Chapter 4

Early Biological Perspectives on Criminal Behavior It's What We Are

Audio

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Learning Objectives

4.1 What are the differences between historical biological and contemporary biosocial theories of crime?

4.2 What are the basic principles of biological theories of crime?

4.3 How does the Positivist School explain criminality?

4.4 Explain the importance of altruism, territoriality, and tribalism from the sociobiological perspective on crime.

4.5 Identify some criticisms of early biological theories of criminal

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4.5 Identify some criticisms of early biological theories of criminal behavior.

Introduction

A few years ago, the Dutch Ministry of Justice implemented a program of nutritional supplements in 14 prisons across the Netherlands. Under the program, nearly 500 inmates were provided with healthy diets, devoid of added sugar and supplemented with vitamins and important micronutrients.[208] According to Ap Zaalberg, the project's director, the link between good nutrition and lower levels of antisocial behavior had already been clearly established by studies published in England only a few years earlier, and the Dutch wanted to see if good eating habits could lower levels of violence in their prisons. Zaalberg's interest came from reading an article published in the *British Journal of Psychiatry* in 2002 by Oxford University professor C. Bernard Gesch.[209] Gesch reported on the results of work he had done in recruiting 231 young British prisoners. He assigned half of them to receive carefully selected dietary supplements while the other half received a placebo. Before Gesch's nutritional program was implemented, the placebo and active-treatment groups had been matched according to the number of disciplinary incidents in which each had been involved. There were no significant individual or psychological differences between the two groups in terms of IQ, verbal ability, anger, anxiety, or depression. After Gesch's experimental subjects took specially formulated vitamins, minerals, and essential fatty acids for 142 days, he found that prisoners taking the supplements committed an average of 26.3% fewer offenses compared with the placebo group. He also observed a 35.1% reduction in overall offenses in the group receiving the supplements and a 37% drop in violent incidents. According to Gesch, "… evidence is mounting that putting poor fuel into the brain significantly affects social behavior. We need to know more about the composition of the right nutrients. It could be the recipe for peace."[210] **Figure 4-1** shows the levels of some of the nutrients in the disadvantaged youths studied by Gesch.

Check Your Understanding

Figure 4-1: Selected Nutrient Levels in Diets of a Sample of Disadvantaged

Source: Based on John Bohannon, "The Theory? Diet Causes Violence. The Lab? Prison," Science, Vol. 325 (September 25, 2009), p. 1616.

Putting Criminology to Work—Implementing Evidence-Based Policy

To make a difference in the real world, criminological theories must first be tested and evaluated. Once evidence has been developed that theory-based practices work, then programs based on them can be implemented to reduce or prevent crime, or to help make victims' lives better. One federal initiative, CrimeSolutions.Gov, strives to evaluate the effectiveness of theory-based practices, and then communicates its findings via the Web. Some of the most effective and promising programs are highlighted in boxes such as this one that appear throughout the text.

Program: Nutritional Supplements for Young Adult Prisoners

Evidence Ratings for Outcomes: Promising

Profile

One notable experiment provided young adult inmates in a British prison with vitamin/mineral supplements as well as supplements of omega-6 and omega-3 essential fatty acids. There were no standards of daily intake that were used to determine the dosage of the four capsules providing the essential fatty acids. However, a replication study involving Dutch prisoners used similar potency of vitamins and minerals from the earlier British study, and included a dosage for omega-3 fatty acids based on research from the International Society of the Study of Fatty Acids and Lipids.

Prisoners in both studies were provided with supplemental nutrients at lunchtime by prison staff. Lunchtime was chosen to minimize the possible side effects of the supplements, such as nausea and belching.

To date, researchers have examined the effects of nutritional supplements on prisoners' antisocial behavior and have included samples of incarcerated juvenile and young adult offenders. This allowed for a controlled environment with a sample of offenders who are prone to aggressive and violent behaviors.

