CHAPTER OVERVIEW

CHAPTER OPENER QUESTIONS

Is abnormal behavior caused by invading demons?

How have ideas about abnormal behavior changed over time?

Do diseased brains cause abnormal behavior?

Do ideas, emotional conflicts, and upsetting experiences cause abnormal behavior?

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chapter 2

Historical Perspectives

The Witch Trials of Salem

In the summer and early fall of 1693, 17 women and two men were taken by cart to Gallows Hill near Salem, Massachusetts, and hanged as witches. The principal accusers of these alleged witches were a group of young girls. Betty, the youngest at age 9, and her cousin Abigail, age 11, were the first to show the symptoms of a strange malady that led to this tragic end. These two girls had listened secretly to the stories of a slave woman from the West Indies, Tituba, and later other girls in the village participated in these exciting yet forbidden sessions. Betty, always sensitive and subject to fits of weeping, began to act strangely. Sometimes her mother would find her sitting motionless staring fixedly at some invisible object. If called by her mother, Betty would startle violently, scream, and be unable to give an explanation for her behavior other than meaningless babbling. This reaction was especially likely to come on during prayer. Her father, the minister for Salem Village, learned to leave her alone because if he reproved her, she remained as rigid as ever but worked her mouth and gave off hoarse choking sounds, something like the barking of a dog.

Abigail caught the affliction as if by contagion, but went beyond Betty in the imaginativeness of her display. She got down on hands and knees and ran about, barking and braying, and sometimes went into convulsions where she would writhe and scream as though suffering the torments of the damned. Within a short time the affliction spread to other young girls in the village.

At another time or place such a phenomenon might have run its course and soon been forgotten. In the religious context of the time, however, notions of devil-possession and witchcraft were widespread; and soon the local physicians and ministers began to suspect that these innocent children were being possessed and tormented by witches. When the authorities first asked them to name the people (witches) who were afflicting them, they were unable to do so. No one afflicted them; it just happened. The minister and townspeople began to ask leading questions; names of suspects were suggested to the girls, and their reactions sharply studied. Eventually Betty cried out, "Tituba ... oh Tituba," and the other girls followed suit. Ignorant and confused, Tituba "confessed" to being a witch, and unfortunately in the process referred vaguely to nine other witches.

As the witch trials proceeded, they developed a common pattern. One of the girls in her fits and convulsions would claim to see the spectral form of a village member tormenting her, and this so-called "spectral evidence" was enough for the judges to render a verdict of guilty. Rebecca Nurse, 71-year-old matriarch of the Nurse family, was deeply pious, steeped in scripture, and had reared her children in loving devotion to both their spiritual and temporal welfare. Nor did her family ever desert her in the ordeal she underwent. Accused of witchcraft by several of the girls, she was brought to court and asked by one of the judges if she was a witch. Her answer was unheard by the audience at the hearing because, almost as if on signal, the girls fell into convulsions and set up a "hideous screitch and noise" that could be heard some distance away. "Oh, Lord, help me!" cried poor Rebecca as she spread her hands helplessly. The girls immediately spread their hands in like manner; and thereafter whatever move Rebecca made, they duplicated. Before the very eyes of the court she demonstrated her witchcraft; she made these innocent children follow her every motion (Starkey, 1961).

(Getty Images)

From the perspective of the twenty-first century, these young girls might be seen as showing a form of disturbed behavior called conversion disorder (formerly labeled "hysteria"); and more prosaic causes than possession by the devil might be sought. Initially, Betty provided the other girls with a model of strange behavior. Soon the townspeople began to take notice, and the girls became the object of concern and interest. Starkey (1961) suggests that growing up in puritan Salem was at best a drab and no-nonsense business. Any inclinations toward fun, frivolity, and occasional mischief were dourly inhibited. Under the cloak of an acceptable reason, these girls were having the time of their lives. They gave vent to uninhibited physical and verbal expressions and were given more attention than if "they had married the king and all his court."

2.1 Models and Metaphors

In trying to understand any new phenomena, we tend to apply ideas that were useful in some more familiar domain. Thus in ancient times the world was sometimes conceived as a flat surface supported by a giant animal such as a turtle or an elephant—based presumably on the everyday experience that the earth looks flat and the knowledge that objects would fall unless supported. Later this metaphor was replaced by a model of a universe in which the sun, moon, and stars moved in perfect circles around the earth (the geocentric model). That model was in turn replaced by a view of a solar system in which planets, including the earth, revolved around the sun (the heliocentric model). After this notion became commonplace and familiar, it was used as a way of conceiving the atom—that is, as a nucleus encircled by planetary electrons. What an atom actually looks like has been much more difficult to determine than was the appearance of the solar system; and although this model has been useful to a degree, it has not been found to fit empirical data in a number of respects. In fact, many features of modern physics have been difficult to visualize by any familiar conceptions taken from everyday reality.

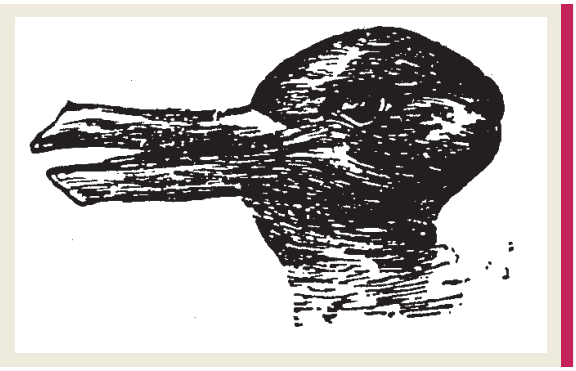


Figure 2-1 ***Is It a Rabbit, or a Duck?***

Source: From *Mindsights: Original Visual Illusions, Ambiguities and Other Anomalies, with a Commentary on the Play of Mind in Perception and Art* by Roger N. Shepard, ©1990 by Roger N. Shepard.

As a science like physics progresses, it moves through a series of models—called paradigms—concerning how its subject matter should be viewed (Kuhn, 1970). A **paradigm** provides a framework with which to view a phenomenon, the vocabulary to use in discussing the subject, and a "recipe" for how to conduct research on the topic. The value of a paradigm is in the organization it gives to the masses of data collected by those who investigate a scientific puzzle. A paradigm helps researchers make sense of their results, and it is retained as long as it serves that purpose better than another model does. Occasionally, data are collected that are not easily accounted for by the leading paradigm. If enough of these anomalies accumulate, the paradigm (such as the geocentric model of the universe) is eventually abandoned in favor of a newer one (the heliocentric model) that is better at explaining and predicting observations. According to Kuhn, that change is not a slow and gradual one but instead something like a social revolution which leads to a change in worldview. "What were ducks in the scientist's world before the revolution are rabbits afterwards" (p. 111) as Figure 2-1 illustrates.

Paradigm
A model or framework from which to view a phenomenon

Mature sciences, like physics, have moved through a series of paradigms, each one more powerful than the one before. Kuhn notes, for example, that early in the history of electrical research, one competing school of thought believed electricity was something like a fluid. Researchers employing that metaphor attempted to conduct electricity through metal tubes and to bottle it. (This work actually led to the invention of the Leyden jar, an early type of

storage battery). It was Benjamin Franklin's experiments with lightning that helped overthrow the fluid model and led to the development of the modern view of electricity.

The status of psychology is somewhat different. It is a relatively new science in which no single ruling paradigm has yet emerged. Instead, a series of competing viewpoints still exist, each offering a different model or metaphor to explain observations and predict events. It is important to recognize that one consequence of accepting a certain metaphor of abnormal behavior is that it largely determines how we talk about and interpret these behaviors, what we look for in terms of causes, and how we construe treatment.

As we have seen, the strange behavior of the young girls of Salem might be interpreted from a different perspective than that of possession by witches. To take another example, if we apply an *illness* or *disease* metaphor to abnormal behavior, then the observed disturbances in behavior tend to be seen as *symptoms* that are caused by some underlying physical or biochemical pathology. Working within this paradigm it makes sense to conclude that modifying (that is, in some way getting rid of) the symptoms without treating the underlying cause will be futile and perhaps produce even more severely disturbed behavior. It also naturally follows that treatment would usually include biological interventions such as surgery or medications. However, from a behavioral perspective many abnormal behaviors are viewed as responses that have been shaped and modified by their consequences, rather than viewed as symptoms. Their causes would thus be found in a person's experiences and prior personal history. As such, these responses should be capable of being changed or corrected, provided the basic principles of human learning are properly applied. In this view no assumptions are made about hypothetical disease processes, and it would seem to follow that treatment should be directly focused on the abnormal behaviors. These and other alternative models or metaphors will be considered in more detail later in the context of their explanations for specific mental disorders, but it might be mentioned here that neither of these particular metaphors may turn out to be wholly adequate in capturing the reality of disordered behaviors. Ultimately, their value will be found in the degree to which they account for the observations we make and the effectiveness of the treatments they provide.

