security" by Sroufe & Waters, 1977b), which normally terminates the system's activation. This sense of felt security is a psychological state with many implications: Feeling secure, a person can devote attention to matters other than self-protection; being well cared for, he can appreciate the feeling of being loved and valued; in some circumstances, he can take risks, being confident that help is readily available. This goal is made particularly salient by encounters with actual or symbolic threats and by appraisals of an attachment figure as not sufficiently near, interested, or responsive. In such cases, the attachment system is activated and the individual is motivated to seek and reestablish actual or symbolic proximity to an attachment figure. These bids for proximity persist until protection and security are attained. When the goal of felt security is attained, the attachment system is deactivated and the individual can calmly and coherently return to nonattachment activities.

This cycle—experiencing threats or distress, seeking protection and comfort from an attachment figure, experiencing stress reduction and felt security, and returning to other interests and activities—provides a prototype of both successful emotion regulation and regulation of interpersonal closeness. Knowing that coping with threats and distress is possible (through affection, gaining assistance, solving pressing problems), and knowing that it can be accomplished in part by assistance from relationship partners, gives a person a model or "script" for regulating negative emotions, maintaining equanimity, and sustaining valuable relationships (Waters, Rodrigues, & Ridgeway, 1998). Part of what is learned and represented in this script is that interpersonal closeness and support for autonomous functioning are mutually sustainable. When one is suffering or worried, it is useful to seek comfort from others; when suffering is alleviated, it is possible to engage in other activities and entertain other priorities. When attachment relationships function well, a person learns that distance and autonomy are completely compatible with closeness and reliance on others. There is no tension between autonomy and relatedness.

Bowlby was primarily interested in infant attachment to the mother. He was a product of his culture and historical era in viewing the mother as the most important and most influential attachment figure. This "monotropy," as he called the tendency to have one particular attachment figure who clearly stands out from all others, has been challenged by feminists, members of modern societies that depend on professional day care workers, and anthropologists. Hrdy (2005), for example, provided extensive evidence for what she calls the "cooperative breeding hypothesis," according to which "allomaternal assistance was essential for child survival during the Pleistocene (p. 9)," when evolution of human attachment behavior is thought to have occurred.

Far from disagreeing with other aspects of attachment theory, Hrdy (2005) views the reliance on allomaternal care as one reason for the evolution of human attachment behavior:

> This breeding system—quite novel for an ape—permitted hominid females to produce costly offspring without increasing interbirth intervals, and allowed humans to move into new habitats, eventually expanding out of Africa. Reliance on allomaternal assistance would make maternal commitment more dependent on the mother's perception of probable support from others [such as a male mate or female relatives] than is the case in most other primates. One artifact of such conditional maternal investment would be newborns who needed to monitor and engage mothers, as well as older infants and juveniles who needed to elicit care from a range of caretakers across the prolonged period of dependence characteristic of young among cooperative breeders. (p. 9)

In his writings, Bowlby (1969/1982) also acknowledged that babies become attached to a few significant others during the first year of life and argued that these caregivers are organized into a "hierarchy of attachment figures," but he did not develop these ideas in detail. The issue is important to us because, later in the book, we consider the possibility that attachment-related feelings and behavior can occur in relation to many more people, in more social situations, than attachment researchers who focus exclusively on parent–child relationships would expect.

The Cognitive Substrate of the Attachment System

According to Bowlby (1969/1982), the attachment system operates in a complex goal-corrected manner; that is, a person (infant, child, or adult) evaluates the progress he or she is making toward achieving the set-goal of proximity/protection and then, if necessary, corrects his or her behavior to produce the most effective action sequence. This flexible, goal-directed, and goal-corrected adjustment of attachment behavior requires at least three cognitive operations: (1) processing information about the person–environment relationship, which involves monitoring and appraising threatening events and one's own internal state (e.g., distress, security); (2) monitoring and appraising the attachment figure's responses to one's proximity-seeking attempts; and (3) monitoring and appraising the utility of the chosen behaviors in a given context, so that an effective adjustment of these behaviors can be made in accordance with contextual constraints. These elements of a goal-corrected behavioral system are included in all cybernetic, control system models of self-regulation (e.g., Carver & Scheier, 1981; Miller, Galanter, & Pribram, 1960).

Bowlby (1969/1982, 1973) stressed that the goal-corrected nature of attachment behavior requires the storage of relevant data in the form of mental representations of person–environment transactions. Based on the theoretical writings of Craik (1943) and Young (1964), he called these representations *working models* and seemed to intend the word "working" to carry two senses: (1) The models allow for mental simulation and prediction of likely outcomes of various attachment behaviors (i.e., they provide dynamic, adjustable, context-sensitive representations of complex social situations); and (2) the models are provisional (in the sense of "working" drafts or changeable plans).

Bowlby (1969/1982) distinguished between two kinds of working models: "If an individual is to draw up a plan to achieve a set-goal not only does he have some sort of working model of his environment, but he must have also some working knowledge of his own behavioral skills and potentialities" (p. 112). That is, the attachment system, once it has been used repeatedly in relational contexts, includes representations of attachment figures' responses (*working models of others*) as well as representations of one's

own efficacy and value, or the lack thereof (*working models of self*). These working models organize a person's memory about an attachment figure and him- or herself during attempts to gain protection in times of need (Main, Kaplan, & Cassidy, 1985).

