CHAPTER 1

BASIC PRINCIPLES OF DYNAMIC PSYCHIATRY

> It would be far easier if we could avoid the patient as we explore the realm of psychopathology; it would be far simpler if we could limit ourselves to examining the chemistry and physiology of his brain, and to treating mental events as objects alien to our immediate experience, or as mere variables in impersonal statistical formulae. Important as these approaches are for the understanding of human behavior, they cannot alone uncover or explain all the relevant facts. To see into the mind of another, we must repeatedly immerse ourselves in the flood of his associations and feelings; we must be ourselves the instrument that sounds him.
>
> *John Nemiah, 1961*

Psychodynamic psychiatry (used interchangeably with dynamic psychiatry in this volume) has a diverse set of ancestors, including Leibniz, Fechner, the neurologist Hughlings Jackson, and Sigmund Freud (Ellenberger 1970). The term *psychodynamic psychiatry* generally refers to an approach steeped in psychoanalytic theory and knowledge. Modern psychodynamic theory has often

been viewed as a model that explains mental phenomena as the outgrowth of *conflict*. This conflict derives from powerful unconscious forces that seek expression and require constant monitoring from opposing forces to prevent their expression. These interacting forces may be conceptualized (with some overlap) as 1) a wish and a defense against the wish, 2) different intrapsychic agencies or "parts" with different aims and priorities, or 3) an impulse in opposition to an internalized awareness of the demands of external reality.

Psychodynamic psychiatry has come to connote more than the conflict model of illness. Today's dynamic psychiatrist must also understand what is commonly referred to as the "deficit model" of illness. This model is applied to patients who, for whatever developmental reasons, have weakened or absent psychic structures. This compromised state prevents them from feeling whole and secure about themselves, and as a result they require inordinate responses from persons in the environment to maintain psychological homeostasis. Also contained within the purview of psychodynamic psychiatry is the unconscious internal world of relationships. All patients carry within them a host of different mental representations of aspects of themselves and others, many of which may create characteristic patterns of interpersonal difficulties. These representations of self and others form a world of largely unconscious internal object relations.

Today's psychodynamic clinician can no longer practice a type of psychiatry divorced from the body and sociocultural influences. Indeed, psychodynamic psychiatry must be regarded today as situated within the overarching construct of *biopsychosocial* psychiatry. Dramatic progress in genetics and neuroscience has paradoxically strengthened the position of the psychodynamic psychiatrist. We now have more persuasive evidence than ever before that much of mental life is unconscious, that social forces in the environment shape the expression of genes, and that the mind reflects the activity of the brain. We now practice in a situation of "both/and" rather than "either/or." Although it is true that all mental functions ultimately are products of the brain, it does not follow that the biological explanation is the best or most rational model for understanding human behavior (Cloninger 2004; LeDoux 2012). Contemporary neuroscience does not attempt to reduce everything to genes or biological entities. Well-informed neuroscientists focus on an integrative rather than a reductive approach and recognize that psychological data are just as valid scientifically as biological findings (LeDoux 2012).

Above all, psychodynamic psychiatry is a *way of thinking*—not only about one's patients but also about oneself in the interpersonal field between patient and treater. In fact, to characterize the essence of dynamic psychiatry, one might well use the following definition: *Psychodynamic psychiatry is an approach to diagnosis and treatment characterized by a way of thinking about both patient and clinician that includes unconscious conflict, deficits and distor-*

tions of intrapsychic structures, and internal object relations and that integrates these elements with contemporary findings from the neurosciences.

This definition raises a challenge to the psychodynamic clinician. How does one integrate the domain of mind with the domain of brain? Psychiatry has moved well beyond the Cartesian notion of substance dualism. We recognize that mind is the activity of the brain (Andreasen 1997) and that the two are inextricably linked. To a large extent, references to mind and brain have become a form of code for different ways to think about our patients and their treatment (Gabbard, 2005). Presumed polarities such as genes versus environment, medication versus psychotherapy, and biological versus psychosocial are often glibly subsumed under the categories of brain and mind. These dichotomies are problematic and tend to break down when we study clinical problems in psychiatry. Genes and environment are inextricably connected in shaping human behavior. The promise of the human genome and "personalized medicine" has not been fulfilled. Terms such as *heritability* have become increasingly meaningless and reductive in light of the environmental influence on genes (Keller 2011). The flurry of initial excitement about personalized medicine as genomics-based knowledge has begun to be challenged by a series of critiques. Horwitz et al. (2013), for example, refer to this trend as "de-personalized medicine" because without environmental, social, and clinical considerations that affect disease outcomes, genomics information is disappointing. The "person" needs to be taken into account. Experience shuts down the transcriptional function of some genes while turning others on. Psychosocial stressors, such as interpersonal trauma, may have profound biological effects by changing the functioning of the brain. Furthermore, thinking of psychotherapy as a treatment for "psychologically based disorders" and medications as a treatment for "biological or brain-based disorders" is a specious distinction. The impact of psychotherapy on the brain is well established (see Gabbard 2000).

An illustrative example of how interpersonal trauma has far-reaching effects on both the biology and the psychology of the "person" emerges from recent imaging research on adults who had experienced childhood abuse (Heim et al. 2013). In a controlled study, those individuals who had experienced sexual abuse as children had cortical thinning in the genital representation field of the primary somatosensory cortex, that is, in the "homunculus" where different body areas are represented. One can infer that neural plasticity of this nature may protect the child from the sensory processing of specific abuse experiences, but it might leave the individual "numb" in the genital area as an adult. This subjective experience will in turn shape how the young person integrates sexuality into the sense of an adult self, an example where a "deficit" based in biology might contribute to psychological conflict in the course of development.

When we depart from the polarization of mind and brain and view the patient as a human being in a biopsychosocial context, we are nevertheless faced with the problem that mind and brain are not identical. Our minds certainly reflect the activity of the brain, but mind cannot be reduced to neuroscientific explanations (Edelson 1988; LeDoux 2012; McGinn 1999; Pally 1997; Searle 1992). The use of functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) technologies has led to quantum leaps in our understanding of brain functioning. Nevertheless, there is a risk inherent in these technologies if we equate the self with what we see on a brain scan. The scanning technologies provide a convenient way to externalize problems by saying that there is something wrong with "my brain" instead of something wrong with "me" (Dumit 2004).