A witch trial in Salem, Massachusetts. Did the tragedy of the Salem witch trials result, in part, from the actions of psychologically disturbed girls? (Getty Images)

2.2 Demon Possession versus Naturalistic Explanations

Abnormal behavior has apparently been a part of the human condition in all times and in all cultures. We can recognize in ancient writings descriptions of the convulsive fits that we now call *epilepsy* or perhaps *hysteria*; excited, hyperactive states that we now call *mania*; melancholic, dejected reactions that we now label *depression*; severe disturbances in rational thinking that we now call *schizophrenia*; and irrational fears now known as *phobias*. Quite independently, it would seem, people in diverse lands and cultures developed a remarkably similar "theory" or metaphor to explain these aberrations—possession by some god, spirit, or demon.

Is abnormal behavior caused by invading demons?

2.2a Early Demonology

Theories of demon possession may have existed even in prehistoric times, as suggested by skulls showing **trephining**. Tools, probably of stone, were used in this procedure to make a sizable hole in the skull, possibly with the intent of permitting entrapped demons to escape. Some specimens show evidence of healing around the holes, indicating that those persons survived the operation. Other explanations besides **demonology** are possible; however, based on our understanding of early cultures, trephination appears to be quite consistent with a procedure derived from a theory of demon possession.

Trepanated skull, Iron Age. The perimeter of the hole in the skull is rounded off by ingrowth of new bony tissue, indicating that the patient survived. (Wikimedia Commons)

The Bible and other early literature are full of variations on the theme of spirit possession, and even today our language betrays how deeply we have been influenced by demonological conceptions. We still say, "Whatever *possessed* you?" or "What's gotten into him?" The expression "She was beside herself with anger" originally meant that the person's spirit left the body while the demon took over.

2.2b Hippocrates

Even in the ancient world, however, not everyone subscribed to the prevailing belief in spirit possession. Many Greek and Roman physicians and philosophers held points of view that were essentially modern in their denial of supernatural explanations for both physical and mental disorders. The Greek physician Hippocrates (460–377 BC) was one of the first to advocate naturalistic explanations for disturbed behaviors. In speaking about epilepsy, referred to in those days as the sacred disease because of the belief that it reflected possession by a god, Hippocrates says, "It thus appears to me to be in no way more divine, nor more sacred than other diseases, but has a natural cause from which it originates like other affections." And again, "If you cut open the head, you will find the brain humid, full of sweat and smelling badly. And in this way you may see that it is not a god which injures the body, but disease" (*Sacred Disease* by Hippocrates, as quoted in Zilboorg & Henry, 1941, pp. 43–44). Hippocrates was a careful clinical observer; and his own classification of mental diseases included phobias, epilepsy, mania, melancholia, and paranoia (more like mental deterioration than what we currently call paranoia).

The four important bodily fluids, yellow bile, black bile, blood, and phlegm, make up the Four Humors, each symbolizing a different temperament: Yellow bile ("choleric"); black bile ("melancholic"); blood ("sanguine"); phlegm ("phlegmatic"). (Wikimedia Commons)

If psychological abnormalities are caused by spirit possession, then treatment would likely involve ways of ridding the body of the invading spirit, whether by opening a hole in the skull or by **exorcism** techniques such as uttering religious incantations, whipping, starvation,

Trephining
Tools, probably of stone, were used to make a sizable hole in a skull, possibly with the intent of permitting entrapped demons to escape

Demonolgy
The belief that possession by demons or spirits explains abnormal behavior

Exorcism
The practice of expelling demons from a body that they possess

or other efforts to make the body an uncomfortable vessel for the demon. In contrast, the naturalistic approach of the Greeks (as illustrated by Galen, who was strongly influenced by the earlier work of Hippocrates) proposed that psychological abnormalities were caused by imbalances of important bodily fluids called the four humors: yellow bile, black bile, blood, and phlegm. An excess of yellow bile would lead a person to be easily angered and with a hot temper ("choleric"), whereas if black bile dominated, the patient would sleep poorly and be depressed ("melancholic"). Too much blood caused amorative and hopeful behavior ("sanguine"), and too much phlegm suppressed emotions and produced calm ("phlegmatic").

Hippocrates, operating from the metaphor that behavioral abnormalities were sicknesses in the same sense as physical disorders, advocated "medical" approaches to treatment, such as moderate exercise and physical tranquility. To correct the imbalance of fluids, techniques such as bleeding and purging were practiced. His theories of bodily functioning were crude and frequently inaccurate by today's standards; yet in looking to natural causes and eschewing demonology, his general viewpoint and attitude is essentially modern. Greek and Roman physicians such as Galen, Asclepiades and Aretaeus carried on this tradition. With the fall of Rome, however, much of the collected science was lost to European culture. As Pronko (1989) notes, naturalism was stunted by a developing religious view that held the Bible was the source of all knowledge. Therefore, "research" involved careful study of the holy word, rather than observation and dissection. For most of Europe, scientific approaches were curtailed for centuries. Fortunately, many of the works of Greek scientists and scholars were preserved in Islamic countries, where humane and enlightened approaches to treatment emerged at this time—in stark contrast to the harsh demonology that characterized the European world during these "dark ages."

2.2c Dance Manias in the Middle Ages

A curious phenomenon developed near the end of the Middle Ages and appeared on and off for several hundred years—the **dance manias**. Peter Herental describes one such episode that occurred in 1374:

> Both men and women were abused by the devil to such a degree that they danced in their homes, in the churches and in the streets, holding each other's hands and leaping in the air. While they danced, they called out the names of demons, such as Friskes and others; but they were neither aware of this nor did they pay attention to modesty even though people watched them. At the end of the dance, they felt such pains in the chest, that if their friends did not tie linen clothes tightly around their waists, they cried out like madmen that they were dying. In Liège they were freed of their demons by means of exorcisms such as those employed before baptism (Rosen, 1968, pp. 196–197).

An exorcism of an evil spirit in the streets of Akra, India. (Shutterstock)

Similar dancing manias were called *tarantism* in Italy because they were believed to be caused by the bite of a tarantula, and in other parts of Europe they were known as *St. Vitus' dance* (after a 1518 episode in which dancers were sent to a chapel of St. Vitus). The dancers, mostly from the lower socioeconomic classes, sometimes set wreaths on their heads, bound themselves around with cloths or towels, or went half-naked. They would work themselves into a kind of ecstasy, suddenly throwing themselves on the ground with convulsive and twitching movements, sometimes losing consciousness and foaming at the mouth. In some areas the dance mania became institutionalized as an annual ritual. One group of women, for example, made an annual pilgrimage to a chapel of St. Vitus, where they would dance

Dance manias
Episodes of apparent mass madness in which groups of people danced in the streets

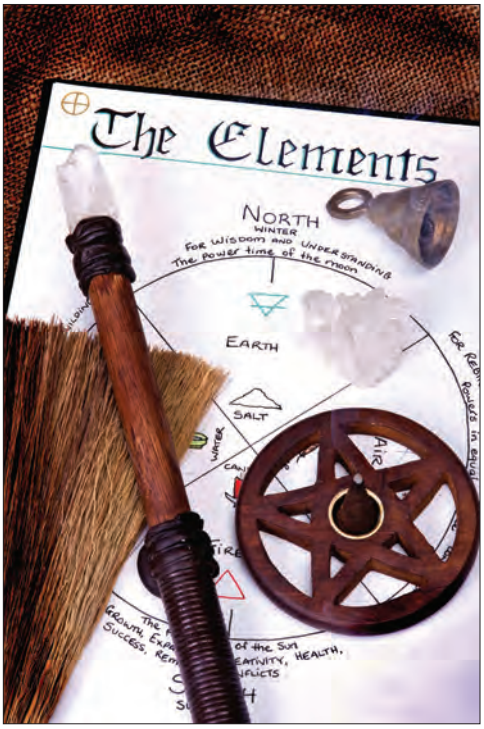
ecstatically until they collapsed from exhaustion. For several weeks before the pilgrimage they suffered from feelings of restlessness and a feeling of painful heaviness, but after the dance they were freed of these attacks and could anticipate a year of wellbeing (Rosen, 1968).

2.2d Demonology Triumphant: Witchcraft

During most of the Middle Ages, physicians confronted with various forms of psychopathology put together, as best they could, some of the traditional, and by then somewhat garbled, views of the ancient Greeks and Romans and the astrology, alchemy, demonology, and simple prayers of their own day. Exorcising demons was not necessarily a brutal affair. Laying on of hands, the utterance of certain prayers, or the ingestion of unsavory potions were common procedures. Beginning near the end of the fifteenth century and continuing for some two hundred years, a more virulent form of demonology led to a widespread preoccupation with witches and their identification and destruction. Several historical conditions may have contributed to this phenomenon: A church whose doctrines were being severely challenged by the Reformation (protestants, however, soon started their own witch-hunts) and general unrest caused by wars, economic depressions, and the Black Plagues increased people's readiness to blame their woes on handy scapegoats.