Interplay between the Attachment Behavioral System and Other Behavioral Systems

Because Bowlby was interested in human (and other primate) infants' use of attachment figures in situations that evoke fear or distress, he devoted considerable thought to the nature of fear or alarm itself. And because he was interested in what else an infant did when felt security had been established or reestablished, he had to consider all of the other behavioral systems that can become activated when an infant feels safe and unafraid. Like other psychologists who thought about fear and escape behavior, Bowlby realized that there must be an organized behavioral system that links fear arousal with escape behavior. But he also emphasized that a child often escapes *from* threat or danger *to* the safety provided by an attachment figure. As Bretherton (1992) explained,

> Bowlby notes that two distinct sets of stimuli elicit fear in children: the presence of unlearned and later of culturally acquired clues to danger and/or the absence of an attachment figure. Although escape from danger and escape to an attachment figure commonly occur together, the two classes of behavior are governed by separate control systems (observable when a ferocious dog comes between a mother and her young child). Although Bowlby regarded the systems controlling escape and attachment as conceptually distinct, he considers both as members of a larger family of stress-reducing and safety-promoting behavioral systems, whose more general function is that of maintaining an organism within a defined relationship to his or her environment. Rather than striving for stimulus absence, as Freud had suggested, Bowlby posits that humans are motivated to maintain a dynamic balance between familiarity-preserving, stress-reducing behaviors (attachment to protective individuals and to familiar home sites, retreat from the strange and novel) and antithetical exploratory and information-seeking behaviors. (p. 767)

Because fear and proximity seeking must have high priority from the standpoint of biological survival, activation of the attachment system generally deactivates or inhibits other behavioral systems. Under conditions of threat, people turn to others as providers of support and comfort rather than as partners for exploratory, affiliative, or sexual activities. Moreover, at such times they are likely to be so self-focused (so focused on their need for protection) that they lack the mental resources necessary to attend empathically and altruistically to others' needs and provide care. Only when relief is attained and a sense of attachment security is restored can the individual deploy attention and energy to other behavioral systems and engage in nonattachment activities. Because of this reciprocal relation between the attachment system and other behavioral systems, the attainment of attachment security fosters engagement in nonattachment activities such as exploration, sex, and caregiving, and allows an individual to establish distance from an attachment figure, with the belief that he or she will be available if needed.

The dynamic interplay of the attachment system and other behavioral systems can be conceptualized in terms of present-day motivation theories, which focus on the distinction between "prevention" and "promotion" motives (Higgins, 1998), or between inhibitory and excitatory neural circuits (Carver & White, 1994; J. A. Gray, 1987). When viewed in relation to threats or stressors, the attachment system can be viewed as a "prevention" motivational system aimed at protecting a person from injury or "inhibiting"

behaviors that lead to or increase the possibility of danger or injury. However, by facilitating closeness to others and the attainment of felt security, which "promotes" the operation of other approach-oriented behavioral systems (e.g., exploration and affiliation), the attachment system can be viewed as a "promotion" system or behavioral "activation" system that facilitates skills acquisition, personal growth, and self-actualization.

IMPORTANT CONCEPTUAL DISTINCTIONS

Although the central concepts and tenets of attachment theory are fairly easy to understand, it is important not to equate them too readily with everyday conceptions of human motivation and social relationships. Attachment figures are not simply any close relationship partner, and the unique features of the former are important to clarify. Moreover, not all interactions with attachment figures are attachment-related interactions; playing tennis with an attachment figure, for example, is not the same as relying on him or her for protection and comfort in times of distress. (Bowlby would have viewed this interaction as governed by the exploration and affiliation systems.) Finally, an attachment relationship is psychologically crystallized in the form of what Bowlby (1969/1982) called an "attachment bond," which is specifically related to using another person as a "stronger and wiser" attachment figure (i.e., as a safe haven and secure base in times of need). There are other forms of emotional bonds between people, for example, based on liking, sexual attraction, common interests, and even parenthood, that are not regarded, theoretically, as attachment bonds. It is important within attachment theory that children are normally "attached" to their parents, but that parents, at least when their children are young, are "caregivers" for the children, not "attached" to them in the sense of being reliant on them for protection or care. (When this reverse form of "attachment" in the technical sense occurs during childhood, attachment theorists consider it to be an inappropriate and psychologically damaging reversal of roles, because it leaves a child uncertain about his or her own safe haven and secure base).

The Uniqueness of Attachment Figures

The concept of attachment figure has a specific meaning in attachment theory. Attachment figures are not just close, important relationship partners. They are special individuals to whom a person turns when protection and support are needed. According to the theory (e.g., Ainsworth, 1991; Hazan & Shaver, 1994; Hazan & Zeifman, 1994), an attachment figure serves three purposes or functions. First, he or she is a target for proximity seeking. People tend to seek and benefit from proximity to their attachment figures in times of need. Second, an attachment figure serves as a "safe haven" in times of need (i.e., he or she reliably provides protection, comfort, support, and relief). Third, an attachment figure serves as a "secure base," allowing a child or an adult relationship partner to pursue nonattachment goals (i.e., activate other behavioral systems) in a safe environment. Based on this narrow definition of an attachment figure, a close relationship partner becomes such a figure only when he or she provides (or is perceived as providing) a safe haven and secure base in times of threat or danger.