Relevant Theory: Biological Theory—Diet and Nutrition

Providing nutritional supplements to offenders in a controlled environment, like a prison, is based on the assumption that dietary deficiencies, especially diets lacking in vitamins, minerals, and essential fatty acids, may have negative effects on behavior. Therefore, providing prisoners with nutritional supplements to decrease this deficiency may, in turn, lead to a noticeable reduction in negative, antisocial behavior.

Essential nutrients, such as vitamins and minerals, have an indirect effect on behavior, because they are connected to changes in neurochemicals in the brain and body, which ultimately influence behavior. For instance, omega-3 fatty acids have been shown in medical research to have important biological roles in cardiovascular health. These fatty acids may, however, also play a critical role in the neurodevelopment of individuals, because they are concentrated in the brain. An omega-3 fatty acid deficiency during important developmental periods, such as prenatal and early childhood, may then increase an individual's risk for aggressive behaviors later on in life.

Evidence-Based Review

These sources were used in the development of this profile:

Study 1

C. Bernard Gesch, Sean M. Hammond, Sarah E. Hampson, Anita Eves, and Martin J. Crowder, "Influence of Supplementary Vitamins, Minerals and Essential Fatty Acids on Antisocial Behaviour of Young Adult Prisoners: Randomised, Placebo-Controlled Trial," *The British Journal of Psychiatry*, Vol. 181 (2002), pp. 22–28.

Traditional Biological versus Modern Biosocial Theories

4.1 What are the differences between historical biological and contemporary biosocial theories of crime?

Audio

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The field of criminology has been slow to give credence to biological theories of deviant behavior. One reason for this, as noted in **Chapter 1**, is that contemporary criminology's academic roots are grounded in the social sciences. As well-known biocriminologist **C. Ray Jeffery**, commenting on the historical development of the field, observed, "The term *criminology* was given to a social science approach to crime as developed in sociology. Sutherland's [1924] text *Criminology* was pure sociology without any biology or psychology; beginning with publication of that text, criminology was offered in sociology departments as a part of sociology separate from biology, psychology, psychiatry, and law. Many of the academicians who call themselves criminologists are sociologists."[211]

Fortunately for those studying criminology today, the field of criminology is interdisciplinary, recognizing contributions from many different disciplines. This chapter and the next (**Chapter 5**, "Biosocial and Other Contemporary Perspectives") review both historical and contemporary biological perspectives on crime, including modern-day biosocial theories. Many older biological theories, as we will see in this chapter, were relatively simplistic in their approach to explaining human behavior and crime. Newer biosocial perspectives hold that genes and related biological features are more likely to be facilitators rather than determinants of behavior—an idea that we will explore more fully in the chapter that follows.

Principles of Biological Theories

4.2 What are the basic principles of biological theories of crime?

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Generally speaking, biological theories focus on the brain as the center of the personality and the major determinant in controlling human behavior. As one biocriminologist explains it, "no matter the source of human behavior, it is necessarily funneled through the brain ..."[212] Unlike the classical and neoclassical traditions, however, which consider free will and external forces as the cause of behavior, biological theories look to internal sources, including genetic and physical makeup, as they influence mental processes.