If we acknowledge that mind and brain are not identical, what is the difference? To begin with, the brain can be observed from a third-person perspective. It can be removed from the skull and weighed at autopsy. It can be dissected and examined under a microscope. The mind, on the other hand, is not perception based and therefore can be known only from within. The mind is private. Rather than resorting to an outmoded form of substance dualism, contemporary psychiatrists and neuroscientists often use the construct of *explanatory dualism* (Kendler 2001). This type of dualism acknowledges that there are two different ways of knowing or understanding that require two different kinds of explanations (LeDoux 2012). One type of explanation is first person and psychological, whereas the other type is third person, or biological. Neither approach provides a complete explanation by itself. To complicate matters further, as Damasio (2003) points out, "Consciousness and mind are not synonymous" (p. 184). In a variety of neurological conditions, abundant evidence demonstrates that mind processes continue even though consciousness is impaired.

In the preface to this volume I made the point that we integrate "brain" and "mind" in the service of knowing the "person." After all, it is a person who comes for help. But what is the *person*? A dictionary definition would tell us it is the actual self or being. However, defining the self is not a simple task, either. It is complicated because it is both subject and object. In the sentence "I think about myself," there is both a phenomenal "I" that philosophers write about and a conscious representation of the self. Certainly, another aspect of the self is the aggregate of personal memories that are filtered through the individual's unique lens on the basis of meanings that are highly personalized. Moreover, parts of the self are hidden from us—we are more likely to be conscious of the desirable parts of the self while repressing or disavowing parts we do not like so much. One of the lessons of dynamic psychiatry is that we are all masters of self-deception. Most of us do not know ourselves that well. One further complication is that there isn't one mono-

lithic self. Most of us have multiple facets of the self that are triggered by different contexts. Culture is one of those contexts. Asian culture, for example, is not centered in self-experience, and an *interdependent self* is created by parenting that focuses on social context (Jen 2013).

The next complication we encounter in trying to define what exactly we mean by the *person* is that the *self* and the *person* are not the same thing. The distinction can be illustrated by dividing the subjectively experienced self from the self observed by others. When people see themselves on videotape, they are rarely pleased. They think to themselves, "I don't look like that," or "My voice doesn't sound that way!" However, if they ask others in the room, they will be told that in fact they do look and sound that way. The truth is simple: we don't see ourselves as others see us. Which is the truer version of the self: the subjectively experienced self or the observed self? The question cannot be adequately answered because both are essential in order to know who the *person* is. Each is incomplete: we cannot see how we come across to others, but others cannot always perceive how we feel inside. Knowledge of one's personhood requires an integration of the inside and the outside perspectives.

To summarize, the *person* defies easy categorization. It involves what is unique and idiosyncratic—a complex amalgam of multiple variables. Here are some of the principal determinants of the *person:*

1. The subjective experience of oneself based on a unique historical narrative that is filtered through the lens of specific meanings
2. A set of conscious and unconscious conflicts (and the associated defenses), representations, and self-deceptions
3. A set of internalized interactions with others that are unconsciously reenacted, creating impressions in others
4. Our physical characteristics
5. Our brain as a product of genes in interaction with environmental forces and the creation of neural networks by cumulative experience
6. Our sociocultural background
7. Our religious/spiritual beliefs
8. Our cognitive style and capacities

Throughout this text, in our pursuit of the person, psychological explanations are emphasized, but neurobiological underpinnings also are noted and areas of integration between the psychological and the biological are stressed. The domain of mind and the domain of brain have different languages. The modern dynamic psychiatrist must strive to be bilingual—the language of brain and language of mind must both be mastered in the service of knowing the *person* and providing optimal patient care (Gabbard, 2005).

Although dynamic psychotherapy is one of the foremost tools in the dynamic psychiatrist's therapeutic armamentarium, dynamic psychotherapy is not synonymous with dynamic psychiatry. The dynamic psychiatrist uses a wide range of treatment interventions that depend on a dynamic assessment of the patient's needs. Dynamic psychiatry simply provides a coherent conceptual framework within which all treatments are prescribed. Regardless of whether the treatment is dynamic psychotherapy or pharmacotherapy, it is *dynamically informed.* Indeed, a crucial component of the dynamic psychiatrist's expertise is knowing when to avoid exploratory psychotherapy in favor of treatments that are less threatening to the patient's psychic equilibrium.

Today's dynamic psychiatrists must practice in the context of impressive advances in the neurosciences. The practice setting is also characterized by a vast array of cultural, religious, ethnic, and racial groups whose cultural experiences are internalized and profoundly affect the way they think and feel and the manifestations of whatever psychiatric symptoms may emerge. Hence, a contemporary dynamic psychiatrist is constantly striving to integrate psychoanalytic insights with biological understanding of illness and cultural factors that influence the end result of "the person." Nevertheless, all dynamic psychiatrists are still guided by a handful of time-honored principles derived from psychoanalytic theory and technique that provide psychodynamic psychiatry with its unique character.

The Unique Value of Subjective Experience

Dynamic psychiatry is further defined by contrasting it with descriptive psychiatry. Practitioners of the latter approach categorize patients according to common behavioral and phenomenological features. They develop symptom checklists that allow them to classify patients according to similar clusters of symptoms. The patient's subjective experience, except as used to report items in the checklist, is less important. Descriptive psychiatrists with a behavioral orientation would argue that the patient's subjective experience is peripheral to the essence of psychiatric diagnosis and treatment, which must be based on observable behavior. The most extreme behavioral view is that behavior and mental life are synonymous (Watson 1924/1930). Moreover, the descriptive psychiatrist is primarily interested in how a patient is *similar to* rather than *different from* other patients with congruent features.

In contrast, dynamic psychiatrists approach their patients by trying to determine what is unique about each one—how a particular patient *differs* from other patients as a result of a life story like no other. Symptoms and behaviors are viewed only as the final common pathways of highly personalized subjec-

tive experiences that filter the biological and environmental determinants of illness. Furthermore, dynamic psychiatrists place paramount value on the patient's internal world—fantasies, dreams, fears, hopes, impulses, wishes, self-images, perceptions of others, and psychological reactions to symptoms.

Descriptive psychiatrists approaching an occluded cave nestled in the side of a mountain might well describe in detail the characteristics of the massive rock obstructing the cave's opening, while dismissing the interior of the cave beyond the rock as inaccessible and therefore unknowable. In contrast, dynamic psychiatrists would be curious about the dark recesses of the cave beyond the boulder. Like the descriptive psychiatrists, they would note the markings of the opening, but they would regard them differently. They would want to know how the cave's exterior reflected the inner contents. They might be curious about why it was necessary to protect the interior with a boulder at the opening.