A fourth definitional characteristic of an attachment figure is that his or her real or expected disappearance evokes "separation distress" (i.e., people react with intense distress to actual or potential unwanted separations from or losses of an attachment figure). Bowlby's (1969/1982) ideas about separation distress as a defining feature of an attach-

ment figure were inspired by observations by Burlingham and Freud (1944) and Robertson and Bowlby (1952), who noticed that infants and young children who are separated from primary caregivers for extended periods pass through a predictable series of states: protest, despair, and detachment. The initial response to separation from an attachment figure is protest: Infants actively resist separation by crying, clinging, or calling and searching in an attempt to regain contact, or at least physical proximity. If protest does not restore proximity, more pervasive signs of despair, including depressed mood, decreased appetite, and disturbed sleep, replace agitation and anxiety. This despair may subside over time, but when reunited with caregivers after a prolonged separation, infants and young children tend to react with emotional withdrawal or anger mixed with excessive vigilance and anxious clinging. According to Bowlby (1969/1982), this sequence of protest, despair, and detachment is not targeted to every close relationship partner, only to those viewed as attachment figures. Theoretically, separation distress is the normative response to an impending loss of a major source of safety and security.

During infancy, primary caregivers (usually one or both parents, but also grandparents, older siblings, day care workers) are likely to serve attachment functions. Research has shown that when tired or ill, infants seek proximity to a primary caregiver (e.g., Ainsworth, 1973) and are noticeably reassured and soothed in that person's presence (e.g., Heinicke & Westheimer, 1966). In later childhood, adolescence, and adulthood, a wider variety of relationship partners can serve as attachment figures, including siblings, other relatives, familiar coworkers, teachers or coaches, close friends, and romantic partners. They form what Bowlby (1969/1982) called, as mentioned earlier, a person's "hierarchy of attachment figures." There may also be context-specific attachment figures—real or potential sources of comfort and support in specific milieus, such as therapists in therapeutic settings or leaders in organizational settings (e.g., business organizations or the military). Moreover, groups, institutions, and symbolic personages (e.g., God) can become targets of proximity seeking and sources of security. There is evidence that many young children have imaginary friends (e.g., Gleason, 2002); that some married adults who suffer the death of a spouse continue to experience the spouse's presence, and seek his or her assistance and support in times of need (e.g., Klass, Silverman, & Nickman, 1996); and that many adults believe they can and do obtain protection and comfort from gods, angels, saints, and the spirits of deceased ancestors (e.g., Fraley & Shaver, 1999; Kirkpatrick, 2005).

The Uniqueness of Attachment Interactions and Attachment Bonds

Not every interaction between a child and an attachment figure is an attachment interaction. A child and his or her mother can go grocery shopping together, and if the child is never frightened and never feels threatened by separation, both interaction partners can go about their business without attachment issues being salient. A parent and a child can play a game together, laugh at each other's jokes and pranks, and so on, without attachment issues coming to the fore (although these kinds of interactions may help cement or maintain a bond between the two partners, because they provide evidence of affection, psychological and behavioral synchrony, trustworthiness, and special attention). Similarly, adult romantic or marital partners can go to dinner together or take a walk in the park, tease each other good-naturedly, or study history together, and attachment issues, while existing psychologically in the background, may never become salient. Moreover, in relations between an athlete and his or her coach, many of the interactions may be concerned with teaching, criticism, and so on, without the potential attachment aspects of

the relationship being salient. Even in a therapeutic relationship, where one person is officially coming to the other for support and guidance, there are moments of information exchange (e.g., about vacations or movies) or mutual joking and kibitzing that do not necessarily serve attachment functions.

Weiss (1998) has made useful distinctions between what Bowlby called "attachment" and affiliation, and has done so even within the context of a particular relationship. An "attachment interaction" is one in which one person is threatened or distressed and seeks comfort and support from the other. An affiliation interaction is one in which both people are in a good mood, do not feel threatened, and have the goals of enjoying their time together or advancing common interests. Importantly, even within a particular relationship—say, between two sisters—there can be both attachment interactions in which one sister (and not always the same one) is needy and the other is temporarily "stronger and wiser," and other, affiliative interactions in which the two consider themselves to be equal. The same goes for romantic or marital partners.

Theoretically, a lasting attachment relationship is based on the formation of what Bowlby (1969/1982) called an "attachment bond." The existence of this bond may not always be evident; when neither partner is threatened, demoralized, or in need, the two may seem quite autonomous, and their interactions may be more affiliative, exploratory, or sexual than attachment-oriented. But when one person is distressed, and especially if separation is threatened or loss occurs (due, at worst, to sudden, unexpected death), the attachment bond becomes evident. There are other kinds of emotional bonds, based on familiarity, shared activities, biological relatedness, and respect, and when these bonds are threatened or broken, a person may be distressed, but usually not to the same extent or for as long as in the case of severed attachment bonds. Most difficult to distinguish for newcomers to attachment theory are emotional bonds associated with two functionally different sides of an attachment relationship—those of the person who is attached, and those of the person who is the care provider. When a parent loses a child, the emotional reaction of the parent is likely to be extreme. But theoretically there are qualitative differences on the attachment and caregiving sides of a severed relationship: The attached person longs for the lost attachment figure's supportive presence and provision of comfort and security; the caregiver who loses a child tends to long for opportunities to care for the child and make restitution for previous failures of adequate care.