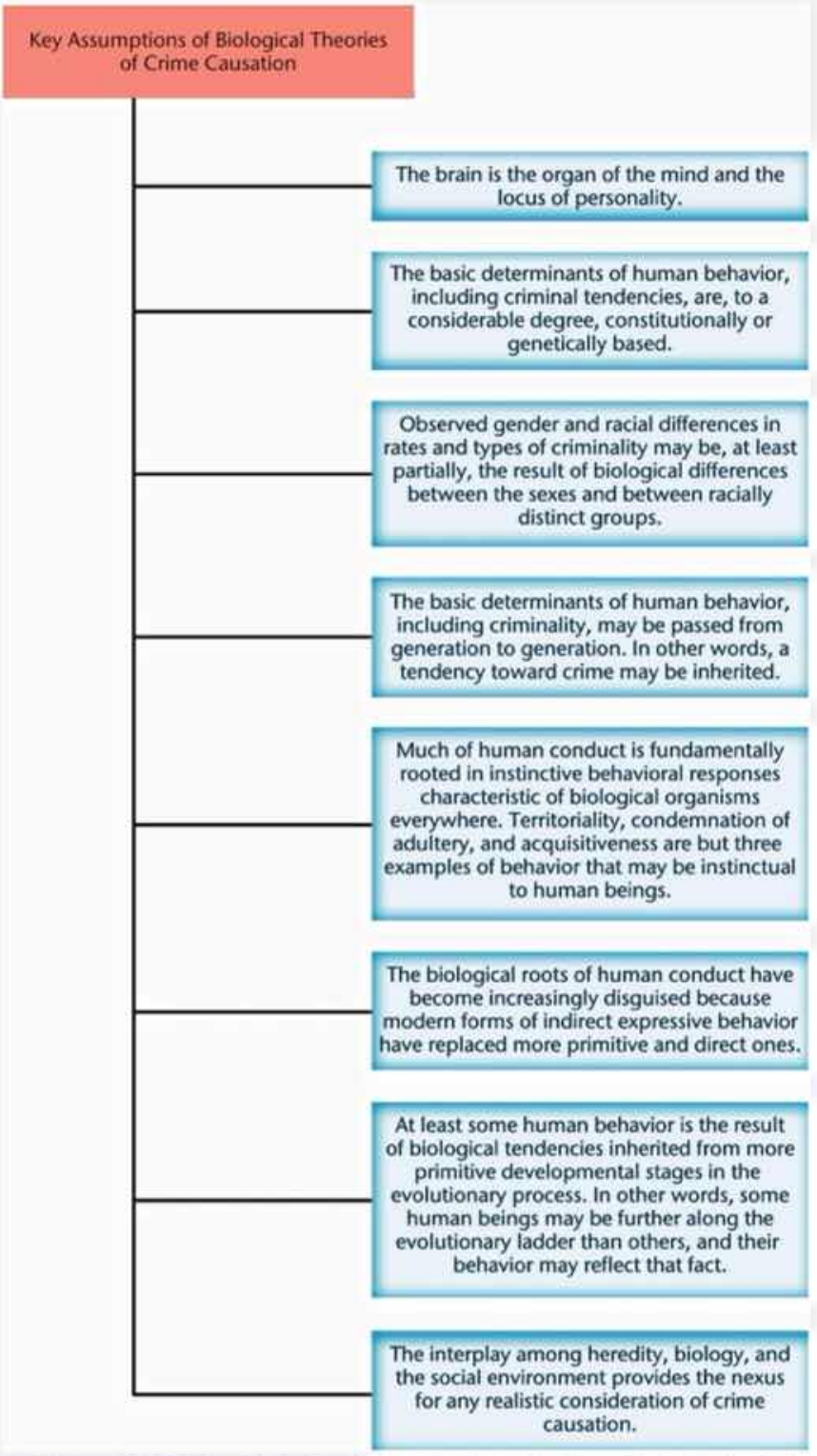
Early biological theorists (generally, prior to the 1960s or 1970s) focused primarily on physical features and heredity as the source of criminal behavior. They considered physical traits such as facial features, body type, and shape of the skull as significant causes of criminality. Several early theorists proposed that criminality ran in families and could be inherited, or passed down from one generation to another. Such early approaches, while appropriate for the time in which they were developed, appear relatively simplistic when compared with modern biosocial perspectives.

By contrast, contemporary biological theorists (mostly after 1990) have taken a more in-depth look at human biology, leading them to examine a variety of influences on behavior, including genes and chromosomes, diet, hormonal issues, environmental contaminants, and neurophysical conditions. Nonetheless, both early and contemporary biological perspectives share a number of fundamental assumptions, which are shown in **Figure 4-2**.

Figure 4-2

Figure 4-2

Fundamental Assumptions of Biological Theories of Crime Causation



Source: Schmalleger, Frank, *Criminology*. Printed and Electronically reproduced by permission of Pearson Education, Inc., Upper Saddle River, New Jersey.