The Unconscious

Continuing with our cave metaphor, the dynamic psychiatrist would figure out a way to remove the boulder, enter the dark recesses of the cave, and, perhaps with a flashlight, illuminate the interior. Artifacts on the floor or markings on the wall would be of special interest to the explorer because they would shed light on the history of this particular cave. A steady gurgling of water coming up through the floor might suggest an underground spring applying pressure from below. The dynamic psychiatrist would be particularly interested in exploring the depths of the cave. How far into the mountainside does it extend? Is the back wall the true limit that defines the inner space, or is it a "false wall" that gives way to even greater depths?

As the cave metaphor suggests, a second defining principle of dynamic psychiatry is a conceptual model of the mind that includes the unconscious. Freud (1915/1963) recognized two different kinds of unconscious mental content: 1) the preconscious (i.e., mental contents that can easily be brought into conscious awareness by merely shifting one's attention) and 2) the unconscious proper (i.e., mental contents that are censored because they are unacceptable and therefore are repressed and not easily brought into conscious awareness).

Together, the unconscious, the preconscious, and the conscious systems of the mind compose what Freud (1900/1953) termed the *topographic model*. He became convinced of the unconscious because of two major pieces of clinical evidence: dreams and parapraxes. Analysis of dreams revealed that an unconscious childhood wish was usually the motivating force of dreams.

The dreamwork disguised the wish, so analysis of the dream was necessary to discern the true nature of the wish. *Parapraxes* consist of such phenomena as slips of the tongue, "accidental" actions, and forgetting or substituting names or words. A typist, for example, repeatedly typed "murder" when she intended to type "mother." The notion of the "Freudian slip" is now a thoroughly entrenched part of our culture that connotes the unwitting revelation of a person's unconscious wishes or feelings. Freud (1901/1960) used these embarrassing incidents to illustrate the breakthrough of repressed wishes and to demonstrate the parallels between the mental processes of everyday life and those of neurotic symptom formation.

The dynamic psychiatrist views symptoms and behaviors as reflections, part, of unconscious processes that defend against repressed wishes and feelings, just as the boulder protects the contents of the cave from exposure. Moreover, dreams and parapraxes are like the artwork on the walls of the cave—communications, symbolic or otherwise, in the present that deliver messages from the forgotten past. The dynamic psychiatrist must develop sufficient comfort with this dark realm to explore it without stumbling.

Another primary way that the unconscious manifests itself in the clinical setting is in the patient's nonverbal behavior toward the clinician. Certain characteristic patterns of relatedness to others set in childhood become internalized and are enacted automatically and unconsciously as part of the patient's character. Hence, certain patients may consistently act deferentially toward the clinician, whereas others will behave in a highly rebellious way. These forms of relatedness are closely linked to Squire's (1987) notion of procedural memory, which occurs outside the realm of conscious, verbal, narrative memory.

Studies of memory systems have greatly expanded our knowledge of behavior in the clinical setting. A widely used distinction that is relevant to psychodynamic thinking is the differentiation of memory into explicit (conscious) and implicit (unconscious) types.

Explicit memory can be either *generic*, involving knowledge of facts or ideas, or *episodic*, involving memories of specific autobiographical incidents. Implicit memory involves observable behavior of which the subject is not consciously aware. One type of implicit memory is *procedural* memory, which involves knowledge of skills, such as playing the piano and the "how to" of social relatedness to others. The unconscious schemas referred to as internal object relations are to some extent procedural memories that are repeated again and again in a variety of interpersonal situations. Another type of implicit memory is *associative* in nature and involves connections between and among words, feelings, ideas, people, events, or facts. For example, one may hear a particular song and feel inexplicably sad because that song was playing on the radio when news of a family member's death arrived.

The notion that much of mental life is unconscious is often challenged by critics of psychoanalysis but has been extensively validated by literature from experimental psychology (Westen 1999a, 1999b). Research subjects who have bilateral lesions to the hippocampus have great difficulty learning that two discrete events are connected, but their emotional responses suggest that they have made an unconscious connection between the two events (Bechara et al. 1995). Subliminal presentation to research subjects of stimuli that have emotional or psychodynamic meanings has been shown to influence a wide range of behavior, even though the subjects have no conscious awareness of the stimuli (Weinberger and Hardaway 1990). Studies of brain event-related potentials demonstrate that emotional words evoke different electroencephalogram alpha waves than do neutral words even before they are consciously recognized. In one study, a team of clinicians assessed which conflicts were relevant to identified patient symptoms. Words reflecting those conflicts were then selected and presented both subliminally and supraliminally to the patients (Shevrin et al. 1996). Different patterns of response were documented for those words consciously related to the patient's symptoms and those hypothesized to be unconsciously related.

Studies revealing unconscious racist tendencies have been particularly impressive validations of the role that the unconscious plays in an ongoing way in human interactions. Much of the data on this phenomenon have stemmed from the Implicit Association Test, which uses pictures of black and white faces flashed before subjects along with positive and negative descriptive adjectives (Banaji and Greenwald 2013). The researchers found that even when subjects intended to associate positive descriptions with black faces as quickly as they did with white faces, they were unable to do it. From these studies, it appears that about 75% of Americans have an unconscious, automatic preference for whites over blacks. A similar percentage is prone to stereotype by gender, sexual orientation, age, body weight, disability, and nationality.

The 2008 Presidential election brought forth yet another demonstration of unconscious mental functioning. Galdi et al. (2008) developed a computer-based, speedy categorization task assessing automatic mental associations. They compared the associations to self-report measures to assess consciously endorsed beliefs and preferences. The automatic associations of the politically undecided participants predicted changes in consciously reported beliefs and featured choices over a period of 1 week. The researchers found that those who were consciously undecided had often already made up their minds at an unconscious level. The investigators noted that even on important matters of political choice, people seemed to be unaware of their own unawareness. They would give reasons for their preferences, but these reasons were clearly confabulatory. Even when people did not know why they had voted the way they did, when asked, they rarely replied "I don't know."

Freud's notion that people actively try to forget unwanted past experiences has been confirmed by fMRI research (Anderson et al. 2004). The process involves a novel form of reciprocal interaction between the prefrontal cortex and the hippocampus (see Figure 1–1). When subjects control unwanted memories, there is increased dorsolateral prefrontal activation associated with reduced hippocampal activation. The magnitude of forgetting is predicted by prefrontal, cortical, and right hippocampal activations.

Psychic Determinism

To assert that symptoms and behavior are external manifestations of unconscious processes is to touch on a third principle of dynamic psychiatry—psychic determinism. The psychodynamic approach asserts that we are consciously confused and unconsciously controlled. We go through our daily lives as though we have freedom of choice, but we are actually far more restricted than we think. To a large extent, we are characters living out a script written by the unconscious. Our choices of marital partners, our vocational interests, and even our leisure-time pursuits are not randomly selected; they are shaped by unconscious forces that are in dynamic relationship with one another.