Attachment bonds do not develop overnight. Bowlby (1969/1982) and Ainsworth (1973) proposed four phases in the development of infant–caregiver attachments. In the *preattachment* phase (birth to 2 months of age) infants are inherently interested in and responsive to social interaction with virtually anyone. In the next *attachment-in-the-making* phase (from roughly 2 to 6 months of age), infants begin to show preferences, for example, by smiling and vocalizing to and settling more quickly with some caregivers rather than others. In the *clear-cut attachment* phase (beginning at around 6–7 months of age), all of the behaviors that define attachment are selectively directed toward the primary caregiver. This is evident in the infant's efforts to maintain proximity to the caregiver, the use of this person as a haven of safety in time of need and as a secure base for exploration, and reacting to separation from this person with extreme distress. In the fourth phase, *goal-corrected partnership* (beyond about 2 years of age), children can endure longer periods of separation and are increasingly capable of synchronizing their proximity-seeking bids with caregivers' goals and preferences.

In this book we are especially interested in close relationships between adults. According to Bowlby (1979), a long-term romantic (or pair-bond; Hazan & Zeifman, 1999) relationship is the prototype of attachment bonds in adulthood. Following his lead, Shaver et al.

(1988) proposed that romantic bonds in adulthood are conceptually parallel to infants' emotional bonds with their primary caregivers. In their words, "For every documented feature of attachment there is a parallel feature of love, and for most documented features of love there is either a documented or a plausible infant parallel" (p. 73). Love in both infancy and adulthood includes eye contact, holding, touching, caressing, smiling, crying, and clinging; a desire to be comforted by the relationship partner (parent, romantic lover, or spouse) when distressed; the experience of anger, anxiety, and sorrow following separation or loss; and the experience of happiness and joy upon reunion. Moreover, formation of a secure relationship with a primary caregiver or a romantic partner depends on the caregiver/partner's sensitivity and responsiveness to the increasingly attached person's proximity bids, and this responsiveness causes the person to feel more confident and safe, happier, more outgoing, and kinder to others. Furthermore, in both kinds of relationships, when the partner is not available and not responsive to the person's proximity bids, the person can become anxious, preoccupied, and hypersensitive to signs of love or its absence, to approval or rejection. Separations or nonresponsiveness, up to a point, can increase the intensity of both an infant's and an adult's proximity-seeking behavior, but beyond some point they provoke defensive distancing from the partner so as to avoid the pain and distress caused by the frustrating relationship.

All of these parallels led Shaver et al. (1988) to conclude that infants' bonds with parents and romantic or marital partners' bonds with each other are variants of a single core process. Nevertheless, adult pair bonds involve not only the attachment system but also the caregiving and, often, the sexual/reproductive system (Ainsworth & Bowlby, 1991; Hazan & Shaver, 1994). In romantic relationships, people occupy not only the "needy" position and expect to gain security and comfort from their partner but also the "caregiver" position, in which they are expected to provide care and support to their needy partner. In addition, the romantic partner is viewed not only as a source of security and comfort but also, often, as a partner for sexual activities and reproduction.

This kind of role switching is evident even in monogamous or pair-bonded nonhuman animals, such as prairie voles, titi monkeys, and some species of guinea pigs (C. S. Carter et al., 2005). When describing one such species (the domestic guinea pig, *Cavia aperea f. porcellus*), for example, Sachser (2005) says:

> When placed in an unfamiliar cage, the male's endocrine stress response (e.g., increase in serum cortisol concentrations) is sharply reduced when the bonded female is present. In contrast, the presence of a strange female, or one with whom he is merely acquainted, has little effect. Thus the effect of various types of relationships differs remarkably, and substantial social support is given only by the bonded partner (Sachser et al., 1998). Moreover, in female guinea pigs, presence of the male bonding partner leads to a sharp reduction in the acute stress response. Thus, social support can be provided by social partners in females as well. In contrast to males, however, the female's stress responses can be reduced not only by the bonding partner but also by a familiar conspecific, though in a less effective way (Kaiser et al., 2003). (p. 127)

Hazan and Zeifman (1999) speculated that adolescent and adult romantic relationships that develop into real attachment relationships go through the same stages described by Bowlby and Ainsworth in their discussions of infant–parent attachment. In particular, romantic relationships usually begin with affiliation, flirtation, or uncommitted sexual involvement, which can be viewed as a "preattachment phase," then progress through an "attachment-in-the-making" phase, which involves increasing selectivity and commitment, then to a "clear-cut attachment," which in modern Western societies is

often formally celebrated in marriage. This process may take 1–2 years to develop fully, just as in the case of human infants. Research (reviewed by Hazan & Zeifman, 1999) suggests that marriages that end within 2 years result in less grief than ones that end later on, which might be partly a result of the strength of the broken attachment bond.

INDIVIDUAL DIFFERENCES IN ATTACHMENT-SYSTEM FUNCTIONING

In Bowlby's (1969/1982) view, each person's behavioral systems include "ontogenetically learned" components reflecting a particular history of behavioral-system activation in various contexts. Although behavioral systems presumably operate mainly at a subcortical level and in a somewhat reflexive, mechanistic manner, their capacity to attain what Bowlby called set-goals depends on experience with the external world. Therefore, to make goal attainment in varied contexts more likely, behavioral systems evolved to include cognitive-behavioral mechanisms, such as monitoring and appraising the effectiveness of behaviors enacted in a particular context, which allow flexible, goal-corrected adjustment of the system's "programming." Over time, after operating repeatedly in a particular relational (usually family) environment, a person's behavioral systems become uniquely tailored to specific relationship partners. A child learns to adjust his or her behavioral systems based on reliable expectations about possible access routes and barriers to goal attainment. These expectations, which operate partly at a conscious and intentional level, become part of a behavioral system's programming and are sources of both individual differences and within-person continuity in a behavioral system's operation. For this reason, attachment theory is in part a theory of individual differences in relationship orientations and personality development.