The lengths to which physicians and clergymen would go to drive out invading devils became more and more extreme. Flogging, starving, immersion in hot water, and more refined forms of torture were employed. Initially, a distinction existed between individuals who had been unwittingly seized by a devil and those who had intentionally signed a pact to do the devil's work. Only the latter were known as witches. The distinction, however, became blurred. If persons suspected of being a witch did not confess, they were likely to be tortured until they did. Following the biblical injunction,

> *"Thou shalt not suffer a witch to live"*
>
> (Exodus 22:18)



(iStock)

convicted witches were put to death, frequently by burning at the stake. To individuals like Boguet, a French judge, the world seemed infested with witches:

> I believe that the sorcerers could form an army equal to that of Xerxes, who had one million, eight hundred thousand men.
>
> As to myself, I have no doubt, since a mere glance at our neighbors will convince us that the land is infested with this unfortunate and damnable vermin. Germany cannot do anything but raise fires against them; Switzerland is compelled to do likewise, thus depopulating many of its villages ...
>
> No, no, the sorcerers reach everywhere by the thousands; they multiply on the earth like the caterpillars in our gardens ... I want them to know that if the results were to correspond to my wishes, the earth would be quickly purged, because I wish they could all be united in one body so that all could be burned on one fire. (Zilboorg & Henry, 1941, pp. 162–163)

The witchcraft phenomenon is relevant to the study of abnormal behavior because some individuals suffering from mental disorders were probably convicted as witches and may even have, in some cases, believed themselves to be witches. Most convicted witches, however, were probably relatively normal people who simply had the ill fortune

at the wrong time in history to get into an argument with a neighbor a few weeks before the neighbor's child got sick or the neighbor's cow died. However, individuals with behavior disorders played other roles in this affair. Recall how the children of Salem successfully accused others of witchcraft while in the throes of hysterical reactions.

2.2e Voices of Reason

To draw too sharp a line between medieval and modern views of mental disorders would be inaccurate. Throughout the Dark Ages and medieval times, some individuals maintained the more scientific and humane attitudes of the ancient Greek and Roman physicians. In Arabian civilization, especially, these views prevailed. For example, a mental hospital, where humane care for the mentally disturbed was provided, was established as early as 792 AD in Baghdad.

At the height of the European obsession with witches lived Johann Weyer (1515–1588), a man whose views on mental disorders were far ahead of his time. His ability to see natural causes of deviant human behavior without becoming caught up in the prevailing theological explanations is illustrated by the case of Barbara Kremers. This 10-year-old girl had become a celebrity; miraculously she never ate, urinated, or moved her bowels, but was in good health. This "miracle" had followed a severe illness. For 6 months following the illness, Barbara had remained mute; after that time she had ceased to eat. Learned men came to see her and marvel, and the City Council awarded her a certificate testifying to the truth of this wonder. Weyer became interested in the girl and arranged to have her and her sister come to live at the estate where he lived (as personal physician to a Duke). It was soon discovered that Barbara and her sister had engaged in a clever swindle in which her sister had secretly supplied her with food. Weyer treated Barbara with kindness, and in less than a week's time she was eating regular meals at Weyer's table. She had also been partially lame and walked on crutches and suffered, in addition, from a twist in her arms. Weyer cured her lameness merely by rubbing bland oil on her back, and shortly thereafter the twist in her arms also disappeared. Weyer's clinical writings are full of examples of this kind in which a combination of astute clinical observation, uncluttered by demonological speculations, and a kindly respect for the person foreshadow modern psychiatry.

Weyer believed that many witches were mentally disturbed individuals who needed care and treatment, not torturing and burning. He made a careful study of witchcraft and published a book on the subject in which he deplored the senseless torturing and killing of innocent people. It was not until long after Weyer's death that the common sense appeal of his book began to be accepted by medical authorities. The reaction of Church authorities at the time is summed up by the statement of Father Spina:

> *"Recently Satan went to a Sabbath (a witches' gathering) attired as a great prince, and told the assembled witches that they need not worry since, thanks to Weyer and his followers, the affairs of the Devil were brilliantly progressing"*
>
> (Castiglioni, 1946, p. 253).

Eventually, in the face of growing attacks, demonology gave ground. In England, Reginald Scott (1538–1599) exposed the fallacies of witchcraft and demonology in a book called *The Discovery of Witchcraft*, published in 1584. He especially denied the role of demons in producing mental disorders. St. Vincent de Paul (1576–1660), likewise at the risk of his own life, argued that mental diseases were similar in kind to bodily disease.

2.3 Demonology Today: Alive and Well in the USA?

In most abnormal psychology textbooks, demon possession is discussed as a curious and interesting belief of ancient and medieval times that has given way to modern, scientific approaches to the understanding of human behavior. Although hardly in the mainstream of the scientific study of abnormal psychology, theories of demon possession still have their adherents. In fact, Rice (2003) reported that over half of the respondents in a random telephone survey of Southern states believed that people are sometimes possessed by the devil.

Belief in occult phenomena—witchcraft, astrology, and so on—enjoyed a revival that began in the second half of the twentieth century. Movies such as *Rosemary's Baby* and *The Exorcist* dealt explicitly and seriously with demon possession, and they became immensely popular and successful. Hollywood and the press continued to feed the public's interest in all things supernatural, so tales of the living being tormented by the dead, or of battles between unseen forces for the control of the physical world, have become commonplace in American popular media. A resurgent fundamentalist influence also helped re-establish and legitimize religious possession metaphors for mental disorders. By the 1990s, some members of the medical and psychological communities were proposing that a particular type of a rare condition, formerly called multiple personality disorder but now termed **dissociative identity disorder**, was caused by satanic ritualistic abuse. Allegedly, adults and children as young as infants were initiated into satanic cults by secret ritual practices that included killing and eating babies, torture, human and animal sacrifice, and sexual abuse, often while in a trance-like state induced by devil worshippers. Initiates were then supposedly "brain-washed" and "programmed" to kill others, without having any conscious awareness of the cult influence. These unseen and unrecognized influences later allegedly manifested themselves in terms of several different personalities co-existing within the same person. Although the outward symptoms among the afflicted often involved anxiety, depression, and other rather common psychological problems, proponents of these claims used questionable techniques involving hypnosis and/or drugs to "recover the repressed memories" of their clients and to bring out the many personalities so that they could be "integrated."

High priest of the Church of Satan, Anton LaVey, performs a satanic baptism of his three-year-old daughter in 1967 with the assistance of his wife Diane (right). The nude woman who serves as a living altar is priestess Isabel Bolotov. (AP Wide World)

Dissociative identity disorder

Rare dissociative reaction in which relatively separate and distinctive personalities develop within the same person

Ritualistic abuse by Satan worshipers became a popular (and exciting) explanation for multiple personality disorder featured in many television programs and magazines. "Experts" in the field developed expensive, long-term inpatient programs that kept some clients hospitalized for years. Speakers delivered workshops and seminars to train others in how to diagnose and reprogram those who had been initiated into the secret cults. Finally, as public interest continued to grow, the FBI conducted an investigation into the allegations of sexual abuse, torture, killings, and cannibalism supposedly occurring across the nation and involving thousands of victims. After an extensive review of facts, the 1992 FBI report concluded as follows:

> *"Until hard evidence is obtained and corroborated, the public should not be frightened into believing that babies are being bred and eaten, that 50,000 missing children are being murdered in human sacrifices, or that satanists are taking over America's day care centers or institutions. No one can prove with absolute certainty that such activity has NOT occurred. The burden of proof, however, as it would be in a criminal prosecution, is on those who claim that it has occurred. The explanation that the satanists are too organized and law enforcement is too incompetent only goes so far in explaining the lack of evidence. For at least eight years American law enforcement has been aggressively investigating the allegations of victims of ritual abuse. There is little or no evidence for the portion of their allegations that deals with large-scale baby breeding, human sacrifice, and organized satanic conspiracies. Now it is up to mental health professionals, not law enforcement, to explain why victims are alleging things that don't seem to have happened"*
>
> (Lanning, 1992).

Satanic ritualistic abuse, then, seems to be an unlikely explanation for multiple personality disorder. Instead, it appears to be another example of an idea that spreads quickly because of its entertaining social (and financial) consequences rather than its paradigmatic value and that is accepted at face value by suggestible people, much as the Salem witchcraft possession cases illustrated hundreds of years earlier. Although we should reject no explanations out of hand, a reasonable approach to such ideas is skepticism and insistence on supporting evidence. That sort of scientific reasoning will, slowly over time, lead us to increasingly more powerful models of abnormal behavior, and away from those that simply catch the public's eye.

How have ideas about abnormal behavior changed over time?

2.4 Humanitarian Reforms

2.4a The Early Asylums

In medieval times the fate of the mentally disturbed was varied. Some were simply allowed to wander the streets and the countryside, begging or stealing, making out as best they could. Some more troublesome individuals wound up in prisons or dungeons alongside common criminals; or if they were lucky, they found a place in the occasional monastery that provided assistance for these unfortunates. The first institutions devoted entirely to the care of the mentally impaired, called asylums, frequently had their start in monasteries. Although asylums usually began as havens where the mentally disturbed could find food, shelter, and some kindly attention, as time went by they tended to become overcrowded, noisy, unsanitary repositories. Patients were frequently chained, and no concern was shown for whether these conditions were helpful in restoring mental equilibrium. The living conditions at Bethlehem Hospital, a London asylum opened in 1547, became so noisy and chaotic that the word *bedlam* was derived from its name. Passersby could observe the more violent patients for a penny a look, and the more harmless individuals were

The octagon tower of the former New York Insane Asylum on New York's Roosevelt Island (formerly Welfare Island and Blackwell's Island), which opened in 1839 (Library of Congress)

forced to beg on the streets of London. In Vienna, the so-called Lunatics Tower was constructed in 1784. Patients were confined between inner rooms and the outer curved wall, where in some cases they could be observed by the local citizenry.