By way of example, one young woman learned in the course of her psychotherapy that her choice of medicine as a career was profoundly shaped by events in her childhood and her reactions to them. When she was 8 years old, her mother succumbed to cancer. The little girl witnessing this tragedy felt helpless and powerless at the time, and her decision to be a physician was partly determined by an unconscious wish to gain mastery and control over disease and death. At an unconscious level, being a physician was an attempt to actively master a passively experienced trauma. On a conscious level, she simply experienced medicine as a fascinating and compelling field.

When human behavior becomes markedly symptomatic, the limits of free will become more obvious. A man who can only reach orgasm during masturbation by imagining humiliation at the hands of a muscle-bound sadist has lost the freedom to choose his sexual fantasies. The dynamic psychiatrist approaches these symptoms with the understanding that they represent adaptations to the demands of an unconscious script forged by a mixture of biological forces, early attachment problems, defenses, object relations, and disturbances in the self. In short, behavior has meaning.

The meaning is rarely as simple and straightforward as the foregoing example involving the physician. More commonly, a single behavior or symptom serves several functions and solves many problems. As Sherwood (1969)

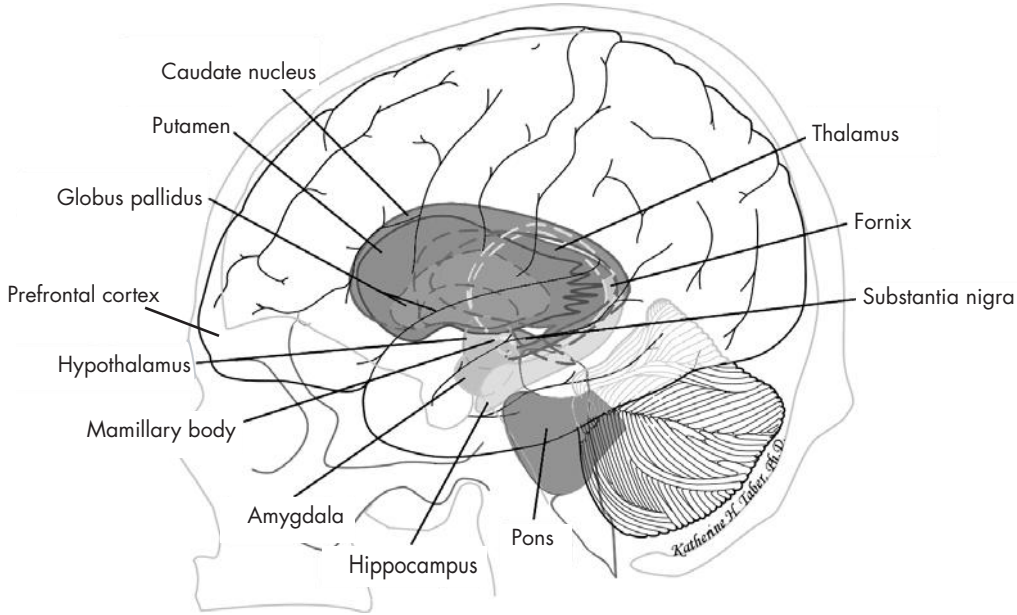

FIGURE 1–1. Schematic (lateral sagittal view) illustrating the relative positions of the prefrontal cortex and the hippocampus.

Source. Reprinted from Hurley RA, Hayman LA, Taber KH: "Clinical Imaging in Neuropsychiatry," in *The American Psychiatric Publishing Textbook of Neuropsychiatry and Clinical Sciences,* 4th Edition. Edited by Yudofsky SC, Hales RE. Washington, DC, American Psychiatric Publishing, 2002, pp. 245–283. Copyright 2002, American Psychiatric Publishing. Used with permission.

pointed out, "Freud clearly held that the causes of behavior were *both* complex (overdetermined) and multiple (in the sense of their being alternate sets of sufficient conditions)" (p. 181). In other words, certain behaviors or symptoms are at times caused by a specific intrapsychic constellation of factors, but in other instances they are produced by a multitude of other etiological forces. It is sufficient to say that the psychodynamic view of human behavior defines it as the end result of many different conflicting forces that serve a variety of different functions corresponding both to the demands of reality and to unconscious needs.

The principle of psychic determinism, although certainly a bedrock notion, calls for two caveats. First, unconscious factors do not determine all behaviors or symptoms. When a patient with Alzheimer's disease forgets the name of his spouse, it probably is not a parapraxis. When a patient with partial complex seizures ritualistically buttons and unbuttons his shirt during the aura of his seizure, the symptom can likely be attributed to an irritable focus of the temporal lobe. The dynamic psychiatrist's task is to sort out which symptoms and behaviors can or cannot be explained by dynamic factors. The second caveat derives from experience with patients who make no effort to change their behavior because they claim to be passive victims of unconscious forces. Within the concept of psychic determinism, there is room for choice. Although it may be more restricted than we like to think, conscious intention to change can be an influential factor in recovery from symptoms (Appelbaum 1981). The dynamic psychiatrist must be wary of the patient who justifies remaining ill by invoking psychic determinism.

Past Is Prologue

A fourth basic principle of dynamic psychiatry is that the experiences of infancy and childhood are crucial determinants of the adult personality. In the succinct words of William Wordsworth, "The child is father of the man." The dynamic psychiatrist listens intently when a patient speaks of childhood memories, knowing that these experiences may play a critical role in the current presenting problems. Indeed, etiology and pathogenesis are often linked to childhood events in the dynamic view. In some cases, overt trauma, such as incest or physical abuse, leads to disturbances in the adult personality. More often, the chronic, repetitive patterns of interaction within a family are of greater etiological significance.

The dynamic point of view also takes into consideration the fact that infants and children perceive their environment through highly subjective filters that may distort the real qualities of the figures around them. Similarly, certain children are constitutionally difficult to raise no matter how effective

their parents may be. Research has long revealed several discrete constitutional temperaments in newborn infants (Thomas and Chess 1984). The etiology of some psychiatric illness may be related to how good the "fit" is between the temperament of the child and the temperament of the parenting figure. The hyperirritable child who does reasonably well with a calm and low-key mother may do poorly with a high-strung mother. This model of "goodness of fit" avoids blaming either parents or children for the latter's psychiatric problems.