Attachment Figure Availability, the Sense of Security, and Secondary Strategies

Although nearly all children are born with a normal attachment system, which motivates them to pursue proximity and security in times of need, proximity maintenance and security attainment also depend on the responsiveness of particular relationship partners. As Cassidy (1999) noted, "Whereas nearly all children become attached (even to mothers who abuse them, Bowlby, 1956), not all are securely attached" (p. 7). The quality of interactions with attachment figures in times of need is, according to attachment theory, the major source of individual differences in attachment-system functioning.

When a relationship partner is available, sensitive, and responsive to an individual's proximity-seeking efforts in times of need, the individual is likely to experience felt security—a sense that the world is generally safe, that attachment figures are helpful when called upon, and that it is possible to explore the environment curiously and confidently and to engage rewardingly with other people. This sense implies that the attachment system is functioning well and that proximity seeking is a reliable and effective emotion regulation strategy. Moreover, the individual acquires important procedural knowledge about distress management, which becomes organized around the relational script discussed earlier (Waters et al., 1998). This *secure-base script* includes something like the following if–then proposition: "If I encounter an obstacle and/or become distressed, I can approach a significant other for help; he or she is likely to be available and supportive; I will experience relief and comfort as a result of proximity to this person; I

can then return to other activities." The script is a symbolic reflection of the phylogenetically "hard-wired" program at the heart of the attachment system, and as such it requires little in the way of changes in the system's operating parameters.

However, when a primary attachment figure proves not to be physically or emotionally available in times of need, not responsive to a person's proximity bids, or poor at alleviating distress or providing a secure base, attachment-system functioning is disrupted and its set-goal is not attained. In such cases, the individual does not experience comfort, relief, or felt security. Rather, the distress that initially activated the system is compounded by serious doubts about the feasibility of attaining security: "Is the world a safe place or not? Can I really trust others in times of need? Do I have the resources necessary to manage my own emotions?" These worries about self and others, and the resulting sense of vulnerability, can place the attachment system in a continually activated state, keep a person's mind preoccupied with threats and the need for protection, and interfere with the functioning of other behavioral systems.

Negative interactions with an inadequately available or responsive attachment figure indicate that the primary attachment strategy, proximity seeking, is failing to accomplish its set-goal. As a result, the operating parameters of the attachment system have to be adjusted and certain *secondary attachment strategies* are likely to be adopted. Main (1990) emphasized two such secondary strategies: *hyperactivation* and *deactivation* of the attachment system. Viewed in terms of the famous fight–flight distinction in physiological psychology (Cannon, 1932/1939), hyperactivating strategies are "fight" responses to frustrated attachment needs (as mentioned earlier, Bowlby called this kind of response "protest"). Protest is especially likely in relationships where an attachment figure is sometimes responsive and sometimes not, placing the dependent, attached individual on a partial reinforcement schedule that rewards persistent and energetic proximity-seeking attempts because they sometimes succeed. In such cases, the individual does not easily give up on proximity seeking, and in fact intensifies it so as to demand or force the attachment figure's attention, love, and support. The main goal of these strategies is to get an attachment figure, viewed as unreliable or insufficiently responsive, to pay more attention and provide better protection and support (Cassidy & Kobak, 1988; Main, 1990). Unfortunately, strident demands for support begin to seem both natural and necessary, and they can become a cause of further relational conflicts and emotional distress.

Deactivating strategies are a "flight" reaction to an attachment figure's unavailability, which seem to develop in relationships with figures who disapprove of and punish closeness and expressions of need or vulnerability (Cassidy & Kobak, 1988; Main, 1990). In such cases, a person learns to expect better outcomes if signs of need and vulnerability are hidden or suppressed, proximity-seeking efforts are weakened or blocked, the attachment system is deactivated despite a sense of security not being achieved, and the person attempts to deal with threats and dangers alone (a strategy that Bowlby, 1969/1982, called "compulsive self-reliance"). The primary goal of deactivating strategies is to keep the attachment system turned off or down-regulated so as to avoid frustration and distress caused by attachment figure unavailability.

Attachment Working Models

According to Bowlby (1969/1982), variations in caregiver responses to an attached person's bids for proximity and protection not only alter the operation of the attachment system in a particular interaction or short-term series of interactions but also gradually produce more enduring and pervasive changes in attachment-system functioning. According to Bowlby (1973), these long-term effects are explicable in terms of the storage in

one's long-term associative memory network of mental representations of significant interactions with an attachment figure. This stored knowledge, taking the form of working models or representational models (Bowlby, 1969/1982, 1973), allows a person to predict future interactions with the relationship partner and adjust proximity-seeking attempts without having to rethink each one. Repeated attachment-related interactions result in increasingly stable mental representations of self, partner, and relationships.

The concept of working models is interesting from a social-psychological standpoint, because it is similar to concepts in social psychology such as "cognitive scripts" and "social schemas," which, inspired by digital computer programs and cybernetic machines, originally seemed coolly cognitive, but have since been gradually transformed by theorists into "hot" cognitions (Kunda, 1999). They are hot by virtue of being residues of past emotions and triggers for subsequent, similar experiences. Bowlby also viewed working models as cognitive–affective structures that include affective memories and contribute importantly to expectations and appraisals that evoke emotions (Shaver, Collins, & Clark, 1996). These models include autobiographical, episodic memories (concrete memories of specific interactions with attachment figures), beliefs and attitudes concerning oneself and relationship partners, generic declarative knowledge about attachment relationships and interactions (e.g., the belief that romantic love as portrayed in movies does not exist in real life), and procedural knowledge about how to regulate emotions and behave effectively in close relationships (N. L. Collins & Read, 1994).