2.4b Treating Mental Patients Like Human Beings

In the eighteenth and nineteenth centuries, several reformers began improving the care of the mentally disturbed. One of the most famous promoters of humanitarian approaches was Philippe Pinel. In the midst of the French Revolution in 1792, Pinel was placed in charge of a hospital for the insane, La Bicêtre in Paris. Although the leaders of the Revolution loudly proclaimed their ideals of liberty, equality, and fraternity, they were less than enthusiastic about Pinel's proposal to remove the chains from the insane and treat them with kindness and dignity. After considerable pleading, Pinel was granted permission to try his experiment. Patients chained for as long as 40 years were cut free and permitted to see the sun and breathe fresh air once more. Many of these patients, after experiencing the freer and more humane conditions created by Pinel, were eventually able to leave the hospital (incidentally, Pinel benefited as well: he was saved from the hands of an unruly mob of revolutionaries by a former inmate who recognized him).

Dr. Philippe Pinel at the Salpêtrière, 1795 by Tony Robert-Fleury. Pinel ordering the removal of chains from patients at the Paris Asylum for insane women (Wikimedia Commons)

In other ways Pinel's reforms were forerunners of the modern psychiatric hospital. He interviewed and studied the patients carefully, making notes of what they said and of any other information relevant to their difficulties. In short, he introduced the keeping of systematic records on patients, an essential step if knowledge about the nature of these disorders was to progress.

Similar reforms were begun in England where the Quaker, William Tuke, founded the York Retreat in the English countryside where patients were permitted to rest and work in an accepting religious environment. However, these reforms begun by specific individuals did not immediately spread to all institutions. The history of mental hospital care has been and continues to be one of cyclical rediscovery of dehumanizing treatment and the advocacy of reforms. In mid-nineteenth century America, a New England schoolteacher named Dorothea Dix (1802–1887) launched a campaign against the inhumane conditions in asylums. In 1848 she sent a report of what she had seen to the Congress of the United States:

> … more than 90 idiots, epileptics and insane in the United States, destitute of appropriate care and protection … bound with galling chains, bowed beneath fetters and heavy iron balls attached to drag chains, lacerated with ropes, scourged with rods and terrified beneath storms of execration and cruel blows; now subject to jibes and scorn and torturing tricks; now abandoned to the most outrageous violations. (Zilboorg & Henry, 1941, pp. 583–584)

During the 40 years of her endeavors, Dix was instrumental in founding or enlarging more than 30 state institutions for the proper custody and treatment of mental patients.

Modern reformers still note the dehumanizing psychological impact of the institutional environment. Although there is still a need—at some level—for the asylum, the modern mental health system endorses the value of deinstitutionalization and the creation of more residential treatment facilities in home-like settings in the community.

BVT Lab

Visit www.BVTLab.com to explore the student resources available for this chapter.

2.5 The Organic View

The **organic view**—based on the belief that mental disorders have their origin in some biological malfunction transmitted through heredity or caused by a disease, injury, lesion, or more subtle biochemical disturbance in the brain—is as old as Hippocrates. The theory and the methods of study have become more refined in recent years, but the basic idea remains the same—mental disturbances are diseases of the central nervous system.

Do diseased brains cause abnormal behavior?

As we have seen, in the Middle Ages there was a retreat from scientific approaches to mental disorders, including the organic view. In the sixteenth and seventeenth centuries, however, a resurgence of scientific thinking in Europe led to a series of great discoveries and inventions for the study of the world around us. An influential perspective, formalized by the philosopher René Descartes (1596–1650), proposed that humans and animals worked much as machines did—arms and legs moved through mechanisms of the body that were not so different from ropes and pulleys. Descartes thought that the behavior of animals was therefore mindless, automatic, and reflexive. Humans were different, according to Descartes, because in addition to this machinery, they have a soul and could act voluntarily. This notion of the separation of mind and body (**dualism**) has presented some impediments to more modern scientific perspectives of behavior, but one of its earliest ramifications was positive for the developing field of medicine. Since the body was only the physical housing for the soul, the Catholic Church allowed dissection of the human body by physicians. (Although the physical realm of the body was conceded to medicine, the Church retained imminence in the study of the mind, or soul.) By the middle of the nineteenth century the notion that disordered behavior was related in some way to disordered brains had regained considerable prominence. A German psychiatrist, Wilhelm Griesinger (1817–1868), contended that classification of mental disorders should be based on underlying brain lesions; and a French psychiatrist, Morel (1809–1873), proposed that mental illness resulted from brain deterioration, itself the consequence of a hereditary neural weakness.

Emil Kraepelin (Wikimedia Commons)

2.5a An Influential Classification System: Emil Kraepelin

The monumental work of Emil Kraepelin (1855–1926) further solidified the organic view and provided us with a classification system that has continued to influence psychiatric thinking to this day. Following a strategy that was paying off in the study of physical diseases, Kraepelin looked for individuals with patterns of symptoms, or "symptom-complexes," that showed a similar onset, course, and outcome. He then combined symptom patterns previously considered as separate categories into two major syntheses: *manic-depressive psychosis* and *dementia praecox* (roughly comparable to *schizophrenia* in current terminology). Mania (excited, elated reactions) was linked with depression or melancholia to form the manic-depressive category because the psychiatric records showed that (1) these symptoms sometimes alternated with each other in the same person, (2) both mania and melancholia showed an abrupt onset and a periodic course in which the person tended to show spontaneous recovery but a high likelihood of future recurrences, and (3) in neither case was there progressive mental deterioration or physical symptoms such as paralysis. Dementia praecox represented an amalgam of an even greater variety of symptoms that had in common two characteristics: an early onset, usually in adolescence or young adulthood (thus praecox or precocious), and a progressive downhill course toward an incurable *dementia* (mental

Organic view
Belief that abnormal behavior is caused primarily by biological factors

Dualism
The belief that mind and body are separate and follow different laws

incompetence). While irreversible, however, the outcome was not death but rather stabilization at a very reduced level of mental and social capacity. Kraepelin also included a third category, paranoia, which occurred less frequently than the other two symptom patterns and consisted of one symptom, a highly systematized delusional belief of a persecutory nature.

Kraepelin's two major classifications accounted for about two-thirds of all the patients in mental hospitals at that time. The importance of his work lay in the possibility that investigation of the cause and cure of these disorders could proceed more rationally if, indeed, these categories reflected distinct disease processes. Kraepelin himself thought that the manic-depressive psychosis was the result of some disturbance in metabolic function (probably inherited since this disorder seemed to run in families), while dementia praecox was caused by some abnormality in the sex glands. The framework by which mental disorders are classified has changed significantly since that time, but the current system still shows Kraepelin's contribution.

2.5b The Search for Physical Causes and Cures

With almost no knowledge of heredity or neurology, most authorities on mental disorders in the eighteenth and nineteenth centuries looked toward seemingly naturalistic factors, such as fluid imbalances, or astrological influences to explain abnormality—much as did Hippocrates before them. Bleeding was a common treatment for many diverse disorders, both physical and mental. There was widespread acceptance that the position of the stars and planets influenced behavior and personality; **lunatics** were those whose mental problems were traceable to the phases of the moon. One of the most serious of the purported causes of insanity (as well as epilepsy, poor eyesight, stupidity, and a host of other afflictions) was masturbation, or "self-abuse." Convinced that the act was a dangerous threat to health, doctors lectured on the importance of purity and prescribed various devices invented to help wayward individuals resist the dangerous temptation to self-pleasure—such as genital cages, anti-erection rings, caustic chemicals, and restraints.

(iStock)

In the United States, Benjamin Rush (1745–1813) founded American psychiatry and wrote its first textbook, *Medical Inquiries and Observations upon the Diseases of the Mind* in 1812. A signer of the Declaration of Independence, he promoted humane treatment for patients and believed that with the right treatment mental disease could be cured. Although he was in some ways a visionary who helped introduce modern concepts to psychiatry, his approach reflected a combination of scientific, astrological, and superstitious thinking. Influenced by Tissot, a Swiss physician, Rush believed that "bodily energy" must be kept in proper balance to avoid disease. Masturbation disturbed the balance of energy and resulted in serious disorders. Some of the treatments he employed were bloodletting, purgatives, and spinning patients on wooden boards (or in special "tranquilizing chairs") to make blood rush to the brain.