Theories of childhood development have always been central to dynamic psychiatry. Freud postulated that a child passes through three principal psychosexual stages on the road to maturity. Each of these—the oral, the anal, and the genital—is associated with a particular bodily zone where Freud believed that the libido, or sexual energy, of the child was concentrated. As a result of environmental trauma, constitutional factors, or both, a child may become developmentally arrested at the oral or anal phase, resulting in a fixation that is retained into adult life. Under stress, the adult may regress to this more primitive phase of development and manifest the mental organization of the instinctual gratification associated with that phase. Although Freud reconstructed childhood development retrospectively based on the reports of adult patients in psychoanalysis, subsequent psychoanalytic investigators have studied development prospectively through direct infant and child observation. These theories are discussed in more detail in Chapter 2.

The developmental perspective of psychodynamic thinking has recently been challenged by a wave of genetic reductionism. The decoding of the human genome has been a major breakthrough in science, but there has been a disconcerting trend to view the genome as synonymous with humanness. The bioethicist Alex Mauron (2001) stressed that personal identity does not overlap with genomic identity. Monozygotic twins with identical genomes can be highly distinct individuals. Fortunately, this reductionistic trend has resulted in a backlash from major scientists who have stressed that genes are in constant interplay with the environment and that DNA is not destiny. As Robinson (2004) notes, "We can now study genes in enough detail to move beyond the nature–nurture debate. It is now clear that DNA is both inherited and environmentally responsive" (p. 397). Paradoxically, contemporary genetic research and the study of brain plasticity have shown that genes are highly regulated by environmental signals throughout life (Hyman 1999). An individual's genetic endowment influences the type of parenting he or she receives, and this developmental input from parents and other figures in the environment may, in turn, influence the further readout of the genome. Neural connections between the cortex, limbic system, and autonomic nervous system become linked into circuits in accordance with specific experiences

of the developing organism. Hence, emotion and memory circuits are linked together because of consistent patterns of connection resulting from stimuli and the environment. This developmental pattern is often summarized as follows: "Neurons that fire together, wire together" (Schatz 1992, p. 64).

Primate research has been particularly useful in demonstrating how environmental influences may override genetic tendencies. Suomi (1991) noted that about 20% of infants in his monkey colony who were reared by their mothers reacted to brief separations with increased cortisol and adrenocorticotropic hormone levels, depressive reactions, and exaggerated norepinephrine turnover. This vulnerability appeared to be genetic. However, when unusually nurturing mothers within the monkey colony were placed with these infants, the inborn vulnerability to separation anxiety disappeared. These monkeys ultimately rose to the top of the social hierarchy in the monkey colony, suggesting that these "supermothers" helped the young monkeys to develop their innate sensitivity in an adaptive direction that allowed them to be more attuned to social cues and to respond to those cues in a way that was advantageous to them.

Five to 10 percent of field populations of rhesus monkeys are unusually impulsive, insensitive, and overtly aggressive in their interactions with other troop members (Suomi 2003). Rhesus monkeys, who share approximately 95% of their genes with human beings, also show commonalities in the linkage between impulsive aggression and measures of serotonergic metabolism (Higley et al. 1991). An inverse relationship exists between measures of cerebrospinal fluid (CSF) 5-hydroxyindoleacetic acid (5-HIAA) concentrations and measures of impulsive aggression. However, the inherited propensity to develop patterns of impulsive aggressiveness can be modified substantially by early experiences involving social attachment relationships. Monkeys reared by peers consistently demonstrate lower CSF concentrations of 5-HIAA compared with those reared by mothers.

The serotonin transporter gene (*5HTT*) has length variation in its promoter region that results in allelic variation in *5HTT* expression. A "short" allele (*LS*) confers low transcriptional efficiency to the 5*HTT* promoter relative to the "long" allele (*LL*), suggesting that low *5HTT* expression may result in decreased serotonergic function. Bennett et al. (2002) found that CSF 5-HIAA concentrations did not differ as a function of *5HTT* status for mother-reared subjects, whereas among peer-reared monkeys, individuals with the *LS* allele had significantly lower CSF 5-HIAA concentrations than those with the *LL* allele. Being reared by one's mother appeared to buffer any potential deleterious effects of the *LS* allele on serotonin metabolism. Conversely, peer-reared monkeys with the *LS* polymorphism exhibited much higher levels of impulsive aggression than their peer-reared counterparts with the *LL* polymorphism, who exhibited low levels similar to those of both

LL and *LS* mother-reared monkeys, again suggesting a buffering effect of maternal rearing.

Rhesus monkeys with low CSF concentrations of 5-HIAA are also prone to consume more alcohol in a "happy hour" situation in which 7% ethanol aspartame-flavored beverage is available (Suomi 2003). Here the data on maternal buffering effects strikingly reflect the role of environment on the influence of genes. Peer-reared monkeys with the *LS* allele consumed more alcohol than peer-reared monkeys with the *LL* allele. Exactly the reverse was true if the subjects were reared by mothers. The *LS* allele actually resulted in less alcohol consumption than the *LL* allele. Investigators concluded that the short allele of the *5HTT* gene may well lead to psychopathology among rhesus monkeys who have adverse early rearing histories but could possibly be *adaptive* for those monkeys who have secure early attachment relationships with their mothers (Suomi 2003).

In a series of studies, Meaney and his colleagues (Francis et al. 1999; Weaver et al. 2002, 2004) demonstrated that rat mothers who show increased care of their pups by grooming and licking them during nursing provide them with a lifelong protection from stress. The expression of genes regulating glucocorticoid receptors is enhanced as a result of this licking and grooming behavior. In concert with this enhanced expression is a suppression of genes regulating corticotropin-releasing factor synthesis. Even more striking is the fact that female pups of rat mothers who are high in licking and grooming behaviors become high licking and grooming mothers themselves. If female rat pups born to mothers low in grooming and licking behavior are raised by high licking and grooming mothers, they too become high licking and grooming mothers. This maternal behavior is transmitted across generations without altering the genome. Hence, this transmission is often referred to as *epigenetic* modifying or programming and is related to differences in DNA methylation (Weaver et al. 2004). Epigenetics describes the way our bodies can actually modify their genetic makeup.

Much of this research on the interplay between genes and environment in animals is finding counterparts in human subjects. The animal data suggest that there are windows in time during which a gene is dependent upon a certain type of environmental influence to determine its expression. Investigators have found similar windows in human development for periods of major structural change in brain formation (Ornitz 1991; Perry et al. 1995; Pynoos et al. 1997). Bremner et al. (1997), for example, have shown that adults with posttraumatic stress disorder who experienced childhood physical and sexual abuse had reduced left hippocampal volumes compared with matched control subjects. It may well be that traumatic experiences during stable periods of brain development can produce a form of regression to an earlier stage in neural function and structure (Pynoos et al. 1997).