According to Main et al. (1985), early working models organize a child's memories about him- or herself and interaction partners during attempts to attain felt security, as well as the typical outcomes of those attempts: success or failure of the primary attachment strategy (proximity seeking) to achieve the security set-goal. In this way, a child can develop working models for successful proximity-seeking efforts, situations in which the attachment system has to be hyperactivated, and situations in which the system has to be defensively deactivated. Each such model consists of episodic memories of an interaction sequence; declarative knowledge about the partner's responses and the efficacy of the individual's actions; and procedural knowledge about the ways in which one responds to such situations and deals with various sources of distress.

Working models guide behavior, cognitions, and feelings, and can bias the ways in which a person cognitively encodes, interprets, and stores memories of subsequent interactions with attachment figures. Because of such biases, working models of self and others reflect only in part the ways the person and a partner actually behaved in a given interaction. They also reflect the underlying regulatory actions of attachment strategies, which can shape cognitions, emotions, and behaviors; that is, working models of self and others are always blends of accurate representations of what actually happened in a relationship (Bowlby [1973] called them "tolerably accurate reflections of the experiences those individuals actually had"; p. 202) and subjective biases resulting from the operation of defensive attachment strategies (e.g., defensive exclusion of painful information from awareness).

Beyond daily interactions with cool, distant, or emotionally unstable parents, which can leave a residue of attachment insecurity (Ainsworth et al., 1978), Bowlby (1980) also talked about various reasons why a child's or an adult's memories might be distorted by defensive exclusion: (1) In some cases (e.g., a relative's suicide) parents do not want children to know, remember, or talk about certain incidents even though the children witnessed them; (2) the children sometimes witness events (e.g., parental violence) that they find too emotionally painful or troubling to think about; and (3) the children may have done or thought about doing something of which they are ashamed. In such cases, defensive exclusion protects a person from psychological pain, but it does so at the expense of the verisimilitude of the person's working models. This kind of distortion can sometimes

cause problems later on, when a person activates memories or feelings that cannot be explained, or feels ambivalent about a person who is supposed to be kind and loving but actually arouses feelings of danger.

Like other mental representations, which are presumably underlain by neural circuits or networks, working models form excitatory and inhibitory associations with one another, and the activation of one model primes congruent models while inhibiting incongruent models; that is, experiencing or thinking about an episode of security attainment activates memories of other, successful proximity-seeking attempts and renders memories of hyperactivation and deactivation less accessible. With the passage of time and the recurrent retrieval of related memories, these associative links are strengthened, thereby favoring the formation of more abstract and generalized representations of attachment-system functioning with a specific partner. In this way, models of security attainment, hyperactivation, and deactivation with a specific attachment figure (relationship-specific working models) are created, and they form excitatory and inhibitory links with models representing interactions with other attachment figures. When these links are reinforced and consolidated, even more generic working models are formed—global representations of self and others across different relationships. The end product of this cognitive generalization and consolidation process is a hierarchical associative memory network, in which episodic memories become exemplars of relationship-specific models, and those models become exemplars of generic relational schemas. As a result, with respect to a particular relationship and across different relationships, everyone possesses models of security attainment, hyperactivation, and deactivation, and so can sometimes think about relationships in secure terms and at other times think about them in less secure, more hyperactivating or deactivating terms. Due to differences in relationship histories, dominant working models differ across individuals.

The semantic networks involved in attachment working models have all the properties of any cognitive network (e.g., differentiation, integration, and coherence among the various models; N. L. Collins & Read, 1994). In addition, each working model within the network differs in cognitive accessibility (the ease with which it can be activated and used to guide the attachment system during a particular social interaction). As with other mental representations, the strength or accessibility of each model is determined by the amount of experience on which it is based, the number of times it has been applied in the past, and the density of its connections with other working models (e.g., Baldwin, 1992; N. L. Collins & Read, 1994; Shaver, Collins, & Clark, 1996). At a relationship-specific level, the model representing the typical interaction with an attachment figure has the highest accessibility in subsequent interactions with that person. At a generic level, the model that represents interactions with major attachment figures (e.g., parents and romantic partners) typically becomes the most chronically accessible attachment-related representation and has the strongest effect on attachment-system functioning across relationships and over time.

In addition to a person's history of attachment-related interactions, features of a current situation can also contribute to the activation of a particular working model. For example, clear-cut contextual cues concerning a partner's love, availability, and supportiveness can activate models of security attainment. In addition, working models can be invoked by a person's current motives (e.g., wishing to gain distance from a partner) or current mood (Shaver, Collins, & Clark, 1996). We assume that the chronically accessible overall model coexists with less strong and less personally characteristic working models, and either kind of model can be activated by contextual factors or a person's current mood or internal state. (As we explain in subsequent chapters, these possibilities have been extensively explored in laboratory experiments.)