Lunatics
Those whose mental problems were traceable to the phases of the moon

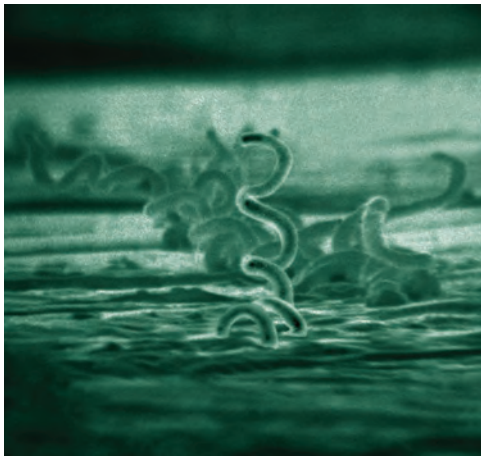
2.5c An Example of Organic Causation: General Paresis

The discovery of the nature of a mental disorder called **general paresis**, one of the great achievements of medical science, gave strong impetus to the development of organic theories of abnormal behavior. General paresis involved a symptom-complex consisting of delusions of grandeur, dementia, and progressive paralysis. The paralysis and mental deterioration progressed rapidly to a fatal outcome. Although many contemporary physicians had thought that paralysis might be a secondary accompaniment of many forms of madness, in 1826 Bayle presented even more precise descriptions of both the mental and physical symptoms of general paresis and argued strongly that they represented a single form of mental illness that could be distinguished from other disorders.

General paresis
Severe disorder characterized by various mental symptoms as well as bodily paralyses and caused by a syphilitic infection of the brain

Progress was slow for several decades. Then around 1860, it became possible to demonstrate, with the use of improved microscopes, that the brains of patients who died from general

paresis revealed widespread destruction of nervous tissue. In 1884, Fournier provided highly suggestive evidence that the symptoms of general paresis were related to and perhaps part of the sexually transmitted disease, syphilis. He found that 65% of patients with general paresis had a history of syphilis, compared with only 10% of patients with other mental disorders. Sixty-five percent was still short of 1%; and it remained for Krafft-Ebing, in 1897, to perform a convincing if ethically questionable study. He inoculated nine paretic patients, who had denied having a prior syphilitic infection, with matter from syphilitic sores. None of these patients developed symptoms of syphilis, indicating that immunity had resulted from a previous or continuing infection. The specific infectious agent for syphilis, a spirochete called *Treponema pallidum*, was identified in 1905 by Schaudinn; and in 1913 Noguchi and Moore found this organism in the brain tissue of paretic patients.



Spirochetal bacterium *Treponema pallidum* (Syphilis). In 1884 Fournier provided highly suggestive evidence that the symptoms of general paresis were related to and perhaps part of the sexually transmitted disease, syphilis. (Wikimedia Commons)

Once the cause of general paresis—untreated syphilis—was identified, the discovery of an effective treatment remained. Initial success came in 1917, with the development of **malarial fever therapy**. Wagner-Juaregg in Vienna used blood from a soldier with malaria to infect patients who had general paresis. The resulting infection caused a high fever, which in turn killed off the syphilis spirochete. The patient then worked to recover from the malaria itself. A much more effective and palatable therapy was developed decades later with the discovery of penicillin, but the malarial fever technique was a paradigmatic success.

Thus one identifiable pattern of mental disorder was found to have a clearly specified onset, course, and outcome, and most importantly, to be caused by an infectious agent in the same manner as pneumonia or diphtheria. It is no wonder that medical scientists were encouraged to expect other forms of mental disorders to reveal in time their own brand of organic causation. In some instances, this hope has been fulfilled; but after a century of organically oriented research, the foundation of the disease model today remains surprisingly incomplete. With very few exceptions, there are no laboratory tests that can be conducted to detect the presence (or absence) of a mental disorder, or even any biochemical findings that are specific to particular disorders. In fact, a precise physical cause has never been found for most *DSM-5* diagnoses. However, there have been great developments in understanding the genetic and neurochemical bases of brain functioning and in the use of pharmacological agents that can provide significant symptom alleviation. These are very active areas of research, to be considered in greater detail in the next chapter. In no sense, however, has an organic "cure" like that for general paresis been formulated for the vast majority of mental disorders.

2.6 The Psychological View

The view that psychological events—such as our personal experiences, beliefs, emotions, and ideas—might cause abnormal behavior developed along two very different lines of work. One arose largely through the study of *hysteria* and *hypnosis*, while the other emerged from the study of animal learning.

Do ideas, emotional conflicts, and upsetting experiences, cause abnormal behavior?

Malarial fever therapy
A treatment for general paresis that involved infecting the patient with malaria to cause a high fever

2.6a Healing by Suggestion: Anton Mesmer

Hysteria includes not only the popularly recognized "hysterical attack," involving uncontrolled emotional outbursts of weeping, laughter, or other inappropriate behaviors, but also certain altered states of consciousness and a host of changeable bodily symptoms (such as paralyses, muscular contractions, and defects in hearing and vision) that have no identifiable organic basis. The term itself, derived from the Greek word for uterus, *hystera*, reflects a belief

Hysteria
A condition that includes emotional arousal and physical symptoms that seem to have no organic basis

common in the ancient world that these disorders occurred in women only and resulted from a wandering or displaced uterus, for which Hippocrates might have prescribed marriage (to allow the uterus to produce a child).

Anton. Mesmer (Shutterstock)

In the late eighteenth century, the rise of a psychological metaphor for understanding these disorders began with the flamboyant career of Anton Mesmer (1734–1815). Trained as a physician, Mesmer was influenced by the astrological and pseudoscientific beliefs of his time. He believed that all human behavior was under the influence of the stars and that this influence was accomplished through a constant flow of a magnetic fluid that fills the universe. Physical symptoms developed when the distribution of the magnetic fluid became unbalanced within a person. Healing was produced by permitting a flow of the magnetic fluid into or from the person by the "magnetizer" or healer. Expelled from the Viennese medical profession for his unorthodox approaches to treatment, Mesmer went to Paris where he soon established a flourishing practice.

A typical session in Mesmer's clinic was highly theatrical. The patients gathered around a *bacquet* (a tub) whose floor was covered with powdered glass and iron filings and from which protruded iron rods that were applied to the afflicted areas of the body. As Zweig (1932) described the session, Mesmer, wearing a blue robe and playing music, would enter the room, draw near to the patients, and stroke them with his magnetic wand while gazing intently at them. "Usually no great time elapsed before one or the other of the company would begin to tremble. Then the limbs would start to twitch convulsively, and the patient would break out in perspiration, would scream, or groan. No sooner had such tokens manifested themselves in one member of the chain, than the others, too, would feel the onset of the famous crisis which was to bring relief. All would begin to twitch, a mass psychosis [sic] would arise, a second and a third patient would be seized with convulsions. … Some would fall to the ground and go into convulsions, others would laugh shrilly, others would scream, and choke and groan, and dance like dervishes, others would appear to faint …" (pp. 55–56).

Austrian hypnotist Anton Mesmer and his tub in 1784 (iStock)

Under these dramatic conditions, many patients experienced relief from various aches, pains, and other symptoms. The medical profession, however, was not impressed; and in 1784 a committee of prominent men (including Benjamin Franklin, Joseph-Ignace Guillotin, and Antoine-Laurent de Lavoisier, the discoverer of oxygen) was appointed to investigate Mesmer and his therapeutic techniques. The committee concluded that Mesmer was a fraud and a charlatan. Magnetism, they said, could not be weighed, observed, or measured. Conducting some small experiments of their own, the committee concluded, "that imagination without magnetism produces convulsions and that magnetism without imagination produces nothing." Anticipating the importance that psychologists currently give to observational learning or imitation, they said, "The spectacle of the crises is equally dangerous because of that imitation of which nature, it seems to us, made a law; consequently any public treatment cannot but have at length very harmful results" (Semalaigne, as quoted in Zilboorg & Henry, 1941, pp. 345–346). Mesmer was discredited and forced to leave Paris.

Hypnosis
A trancelike state induced through suggestion in cooperative subjects

Mesmerism
Closely related to the phenomenon of hypnosis; derived from the techniques of Anton Mesmer

Although Mesmer himself faded into obscurity, his techniques provoked continuing interest and controversy. **Mesmerism** became a popular term for procedures used to induce trances and other altered states of consciousness. In time these phenomena came to be subsumed under the general heading of **hypnosis**, and most of the trappings and

associated theory used by Mesmer were dropped. The central features of most hypnotic procedures, then as now, included some way of narrowing the field of attention to some specific stimulus (for example, the hypnotist's voice, a swinging pendulum, or a shining light), an atmosphere of expectation that an unusual state would indeed be forthcoming, and a willing, cooperative subject.

2.6b The Scientific Study of Hysteria: Jean-Martin Charcot

In the nineteenth century, the prevailing medical view of hysterical symptoms was that either they resulted from an organic brain disorder or they were displays by flighty women seeking attention and sympathy, not to be taken seriously. Hypnotism continued to be associated with the occult, strange theories of "magnetic fluids," and charlatanism, or was considered mere suggestion by the medical establishment. Although by no means the first person to study the relationship between hypnosis and hysteria, Jean-Martin Charcot, a distinguished French neurologist, was largely responsible for making both topics respectable objects of scientific investigation.

A puzzling but significant fact about hysteria was the almost unlimited variety of symptoms it encompassed. In Charcot's day, one symptom was the *grande hysterie*, in which the person lost consciousness, fell, showed muscular contractions similar to those in epileptic attacks, and proceeded to various other "gymnastics" such as a tetanus-like posture in which the body was bent in an arc resting only on head and heels. Following these physical contortions, the patient might express various emotions (such as pleasure, pain, fear, or hatred) that, in some cases, related clearly to a disturbing incident in the patient's life. After recovering from such an attack, the patient would be amnesic, that is, remember nothing about it.