As discussed in Chapter 17, Reiss et al. (1995) demonstrated that parental responses to children may affect the phenotypic expression of genetic vulnerability to antisocial behavior. Similarly, the trait of shyness, and possibly social phobia, appear to require environmental influences on the inherited vulnerability to that trait (Kagan et al. 1988). This phenomenon is discussed more thoroughly in Chapter 9.

The investigation of these serotonin transporter genes in rhesus monkeys has its parallel in human studies. A polymorphism in the promoter region of the serotonin transporter gene (5-*HTTLPR*) has been shown to affect the transcription rate of the gene, with the short (s) allele transcriptionally less efficient than the alternate long (l) allele. One meta-analysis (Karg et al. 2011) found strong evidence that 5-*HTTLPR* moderates the relationship between depression and stress, with the s allele associated with an increased risk of developing depression under stress. Another investigation (Xie et al. 2009) studied the interactions of stressful life events and the serotonin transporter 5-*HTTLPR* genotype on posttraumatic stress disorder diagnosis. These investigators found that although the 5-*HTTLPR* genotype alone did not predict the onset of PTSD, it interacted with adult traumatic events and childhood adversity to increase the risk for PTSD. Other studies using meta-analyses have resulted in negative results, and some commentators feel that there is little purpose in focusing on single variants because the impact of a broader network of genetic variations and environmental influences is necessary to come up with meaningful results (Blakely and Veenstra-VanderWeele 2011; Brzustowicz and Freedman 2011).

Transference

The persistence of childhood patterns of mental organization in adult life implies that the past is repeating itself in the present. Perhaps the most compelling example of this is the core psychodynamic concept of *transference,* in which the patient experiences the doctor as a significant figure from the patient's past. Qualities of that past figure will be attributed to the doctor, and feelings associated with that figure will be experienced in the same way with the doctor. The patient unconsciously *reenacts* the past relationship instead of remembering it and in so doing introduces to the treatment a wealth of information about past relationships.

Although the concept of transference is generally associated with psychoanalysis or psychotherapy, the therapeutic relationship is merely one example of a more general phenomenon. As Brenner (1982) put it: "*Every* object relation is a new addition of the first, definitive attachments of childhood.…Transference is ubiquitous, it develops in every psychoanalytic situation because it develops in every situation where another person is important

in one's life" (pp. 194–195). More recent contributions to the understanding of transference acknowledge that the clinician's *real* characteristics always contribute to the nature of the transference (Hoffman 1998; Renik 1993). In other words, if a therapist is silent and detached from the patient, a transference may develop to that therapist as cold, remote, and disengaged. Although the transference may stem in part from early attachments of childhood, it is also influenced by the therapist's actual behavior. Hence, every relationship in the clinical setting is a mixture of a real relationship and transference phenomena.

Some psychoanalysts argue that there are two dimensions of transference: 1) a repetitive dimension, in which the patient fears and expects the analyst to behave as the parents did, and 2) a selfobject dimension, in which the patient longs for a healing or corrective experience that was missing in childhood (Stolorow 1995). These aspects of transference oscillate between the foreground and the background of the patient's experience.

The dynamic psychiatrist recognizes the pervasiveness of transference phenomena and realizes that the relationship problems about which the patient complains will often manifest themselves in the patient's relationship with the treater. What is unique about the doctor–patient relationship in dynamic psychiatry is *not* the presence of transference, but the fact that it represents therapeutic material to be understood. When subjected to hateful invective from their patients, dynamic psychiatrists do not angrily reject them as most other people in their lives would. Instead, they attempt to determine what past relationship of the patient is being repeated in the present and what contribution their real characteristics may be making to the situation. In this sense, dynamic psychiatrists are defined as much by what they do *not* do as by what they do.

From a neuroscience perspective, we understand transference as related to internal representations of objects triggered by real characteristics of the therapist (Westen and Gabbard 2002). Representations exist as a network of neurons that can be activated in tandem. Thus representations are like potentials waiting to be activated when aspects of a therapist remind the patient of qualities similar to the figure represented in the patient's neural networks. A young man seeing an older male therapist with a beard may be reminded of his bearded father and begin to relate to the therapist as though he is his father. From a neuroscience perspective, the role of expectation involved in transference is analogous to how we deal with the blind spot where the optic nerve exits the eye (Solms and Turnbull 2003). Despite the "hole" in the visual field, we fill in the gap based on what we expect to see. The right orbitofrontal cortex is thought to play a key role in developing internal representations of self and other linked by affect states (Schore 1997). In this area of the brain, there is a convergence of subcortically processed informa-

tion about motivational and emotional states with cortically processed information concerning the external environment. Hence the networks that generate representations receive a good deal of the encoding information from this portion of the brain (see Figure 1–2).

Schore (2011) stresses that the implicit self is forged in the developing right brain. Whereas the left hemisphere mediates most linguistic behaviors, the right hemisphere is responsible for intuition and the relational aspects of the unconscious. Thus, in psychotherapy the patient's right hemisphere is involved with tuning in to the mental state of the therapist as well as to one's own mental state. What follows from this understanding is that there is an implicit transference formed that is based largely on nonverbal communication between the two members of the psychotherapy dyad. Often the "gut feelings" or intuitions are not simply random guesses but conclusions made unconsciously on the basis of the implicit communication between therapist and patient.

Countertransference

An overarching principle embraced by those of us who practice dynamic psychiatry is that we are basically more similar to our patients than we are different from them. The psychological mechanisms in pathological states are merely extensions of principles involved in normal developmental functioning. Doctor and patient are both human beings. Just as patients have transference, treaters have countertransference. Because every current relationship is a new addition of old relationships, it follows logically that countertransference in the psychiatrist and transference in the patient are essentially identical processes—each unconsciously experiences the other as someone from the past.

The concept of *countertransference* has undergone considerable evolution since its inception (Hamilton 1988; Kernberg 1965). Freud's (1912/1958) narrow definition referred to the analyst's transference to the patient or the analyst's response to the patient's transference. Implicit in this conceptualization is the emergence of unresolved conflicts from the analyst's unconscious. Winnicott (1949), however, in working with psychotic patients and those with severe personality disorders, noted a different form of countertransference. He termed the feeling *objective hate,* because it was not a reaction stemming from unresolved unconscious conflicts in the treater but rather a natural reaction to the patient's outrageous behavior. It is objective in the sense that virtually everyone would react similarly to a patient's provocative behavior.