According to attachment theory, consolidation of a chronically accessible working model is the most important psychological process accounting for the enduring, long-term effects on personality functioning of attachment interactions during infancy, childhood, and adolescence (Bowlby, 1973; E. Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Given a fairly consistent pattern of interactions with primary caregivers during infancy and childhood, the most representative or prototypical working models of these interactions become part of a person's implicit procedural knowledge, tend to operate automatically and unconsciously, and are resistant to change. Thus, what began as representations of specific interactions with a primary caregiver during childhood become core personality characteristics, are applied in new social situations and relationships, and shape attachment-system functioning in adulthood.

In the following passage, Bowlby (1979) described how these chronically accessible models shape a person's experience:

> [One] tends to assimilate any new person with whom he may form a bond, such as a spouse, or child, or employer, or therapist, to an existing model (either of one or other parent or of self), and often to continue to do so despite repeated evidence that the model is inappropriate. Similarly he expects to be perceived and treated by them in ways that would be appropriate to his self-model, and to continue with such expectations despite contrary evidence. (pp. 141–142)

This tendency to project one's dominant or currently most active working models onto a new relationship partner affects the way a person anticipates, attends to, interprets, and recalls the partner's behavior, thereby confirming well-established expectations and models, and making them more resistant to change.

The Concept of Attachment Style

Most of the research examining individual differences in attachment-system functioning in adults has focused on attachment styles—patterns of expectations, needs, emotions, and social behavior that result from a particular history of attachment experiences, usually beginning in relationships with parents (Fraley & Shaver, 2000). A person's attachment style reflects his or her most chronically accessible working models and the typical functioning of his or her attachment system in a specific relationship (relationship-specific attachment style) or across relationships (global or general attachment style). As such, each attachment style is closely tied to working models and reflects the underlying, organizing action of a particular attachment strategy (primary or secondary, hyperactivating or deactivating).

The concept of attachment style, although not given that name, was first proposed by Ainsworth (1967) to describe infants' patterns of responses to separations from and reunions with their mother in the laboratory Strange Situation assessment procedure, in which infants were originally classified into one of three categories, here called secure, avoidant, or anxious (for short). Main and Solomon (1990) later added a fourth category, "disorganized/disoriented," characterized by odd, awkward behavior and unusual fluctuations between anxiety and avoidance.

Infants classified as secure seem to possess accessible working models of successful proximity-seeking attempts and security attainment. In the Strange Situation, they tend to exhibit distress during separations from mother but then recover quickly and continue to explore the environment with interest. When reunited with mother, they greet her with joy and affection, initiate contact with her, and respond positively to being held, after which

they quickly reestablish interest in the toys provided in the experimental setting. During home observations, mothers of these infants are emotionally available in times of need and responsive to their child's proximity-seeking behavior (Ainsworth et al., 1978). It seems reasonable to characterize these mothers as a source of attachment security and as reinforcing reliance on the primary attachment strategy (seeking proximity and comfort when needed).

Avoidant infants seem to possess accessible working models related to attachment-system deactivation. In the Strange Situation they show little distress when separated from their mother and tend to avoid her when she returns. In home observations, their mothers tend to be emotionally rigid, as well as angry at and rejecting of their infants' proximity-seeking efforts (Ainsworth et al., 1978). Anxious infants seem to possess accessible working models related to attachment-system hyperactivation. In the Strange Situation, they are extremely distressed during separation and exhibit conflicted or ambivalent responses toward their mother during reunions (e.g., they may cling one moment and angrily resist comforting the next, which was Ainsworth's reason for sometimes calling them "anxious–ambivalent" or "anxious–resistant"). During home observations, interactions between anxious infants and their mothers are characterized by lack of harmony and lack of caregivers' consistent responsiveness (Ainsworth et al., 1978). Mothers of both avoidant and anxious infants seem to thwart security attainment, thereby fostering their children's adoption of secondary strategies. However, whereas avoidant infants deactivate their attachment system in response to attachment figure unavailability, anxious infants tend to hyperactivate the system to gain a more reliable supportive reaction from their attachment figure (Main, 1990; Main et al., 1985).

Disorganized/disoriented infants seem to suffer from a breakdown of organized attachment strategies (primary, hyperactivating, or deactivating). They either oscillate between strategies or do something bizarre, such as lie face-down on the floor without moving when their mother appears following a separation or sit passively under a table, evincing no clear proximity-seeking strategy at all (Main & Solomon, 1990). These odd behaviors seem to be due to disorganized, unpredictable, and discomfiting behavior on the part of attachment figures who, research shows, are likely to be suffering from unresolved losses or unresolved attachment-related traumas (Hesse, 1999; Lyons-Ruth & Jacobvitz, 1999). When their child approaches them for comfort and reassurance, they sometimes look frightened, look away, or "space out" in a dissociative way, causing the child to stop abruptly, suffer confusion, or adopt whatever momentary strategy seems to reduce discomfort.

In the 1980s, researchers from different psychological fields (developmental, clinical, personality, and social psychology) constructed new measures of attachment style, based on various conceptualizations of the construct, to extend attachment research into adolescence and adulthood. For example, adopting a developmental and clinical approach, Main and her colleagues (George, Kaplan, & Main, 1985; Main et al., 1985; Main & Goldwyn, 1988; see Hesse, 1999, for a review) devised the Adult Attachment Interview (AAI) to study adolescents and adults' mental representations of attachment, or "states of mind with respect to attachment," to their parents during childhood. In the AAI, interviewees answer open-ended questions about their childhood relationships with parents and are classified into three major categories paralleling Ainsworth's infant typology: "secure" (or free and autonomous with respect to attachment), "dismissing" (of attachment), or "preoccupied" (with attachment).