Disturbances in sensory perception were frequent in hysterical patients. Most common of all was **anesthesia**, a lack of ordinary sensation in the skin where the body surface becomes insensitive to touch, pain, or heat. In some cases the whole body would be affected; more usually the lack of sensation would only occur on some part of the body. In **hemianesthesia** the whole of one side of the body became insensitive. In other cases, a hand, an arm, or some patch of skin lost the sense of touch. Other senses were sometimes affected. Hysterical blindness or deafness occurred but was rare; lesser impairments in vision and hearing were more frequent. In some individuals, for example, the field of vision was restricted so that they looked at the world as through a tunnel.

Hysterical pains were innumerable, especially in the head, abdomen, ovarian region, back, and joints. Various reflexes could become involved, causing persistent coughing, sneezing, yawning, or hiccoughing. A host of afflictions occurred in the musculature: **tics** (mild spasms, usually of the facial muscles), muscular tremors, muscular contractions, and paralysis. In the contractions, a hand might be permanently bent at the knuckles or at the wrist, a knee drawn up, or one leg crossed over the other. Paralysis could affect any muscle group: legs, arms, or speech muscles, as in mutism. A particularly puzzling paralysis was **abasia**, the inability to walk. Patients with this symptom were frequently young and in good health. When examined in bed, they could execute all normal movements and there seemed to be no detectable physical

French neurologist Jean-Martin Charcot was largely responsible for making hypnosis and hysteria respectable objects of scientific investigation. (Wikimedia Commons)

Anesthesia
A lack of ordinary sensation in which the body surface becomes insensitive to touch, pain, or heat

Hemianesthesia
The condition of the whole of one side of the body becoming insensitive

Tics
Involuntary muscular twitching, usually in the facial muscles

Abasis
The inability to walk

problem. Yet they were absolutely incapable of walking. If made to get out of bed, they fell to the floor. Other selective defects frequently seemed related to occupations: a dressmaker who could no longer sew or a pianist who could not play the piano, even though in neither case was there a paralysis of the hand.

Charcot realized that some patients exaggerated or simulated certain symptoms with conscious intent, but in most instances the symptoms seemed to be as mysterious and unexplainable to the patient as to the physician. He also observed a number of ways in which hysterical symptoms tended to differ from similar symptoms arising from known organic causes. For example, patients having real epileptic seizures are likely to fall and hurt themselves; by contrast the hysterical seizure patients have an uncanny knack of falling so that no harm results and may engage in the more spectacular display previously described. Several features seemed unlike physical paralyses: general lack of atrophy of the affected limb, disappearance of the affliction under chloroform (but not in ordinary sleep), normal reflexes, sudden onset, and occasionally sudden disappearance. Additionally, hysterical anesthesias were especially striking in that they frequently involved effects on the body that no known organic lesion or disease process could produce. In so-called **glove or sleeve anesthesias**, the insensitive area of the hand or arm corresponded with that which would be covered by a glove or sleeve, an outcome that could not result from any combination of injuries to the three sensory nerve tracts going to the arm and hand. Many hysterical patients, instead of being worried or depressed about their physical symptoms, appeared calm and indeed quite cheerful in some cases—a characteristic that Charcot christened **la belle indifférence**.

Because Charcot was a neurologist, consistent with the prevailing climate of medical opinion he was strongly disposed to explain bodily symptoms, including the hysterical variety, in terms of central nervous system pathology. The various ways in which hysterical symptoms were found to differ from known organic diseases were enough to arouse his suspicion and lead him to consider a different explanation. Charcot, clearly impressed with the power of psychological events to produce hysterical symptoms, wondered if hysterical symptoms could be produced through **autosuggestion** in a process something like self-hypnosis. He soon found he could put hysterical patients under hypnosis, produce new symptoms at will, and relieve the existing symptoms of at least some patients—depending on how chronic the conditions were.

Charcot's hypnotic demonstrations were largely limited to hysterical patients, but other investigators (for example, Liebault and Bernheim) were reporting that hysterical symptoms could be induced in subjects with no previous history of hysteria.

The view that psychological factors played an important role in the causation of hysterical symptoms gained momentum toward the end of the nineteenth century. Many young physicians came to study with Charcot in Paris and were influenced by his teachings and demonstrations. A young man from Vienna, Sigmund Freud, spent the year 1885–1886 at Charcot's hospital. In later years, Freud recognized the importance of this experience in his own career:

> What impressed me most of all while I was with Charcot were his latest investigations on hysteria, some of which were carried out under my own eyes. He proved for instance the genuineness of hysterical phenomena and their conformity to laws ... the frequent occurrence of hysteria in men, the production of hysterical paralysis and contractures by hypnotic suggestion and the fact that such artificial products showed, down to their smallest detail, the same features as spontaneous attacks which were often brought on traumatically. (Freud, 1948, p. 22)

The stage was set for the more dynamic theories of Freud, to be considered in the next chapter.

Glove or sleeve anesthesias
When the insensitive area of the hand or arm corresponded with that which would be covered by a glove or sleeve

La belle indifférence
The condition of hysterical patients appearing calm and indeed quite cheerful, instead of being worried or depressed about their physical symptoms

Autosuggestion
A process that is similar to self-hypnosis

2.6c The Scientific Study of Learning and Behavior

The second path of investigation lending insight into the psychological causes of abnormal behavior derived from animal experiments on how behavior was affected by experience.

After Charles Darwin wrote his paradigm-shifting work *On the Origin of Species* in 1857, humans came to be seen as members of the family of animals on the great "Tree of Life." Perhaps, then, some knowledge about human physiology and behavior could be gained by research with other species.

Already, studies on frogs had revealed important information about how nerves worked and how reflexes could be triggered and modified. Sherrington organized the laws of the reflex, describing rules about the relationships of the stimulus that triggered the reflex and the response it produced. Ivan Pavlov in Russia was working on digestion—efforts that would later win him a Nobel Prize in physiology—by measuring the salivary reflex in dogs, as a response to the stimulus of powdered meat placed into their mouths. Pavlov controlled events in a laboratory setting, which allowed a high level of scientific precision in his procedures and his measurements. A cannula was implanted into the dog's cheek to collect saliva and channel it to a beaker where the quantity could be measured and a record could be made of its timing within the session (see Figure 2-2). In this way, the precise amount of salivation and its temporal relationship to other events (such as the introduction of meat powder) could be recorded.

After Charles Darwin published *On the Origin of Species* in 1857, scientists began to use animal studies to gain insight into human physiology and behavior. (Wikimedia Commons)

Salivation was clearly related to digestion, and the salivary reflex was readily understood in that context. However, Pavlov noted that the dogs soon came to salivate *before* meat powder was delivered into the mouth, apparently at just the sight of the laboratory workers engaged in the study. He undertook a series of experiments to understand the nature of this "psychic" reflex. From Aristotle's time, it was known that if two sensations were combined, one later would evoke or trigger the memory of the other.

Figure 2-2 Pavlov's Conditioning Apparatus

An apparatus similar to that used by Pavlov to study classical conditioning in dogs.

Source: Illustration adapted from *An Introduction to Psychology,* by Ralph Norman Haber and Aharon H. Fried, 1975. Copyright© by Holt, Rinehart, and Winston.

The British associationists expanded that framework to the philosophical exploration of how ideas are formed. Pavlov's work gave scientific definition to how association worked, both mentally and physically.

Pavlov (1928) discovered that if a stimulus such as a tone, bell, or light that previously had no capacity to produce salivation was paired with the presentation of meat powder on a number of occasions, this stimulus would in time elicit salivation—even when no meat powder was provided. In other words, the dog had learned something new—to salivate to a bell. Pavlov called this learning process *conditioning*, and he developed a terminology for the component features. The meat powder was called the **unconditioned stimulus** (or *US*). Salivation produced by the meat powder was called the **unconditioned response** (or *UR*). The neutral stimulus (such as a bell or light) was called the **conditioned stimulus** (or *CS*); and the response of salivation to the conditioned stimulus was called the **conditioned response** (or *CR*).