This broader definition of countertransference as the therapist's conscious and appropriate total emotional reaction to the patient is gaining

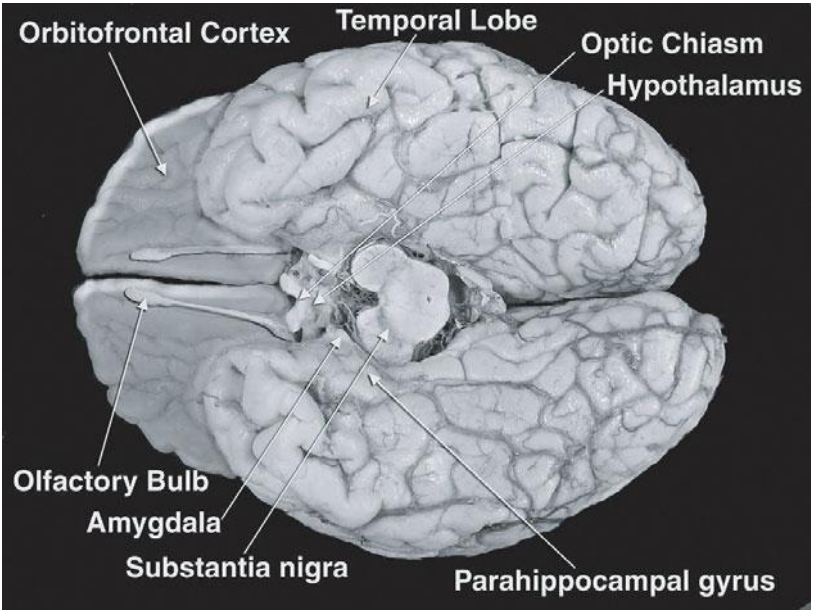

FIGURE 1–2. Orbitofrontal cortex on inferior surface of brain.

greater acceptance, particularly because it helps characterize the work with patients with severe personality disorders, which are an increasingly common segment of the dynamic psychiatrist's practice. This definition serves to attenuate the pejorative connotation of countertransference—unresolved problems in the treater that require treatment—and to replace it with a conceptualization that views countertransference as a major diagnostic and therapeutic tool that tells the treater a good deal about the patient's internal world.

As the definition has continued to evolve, countertransference is now generally regarded as involving *both* the narrow and the totalistic, or broad, characteristics. Most theoretical perspectives view countertransference as entailing a jointly created reaction in the clinician that stems in part from contributions of the clinician's past and in part from feelings *induced* by the patient's behavior (Gabbard 1995). In some cases the emphasis may be more on the contributions of the clinician than on those of the patient; in other cases the reverse may be true. Countertransference is both a source of valuable information about the patient's internal world and an interference with the treatment.

Resistance

The last major principle of dynamic psychiatry involves the patient's wish to preserve the status quo, to oppose the treater's efforts to produce insight and change. In his early papers on technique, Freud (1912/1958) had already noted these powerful oppositional forces: "The resistance accompanies the treatment step by step. Every single association, every act of the person under treatment must reckon with the resistance and represents a compromise between the forces that are striving towards recovery and the opposing ones" (p. 103). Resistances to treatment are as ubiquitous as transference phenomena and may take many forms, including being late to appointments, refusing to take medications, forgetting the psychiatrist's advice or interpretations, being silent in therapy sessions, focusing on unimportant material during the sessions, or forgetting to pay the therapy bill, to name only a few. Resistance may be conscious, preconscious, or unconscious. All resistance has in common an attempt to avoid unpleasant feelings, whether anger, guilt, hate, love (if directed toward a forbidden object such as the therapist), envy, shame, grief, anxiety, or some combination of these.

Resistance defends the patient's illness. The patient's characteristic defense mechanisms designed to safeguard against unpleasant affects come to the fore during dynamic treatment. In fact, resistance may be defined as the patient's defenses as they manifest themselves in psychodynamic treatment (Greenson 1967). The difference between resistances and defense mechanisms is simply that the former can be observed, whereas the latter must be inferred (Thomä and Kächele 1987). The strength of the defense or resistance is necessarily proportional to the strength of the underlying impulse. As Ralph Waldo Emerson once observed, "The louder he talked of his honor, the faster we counted our spoons."

The dynamic psychiatrist expects to encounter resistance to treatment and is prepared to address this phenomenon as part and parcel of the treatment process. Whereas other treaters may get angry when their patients do not comply with prescribed treatments, dynamic psychiatrists are curious to know what this resistance is protecting and what past situation is being reenacted. Despite the connotation of resistance as an obstacle that must be removed to conduct the treatment, to a large extent, understanding the resistance *is* the treatment in many cases. Freud tended to use resistance to mean two different phenomena: 1) a stoppage of the patient's free associations and 2) a revelation of a highly significant internal object relationship from the patient's past transported into the present moment with the treater (Friedman 1991). The manner in which the patient resists is likely to be a re-creation of a past relationship that influences a variety of present-day re-

lationships. For example, patients who spent their childhoods rebelling against their parents may unconsciously find themselves rebelling against their doctor as well as other authority figures. The dynamic clinician helps the patient understand these patterns so that they become fully conscious.

Neurobiology and Psychotherapy

Psychodynamic psychotherapy is a critical part of the psychodynamic psychiatrist's identity. The findings from neurobiology are informing our understanding of psychotherapy in recent years. A brief overview of these findings underscores the fact that psychotherapy has a major impact on the brain and cannot be dismissed as mere "handholding" or benign reassurance.

In a series of innovative experiments with the marine snail *Aplysia,* Kandel demonstrated how synaptic connections can be permanently altered and strengthened through the regulation of gene expression connected with learning from the environment (Kandel 1979, 1983, 1998). In this organism, the number of synapses doubles or triples as a result of learning. Kandel postulated that psychotherapy may bring about similar changes in brain synapses. In the same way that the psychotherapist conceptualizes representations of self and objects as malleable through psychotherapeutic intervention, Kandel noted that the brain itself is a plastic and dynamic structure. If psychotherapy is regarded as a form of learning, then the learning process that occurs in psychotherapy may produce alterations of gene expression and thereby alter the strength of synaptic connections. The sequence of a gene—the template function—cannot be affected by environmental experience, but the transcriptional function of the gene—the ability of a gene to direct the manufacture of specific proteins—is certainly responsive to environmental factors and regulated by those influences.

An integral part of psychodynamic psychotherapy is the acquisition of insight about one's problems. Until recently, the process of gaining insight remained mysterious in terms of its neural correlates. Jung-Beeman et al. (2004) have shed some light on this process. Using fMRI data and scalp electroencephalogram recordings, they identified distinct patterns that suggest differential hemispheric involvement for insight and non-insight solutions. Subjects solved verbal problems and after each correct solution indicated whether they solved the problem with or without insight. The investigators found two major neural correlates of insight. Imaging demonstrated increased activity in the right hemisphere anterior superior temporal gyrus for insight relative to non-insight solutions. Scalp electroencephalogram recordings revealed a sudden burst of high-frequency (gamma band) neural activity in the same area, beginning 0.3 seconds prior to insight solutions.