Using the AAI coding system (George et al., 1985; Main & Goldwyn, 1988), a person is classified as secure if he or she describes parents as available and responsive, and verbalizes memories of relationships with parents that are clear, convincing, and coher-

ent. Dismissing (i.e., avoidant) individuals play down the importance of attachment relationships and tend to recall few concrete episodes of emotional interactions with parents. Preoccupied (i.e., anxious) individuals are entangled in worries and angry feelings about parents, are hypersensitive to attachment experiences, and can easily retrieve negative memories but have trouble discussing them coherently without anger or anxiety. Main et al. (1985) called their measurement strategy a "move to the level of representation," because, unlike the Strange Situation, which emphasizes an infant's behavior, the AAI assesses current adult mental representations of childhood attachment relationships as these are articulated in "coherent" or "incoherent" discourse with an interviewer.

Working from a personality and social-psychological perspective, and attempting to apply Bowlby's ideas to the study of romantic relationships, Hazan and Shaver (1987) developed a self-report measure of adult attachment style that asked respondents to characterize their feelings and behavioral tendencies in romantic relationships. In its original form, the measure consisted of three brief descriptions of feelings and behaviors in close relationships that were intended to capture adult romantic analogues of the three infant attachment styles identified by Ainsworth et al. (1978). Participants were asked to read the descriptions, then place themselves into one of three attachment categories according to their predominant feelings and behavior in romantic relationships. The three "types" were described as follows:

1. *Secure*: "I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't worry about being abandoned or about someone getting too close to me."
2. *Avoidant*: "I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close and others often want me to be more intimate than I feel comfortable being."
3. *Anxious*: "I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to get very close to my partner and this sometimes scares people away."

In subsequent years, numerous researchers developed similar self-report measures, in some cases to improve the precision of Hazan and Shaver's (1987) measure and in other cases to see whether it is worthwhile trying to capture more of the lower-level concepts in Ainsworth's infant measure (e.g., proximity seeking, separation distress, secure base). Gradually it became evident that there are two dimensions of insecurity underlying all such self-report measures of romantic attachment: avoidance and anxiety (see Chapter 4, this volume, for details). The first dimension, attachment-related *avoidance*, is concerned with discomfort with closeness and depending on relationship partners, preference for emotional distance and self-reliance, and use of deactivating strategies to deal with insecurity and distress. The second dimension, attachment-related *anxiety*, is concerned with a strong desire for closeness and protection, intense worries about partner availability and one's own value to the partner, and use of hyperactivating strategies to deal with insecurity and distress.

People who score low on both dimensions are said to be secure or to have a secure attachment style. This region of low anxiety and low avoidance is defined by a chronic sense of attachment security, trust in partners and expectations of partner availability and responsiveness, comfort with closeness and interdependence, and ability to cope with threats and stressors in constructive ways. Throughout the remainder of this book we

refer to people with secure, anxious, or avoidant attachment styles, or people who are relatively secure, anxious, or avoidant. Although our categorical or typological shorthand can incorrectly cause readers to think in terms of discrete types, we will always be referring to fuzzy regions in a two-dimensional space in which people are continuously distributed. Fraley and Waller (1998) used sophisticated psychometric methods to determine whether attachment styles were truly typological or, instead, regions in a continuously distributed two-dimensional space, and their results clearly favored the dimensional conception (again, see Chapter 4, this volume, for measurement details).

CONCLUDING REMARKS

In this chapter we have outlined attachment theory, from its inception in the writings of Bowlby and Ainsworth to the present, with special emphasis on our own extensions of the theory into the adolescent and adult age periods. We have explained that, following Bowlby and Ainsworth, we view the attachment behavioral system as an inborn regulatory system with important implications for personality development and social behavior. The system is activated by perceived threats and dangers, which cause a threatened person to seek proximity to protective others. Attainment of proximity and protection results in feelings of relief and security, as well as positive mental representations of self and relationship partners. Bowlby viewed the healthy functioning of this behavioral system as crucial for emotional stability, mental health, and satisfying, close relationships. Moreover, because healthy functioning of the attachment system facilitates relaxed and confident engagement in nonattachment activities, it contributes to the broadening of a person's perspectives and skills, as well as the actualization of his or her unique potentialities. To borrow a term from another theoretical tradition, humanistic psychology (e.g., Maslow, 1968; C. R. Rogers, 1961), attachment security is not only an important component of healthy love but also a major foundation for self-actualization. We provide extensive evidence for this claim throughout the remaining chapters.

In this chapter, we have also introduced some major individual differences in attachment-system functioning. Although the attachment system is conceptualized as operating mainly at a subcortical, unconscious level and in a relatively automatic, reflexive manner, its activation can yield different response strategies (the primary, proximity-seeking strategy or the secondary, hyperactivating or deactivating strategy) depending on both the quality of the *current* interaction with an attachment figure and internal representations of *past* interactions with the same or other attachment figures. Although these representations (working models of self and others) presumably operate in a more conscious, controlled manner than the innate core of the attachment system, they can become habitual and automatic, and are therefore largely unconscious and can be defensively excluded from awareness. Moreover, they can unconsciously bias information processing about relationships and relationship partners and be a source of within-person continuity in attachment-system functioning.

In the next chapter we present a model of attachment-system functioning in adulthood that we then use to organize our review of the thousands of studies on adult attachment published over the past 20 years. At the end of Chapter 2, we provide a brief overview of the rest of the book.