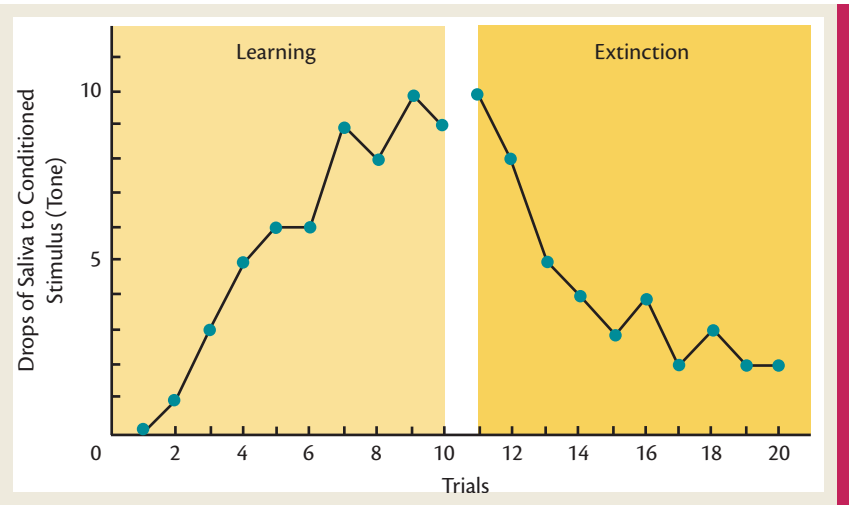


Figure 2-3 ***Typical Learning and Extinction Curve in a Conditioning Experiment***

Quantitative studies showed that conditioning followed a regular pattern. For example, if one plotted the amount that a dog salivated in response to the bell, the curve would look like that in Figure 2-3. Furthermore, if the experimenter stopped giving meat powder in association with the bell signal, the dog would gradually stop salivating until after a while the bell would no longer elicit salivation. The procedure of withholding the unconditioned stimulus was called **extinction**. If the conditioned stimulus were occasionally presented after extinction had occurred, often the conditioned response would briefly reappear before again vanishing. This brief reappearance was called **spontaneous recovery**. Two other processes were evident as a result of conditioning. In **generalization**, stimuli that were increasingly similar to the CS also exerted some control over the CR. With continued conditioning, **discrimination** occurs, narrowing the range of controlling stimuli to those closest to the CS.

Unconditioned stimulus
Stimulus that is naturally capable of eliciting the unconditioned response

Unconditioned response
Response that occurs naturally or innately to an unconditional stimulus

Conditioned stimulus
An originally neutral stimulus that becomes capable of eliciting a conditioned response after repeated pairing with an unconditioned response

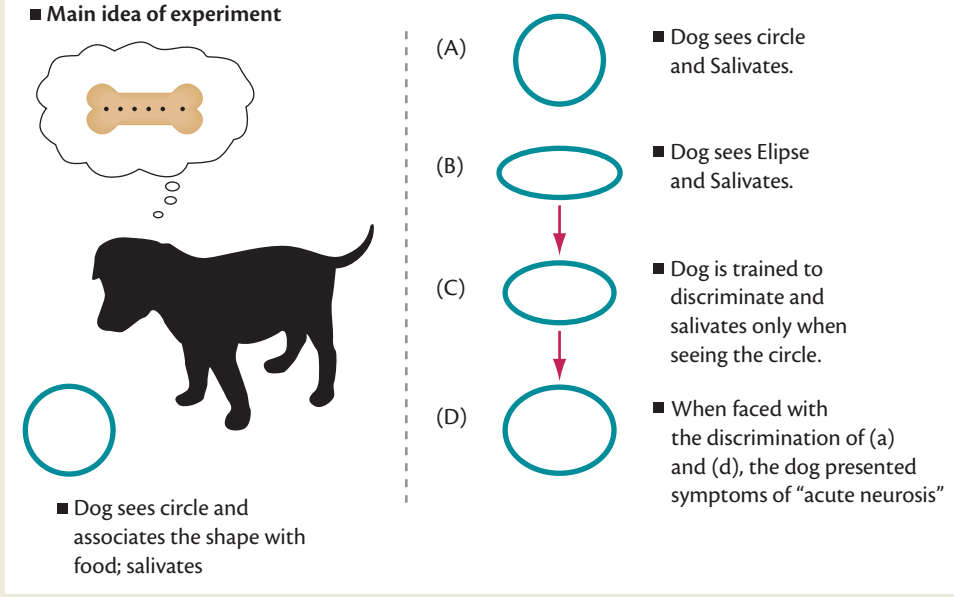
Conditioned response
A response that is elicited by a conditioned stimulus after repeated pairing with an unconditioned stimulus

It soon became obvious that stimuli other than bells could serve as conditioned stimuli and that reflexes other than salivation could become conditioned responses. Subsequent research has shown that almost any stimulus that an organism can detect can become a CS, whether it is an auditory, visual, or tactile stimulus, a taste, or a smell. It also appears that not only glandular reflexes such as salivation can be conditioned but also muscular, sexual, immunological, and emotional reflexes as well. There are important exceptions and qualifications regarding the rules of Pavlovian conditioning—some pairings work much better than others—but conditioning appears to play a very broad role in animal, and human, functioning.

Pavlov believed that most, if not all, human behavior could be analyzed and explained in terms of innate and acquired (conditioned) reflexes. An interesting experiment that perhaps suggests a Pavlovian analysis of abnormal behavior is related in Rachlin (1991). One of Pavlov's students, Shenger-Krestovnikova, had trained dogs to salivate when presented with a circle drawn on a card. She then found that the dogs also salivated if an ellipse, rather than a circle, was shown on the card (generalization). She trained the dogs to discriminate the circle from the ellipse by pairing food only with the circle and then refined the discrimination to more similar stimuli (Figure 2-4). When faced with the discrimination of (a) and (d), Pavlov reported that one animal's behavior shifted dramatically:

Figure 2-4 ***Discrimination of (A) from (D) Produced "Neurosis"***

Source: From Rachland, 1991



> The hitherto quiet dog began to squeal in its stand, kept wriggling about, tore off the apparatus with its teeth for mechanical stimulation of the skin, and bit through the tubes connecting the animal's room with the observer, a behavior which never happened before. On being taken into the experimental room the dog now barked violently, which was also contrary to its usual custom; in short, it presented all the symptoms of acute neurosis. On testing the cruder differentiations, she also found them to be destroyed (Pavlov, 1927, quoted in Rachlin, 1991, p. 78).

Pavlov was not the only scientist exploring learning. In the late 1890s, E. L. Thorndike began studying the process whereby animals learned to escape from a "puzzle box" (Figure 2-5). Hungry cats, for example, when placed in the box learned by trial and error to operate a latch that opened a door through which they could escape to get food. The cats slowly became more adept at the required response, taking less and less time to get out of the puzzle box on succeeding trials (see Figure 2-6).

On the basis of additional research of this kind, Thorndike (1911) formulated the "law of effect": When a behavior is followed by a satisfying consequence, it is more likely to be repeated; when followed by a punishing or annoying consequence, it is less likely to recur. In other words, whether a given behavior is strengthened or weakened depends upon its consequences or effects.

Although Pavlov's work focused on the stimuli that preceded the response, the learning process studied by Thorndike (often called instrumental learning or **operant conditioning** to distinguish it from classical or **Pavlovian conditioning**) emphasized the stimuli that followed the response. Further research showed that many of the same events that are found in Pavlovian conditioning—such as extinction, generalization, discrimination, and spontaneous recovery—also occur in operant conditioning.

Thorndike viewed the law of effect as a process of *selection*: that is, the environment "selected" effective responses by the positive outcomes those responses produced. In other words, cats engaged in many different activities inside the puzzle box, but only those that opened the door were selected and strengthened by the situation. Those responses that did not produce pleasant outcomes became less frequent and eventually disappeared. Thorndike saw the similarity between Darwin's concept of natural selection of physical attributes and

Extinction
Repeated presentation of the conditioned stimulus without the unconditioned stimulus with the frequency and strength of conditioned responses tending to decrease, eventually to zero

Spontaneous recovery
The brief reappearance of the conditioned response with occasional presentation of the condition stimulus

Generalization
Responding similarly to similar stimuli

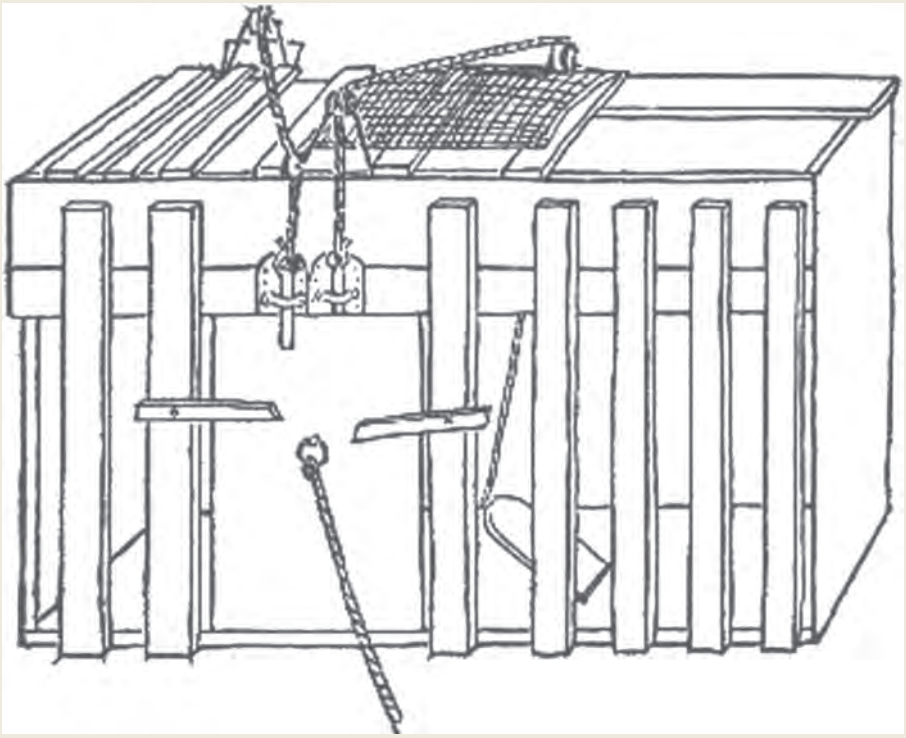
Discrimination
Narrowing the range of controlling stimuli for a response