Hence the sudden flash of insight phenomenon in therapy may be reflected in specific neural activity that occurs when connections that were previously elusive become apparent.

Researchers in Finland showed that psychodynamic therapy may have a significant impact on serotonin metabolism (Karlsson et al. 2010). These investigators randomly assigned 23 patients with major depressive disorder to either short-term dynamic psychotherapy or fluoxetine for a total of 16 weeks. Using positron emission tomography (PET) scans, the researchers estimated 5-HT_{1A} receptor density before and after treatment. They found that psychotherapy increased the binding to 5-HT_{1A} receptors, but antidepressant medication did not alter the 5-HT_{1A} receptor density in these patients. They concluded that psychotherapy leads to changes in the molecular structure of the synapse in patients with major depressive disorder. In a subsequent analysis of the findings, the investigators showed that the increase in the density of the 5-HT_{1A} receptors was strongly associated with an increase in social and occupational functioning (Karlsson et al. 2013).

The combination of psychotherapy and pharmacotherapy is increasingly common in psychiatry as the evidence accumulates that many conditions respond better to combined treatment than to either modality alone (Gabbard and Kay 2001). Because both treatments affect the brain, in a very real sense, they are both biological treatments. However, the mechanisms of action of the two treatments may occur in very different areas of the brain. Goldapple et al. (2004), using PET, scanned 17 unmedicated patients with unipolar depression before and after a 15- to 20-session course of cognitive-behavioral therapy. They compared the findings to a separate group of 13 depressed patients who responded to paroxetine. The psychotherapy appeared to alter brain regions that medications did not touch. The psychotherapy was associated with increases in metabolic activity in the anterior cingulate and the hippocampus, with decreases in metabolic activity in the dorsal, ventral, and medial frontal cortices. By contrast, paroxetine showed increases in metabolic activity in the prefrontal cortex and decreases in the brain stem and subgenual cingulate. In brief, therapy seemed to work in a "top down" manner, whereas medication worked "bottom up."

Most of the research regarding neurobiological mechanisms in psychotherapy has been conducted on relatively brief therapies. However, Buchheim et al.(2012) investigated recurrently depressed unmedicated outpatients and control participants matched for sex, age, and education before and after 15 months of psychodynamic psychotherapy. The participants were scanned at two time points, during which presentations of attachment-related scenes with neutral descriptions were alternated with descriptions containing personal core sentences previously extracted from an attachment interview. The outcome measure was the interaction of the signal difference

between personal and neutral presentations with group and time and its association with symptom improvement during therapy. The signals associated with processing personalized attachment material varied in patients from baseline to endpoint, but there was no such variation in the control patients. The depressed subjects showed a higher activation in the left anterior hippocampus/amygdala, subgenual cingulate, and medial prefrontal cortex before treatment and a reduction in these areas after 15 months. This reduction was linked to improvement in depression specifically and in the medial prefrontal cortex with symptom improvement more generally.

This brief survey of recent neurobiological research relevant to psychotherapy brings us back to the mind–brain dilemmas discussed earlier in the chapter. Knowledge of brain areas activated by emotions in the presence of symptoms generated by biological forces in no way diminishes the importance of individual meanings and idiosyncratic interpretations of events in one's life based on previous experiences. In psychodynamic psychiatry, we must differentiate causation from meaning. Psychiatry that loses the domain of meaning is mindless. Preexisting psychodynamic conflicts may attach themselves to biologically driven symptoms, with the result that the symptoms then function as a vehicle for the expression of the conflicts (Gabbard 1992). Consider an analogy: when a magnet is placed under a sheet of paper containing iron filings, the filings line up in formation and follow the movement of the magnet along the surface of the paper. Similarly, psychodynamic issues frequently appropriate the magnet-like biological forces for their own purposes. Auditory hallucinations are generated in part by alterations in neurotransmitters in persons with schizophrenia, but the content of hallucinations often has specific meanings based on the patient's psychodynamic conflicts.

Role of the Dynamic Psychiatrist in Contemporary Psychiatry

Training in dynamic psychiatry significantly broadens the scope of the clinician's expertise. One real advantage of the dynamic approach is its attention to the role of personality factors in illness. In fact, personality and its influence on the patient is a principal area of expertise for dynamic psychiatrists (Michels 1988). As Perry et al. (1987) persuasively argued, because every treatment involves therapeutic management and modification of the patient's personality, a psychodynamic evaluation is applicable to all patients, not simply those referred for long-term psychoanalytic psychotherapy. Characterological resistances to treatment frequently torpedo any well-designed treatment plan. Symptoms are embedded in character structure, and the dynamic psychiatrist recognizes that in many cases one cannot treat the symptoms without first addressing the character structure.

Failure to comply with pharmacotherapeutic regimens often can be understood along conventional lines of transference, countertransference, and resistance issues. A considerable literature has accrued on the practice of dynamic pharmacotherapy (Appelbaum and Gutheil 1980; Book 1987; Docherty and Fiester 1985; Docherty et al. 1977; Gabbard and Kay 2001; Gutheil 1977, 1982; Karasu 1982; Kay 2001; Ostow 1983; Riba and Balon 2005; Thompson and Brodie 1981; Wylie and Wylie 1987), and there has been a broad consensus that psychodynamic meanings of medications may pose formidable obstacles to compliance with medication regimens. In Chapter 5, I consider dynamic approaches to pharmacotherapy in some detail.

A dynamic therapeutic approach is certainly not necessary for every psychiatric patient. Those who respond well to medications, electroconvulsive therapy, brief psychotherapies, or behavioral desensitization may not require the services of a dynamic psychiatrist. As with all other schools of psychiatry, the dynamic psychotherapeutic approach cannot effectively treat all psychiatric illnesses or patients.

A strictly dynamic therapeutic approach should probably be reserved for patients who most need it and who will not respond to any other interventions. However, a *dynamically informed* approach to most—if not all—patients will enrich the psychiatrist's practice and enhance the clinician's sense of mastery over the mysteries of the human psyche. It will also help the dynamic psychiatrist identify and understand the daily countertransference problems that interfere with effective diagnosis and treatment. The principal advantage of the psychodynamic perspective is that it operationalizes the time-honored axiom that the "person" is the main target of any effective psychiatric intervention. As Hippocrates said long ago, "It is more important to know the person with the illness than the illness the person has."

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