Operant conditioning
Type of learning in which the consequences of a response control the response's future probability

Pavlovian conditioning
Learning process whereby a formerly neutral stimulus comes to elicit a response as a result of pairing with an unconditioned stimulus

Figure 2-5 Thorndike's "Puzzle Box"

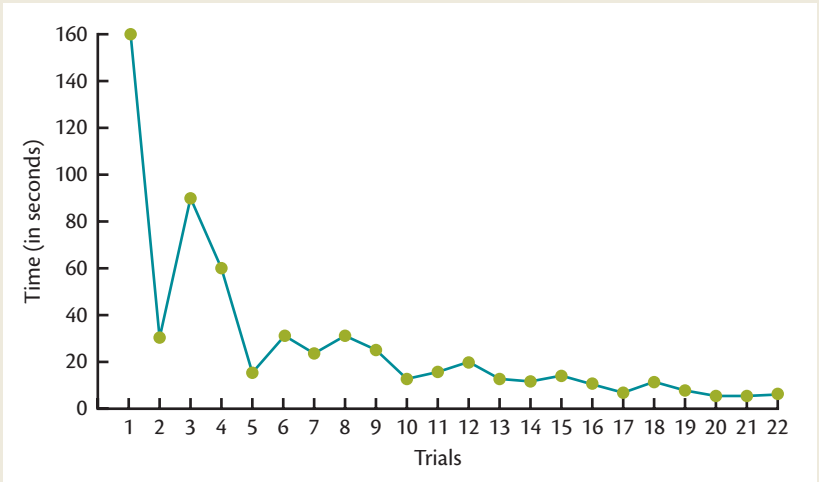
Source: From Thorndike, 2011



his view of learning as environmental selection of behavior. He also considered that as consequences changed behavior, neural connections in the brain were also changed (Donahoe, 1999). His views thus anticipated those of modern behavioral neuroscientists in these respects and influenced the behavioral theories of B. F. Skinner, who combined these two different types of learning into a model of behavior that will be discussed in Chapter 3.

Figure 2-6
Time (in seconds) to Escape from a Puzzle Box for One Cat

Thorndike found that cats become more effective in exiting the puzzle box with successive trials, as reinforcement selected and strengthened rapid escape skills.



Chapter Review

TO SUM UP ...

- Attempts to explain strange phenomena are usually couched in familiar metaphors, and this has been true for explanations of abnormal behavior.
- Demon possession has been a popular but scientifically unsupportable explanation for abnormal behavior in many times and places.
- Some ancient Greeks and Romans, such as Hippocrates and Galen, proposed more naturalistic explanations, including the idea that fluid imbalances or disordered brains caused disordered behavior.
- In the late Middle Ages and afterward, many individuals, some of whom were probably suffering from mental disorders, were convicted and put to death as witches.
- Some courageous individuals, including Johann Weyer and Reginald Scott, spoke against the prevailing beliefs and argued that mental illnesses resulted from natural causes, not from demon possession.
- Humanitarian reforms in the treatment of the mentally ill have waxed and waned throughout history. Especially important landmarks were the reforms instituted by Philippe Pinel in Paris in 1792 and by Dorothea Dix in the United States in the mid-nineteenth century.
- The organic view of abnormal behavior experienced a revival in the nineteenth century, especially in the work and writings of men such as Wilhelm Greisinger and Emil Kraepelin. Kraepelin's development of two major categories of severe mental disorders, manic-depressive and dementia praecox, was a milestone in psychiatric diagnosis.
- The discovery that a syphilitic infection produced the symptom pattern known as general paresis was particularly important in strengthening the organic view.
- One psychological view of abnormal behavior arose largely from the study of hysteria, developing from the prescientific views of Anton Mesmer to the carefully documented work of Jean-Martin Charcot. Clinical observations strongly suggested that many hysterical symptoms did not result from organic disease but from strong emotional conflicts and the social context in which the person lived.
- A second psychological perspective of abnormal behavior developed from laboratory studies on animal conditioning and learning. The work of Ivan Pavlov and Edward Thorndike set the stage for behavioral theories of how both normal and abnormal behavior can be acquired and modified through learning processes.

KEY TERMS

Abasis 37
Anesthesia 37
Autosuggestion 38
Conditioned response 40
Conditioned stimulus 40
Dance manias 27
Demonolgy 26
Discrimination 41
Dissociative identity disorder 30
Dualism 33
Exorcism 26
Extinction 41
Generalization 41
General paresis 34
Glove or sleeve anesthesias 38
Hemianesthesia 37
Hypnosis 36
Hysteria 35
La belle indifférence 38
Lunatics 34
Malarial fever therapy 35
Mesmerism 36
Operant conditioning 41
Organic view 33
Paradigm 24
Pavlovian conditioning 41
Spontaneous recovery 41
Tics 37
Trephining 26
Unconditioned response 40
Unconditioned stimulus 40

QUESTIONS FOR STUDY

- Explanations for phenomena rely on the use of familiar metaphors. What does this mean? How do metaphors guide our understanding of abnormal behavior?
- Compare demonology, the organic view, and the psychological view in their assumptions about the causes of hysteria.

POP QUIZ

1. Shifting from a demonology model to a naturalistic model is an example of _____.
   A. Mesmerism
   B. the organic view
   C. dualism
   D. a paradigm change

2. Who was among the first to advocate naturalistic explanations for disturbed behaviors?
   A. Anton Mesmer
   B. Philippe Pinel
   C. Hippocrates
   D. Dorothea Dix

3. The first asylums devoted entirely to the care of the mentally impaired frequently were started by _____.
   A. governmental officials
   B. the medical community
   C. monasteries
   D. local dignitaries

4. Who was instrumental in founding or enlarging more than 30 state institutions for the proper custody and treatment of mental patients?
   A. Philippe Pinel
   B. William Tuke
   C. Dorothea Dix
   D. Sigmund Freud

5. _____ is credited with the philosophical belief of the separation of the mind and the body.
   A. Philippe Pinel
   B. Ivan Pavlov
   C. Sigmund Freud
   D. René Descartes

6. Kraepelin's third category, paranoia, occurred less frequently than his other two symptom patterns and consisted of _____ symptom(s).
   A. one
   B. two
   C. three
   D. four

7. Benjamin Rush advocated all **except** which of the following as effective treatments of abnormal behavior?
   A. spinning patients on boards
   B. laying on of hands
   C. bloodletting
   D. tranquilizing chairs

8. Which of the following is true of general paresis?
   A. It is characterized by delusions of grandeur, dementia, and progressive paralysis, caused by a sexually transmitted spirochete.
   B. It is a bizarre treatment for hysteria, from the early-1900s, in which individuals were exposed to blood infected with malaria.
   C. It is a symptom of multiple personality disorder, caused by severe psychological anguish stemming from ritual abuse.
   D. It is an interesting side effect of hypnosis therapy, in which the hand or arm loses sensation and motor control while in the trance state.

9. _____ was a popular term in the late 1700s for procedures used to induce trances and other altered states of consciousness.
   A. Conditioning
   B. Mesmerism
   C. Autosuggestion
   D. Abasia

10. In hemianesthesia, the whole of one side of the body becomes _____.
   A. extremely cold
   B. overheated
   C. insensitive
   D. sensitive

11. Instead of being worried or depressed about their physical symptoms, many hysterical patients appear calm and indeed quite cheerful in some cases, which is known as _____.
   A. a characteristic of multiple personality disorder
   B. hemianesthesia
   C. la belle indifférence
   D. dualism

12. _____ is a learning process whereby a formerly neutral stimulus comes to elicit a response as a result of having been paired with another stimulus that already causes that response.
   A. Generalization
   B. Operant conditioning
   C. Pavlovian conditioning
   D. General conditioning

13. Loud noises, such as his clock's alarm, cause Alvaro to startle into a state of high awareness. Just before the alarm goes off, the clock makes a light clicking noise, which initially Alvaro didn't even notice. Now that he has had the clock for some time, Alvaro has found that he startles into wakefulness when the clock makes the clicking noise, before the alarm even goes off. In this example, the unconditioned response is _____.
   A. the alarm
   B. the clicking noise
   C. being startled into a state of high awareness
   D. turning the alarm off

14. _____ occurs when the frequency and strength of the conditioned response tends to decrease, eventually to zero, after repeated presentations of the conditioned stimulus without the unconditioned stimulus.
    A. Generalization
    B. Discrimination
    C. Spontaneous recovery
    D. Extinction

15. Pavlovian conditioning focuses on the stimuli that _____ the response; operant conditioning emphasizes the stimuli that _____ the response.
    A. follow; follow
    B. precede; precede
    C. precede; follow
    D. follow; precede

Additional study resources are available at **www.BVTLab.com**

ANSWERS

1. D 2. C 3. C 4. C 5. D 6. A 7. B 8. A 9. B 10. C 11. C 12. C 13. C 14. D 15. C