One of the major distinguishing features between historical and contemporary biological theories of criminality is the degree of emphasis that each puts on the last item listed in **Figure 4-2** (the interplay between biology and the social and physical environments). While most early biological theories of crime ascribed at least some

One of the major distinguishing features between historical and contemporary biological theories of criminality is the degree of emphasis that each puts on the last item listed in **Figure 4-2** (the interplay between biology and the social and physical environments). While most early biological theories of crime ascribed at least some importance to the role of the social environment in producing behavior, that role was relatively minor. By contrast, contemporary biosocial theorists see the *interaction* between the organism and its environment as the crucial determining factor in almost all behavior.

A mother reads to her child. The following question forms the essence of the "nature versus nurture" controversy: Are the choices that people make determined more by their biology or by what they have learned?
Joe Carini/The Image Works

The Positivist School

4.3 How does the Positivist School explain criminality?

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What Is Positivism?

Early biological theories of crime, while not as sophisticated as their modern counterparts, are especially significant because they are built on the scientific tradition of positivism. Positivism, which is both discussed and defined in **Chapter 3**, is associated with the belief that all valid knowledge is acquired only through observation and not through the mere exercise of reason or blind adherence to belief. As mentioned in that previous chapter, the Positivist School of criminology was built on two important principles: (1) an unflagging acceptance of social determinism, or the belief that human behavior is determined not by the exercise of free choice but by causative factors beyond the control of the individual, and (2) the application of scientific techniques to the study of crime and criminology.

The term *positivism* had its roots in the writings of Auguste Comte (1798–1857), who proposed use of the scientific method in the study

The term *positivism* had its roots in the writings of Auguste Comte (1798–1857), who proposed use of the scientific method in the study of society in his 1851 work *A System of Positive Polity.*[213] Comte, who later became known as the father of sociology, believed that social phenomena could be observed, explained, and measured in objective and quantitative terms. For a strict positivist, reality consists of a world of clearly defined facts that can be scientifically measured and—some would hope—controlled.[214] As a framework for thought and analysis, positivism was a giant leap forward because it established a scientific basis for the burgeoning field of criminology.

Physical Features and Crime

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Some of the earliest studies in the field of criminology used data from the fields of biology and anthropology to identify physical abnormalities that early criminologists thought could be used to distinguish criminal offenders from other people. One of the earliest attempts to use bodily features to identify criminals was proposed by European ana tomist **Franz Joseph Gall** (1758–1828) in his theory of phrenology (also called craniology). Gall believed that the shape of the human skull was related to personality and could be used to distinguish criminals from normal men and women. Gall's approach was built on four themes:

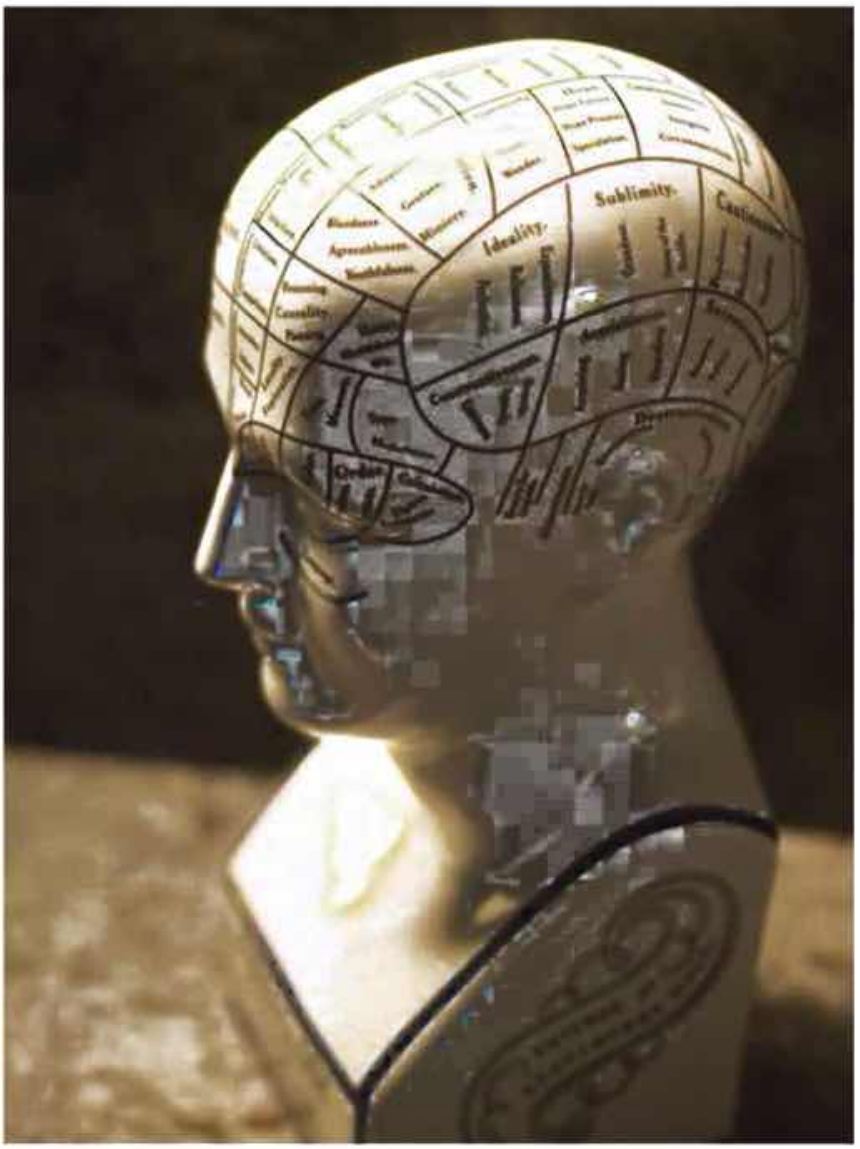
1. The brain is the organ of the mind.

2. Particular aspects of personality are associated with specific locations in the brain.

3. Portions of the brain that are well developed cause personality characteristics associated with them to be more prominent in the individual under study, whereas poorly

4. The shape of a person's skull corresponds to the shape of the underlying brain and is therefore indicative of the personality.

Gall was one of the first Western writers to locate the roots of personality in the brain. Prior to his time, it was thought that aspects of personality resided in various organs throughout the body—a fact reflected in linguistic anachronisms that survive to the present day (e.g., when someone is described as being "hard-hearted" or having "a lot of gall"). Greek philosopher Aristotle was said to believe that the brain served no function other than to radiate excess heat from the body, so Gall's perspective, although relatively primitive by today's standards, did much to advance physiological understandings of the mind–body connection in Western thought.



A phrenological map of the skull. Early criminologists believed that the shape of the skull reflected the brain's ability. Do you think biology plays a significant role in crime?

Although Gall's theory depended on physical measurements of the skull and comparisons of such measurements between individuals, it was never tested using today's rigorous methodological standards (including the research designs discussed in **Chapter 2**). Nonetheless, it was widely accepted by many of his contemporaries because it represented a shift away from the theological perspectives prevalent at the time toward scientific measurement—a trend that was well under way by the time of his writings. Phrenology also provided systematic evaluation of suspected offenders and was intriguing for its ease of use.

One of Gall's students, German physician **Johann Gaspar Spurzheim** (1776–1853), brought phrenological theory to the United States and helped to spread its influence through a series of lectures and publications on the subject. Phrenology's prestige in the United States extended into the twentieth century, finding a place in classification schemes employed to evaluate newly admitted prisoners. Even Arthur Conan Doyle's fictional character Sherlock Holmes was described as using phrenology to solve a number of crimes. It is still popular today among palm readers and fortune-tellers, some of whom offer phrenological "readings"—although a few states have outlawed such activities. Learn more about phrenology at **https://www.newworldencyclopedia.org/entry/Phrenology.**

The Italian School

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One of the best-known early scientific biological theorists—nineteenth-century Italian army prison physician **Cesare Lombroso** (1836–1 909)—coined the term atavism to suggest that criminality was the result of primitive urges that survived the evolutionary process in modernday human throwbacks. Lombroso, whose work had consisted mostly of postmortem studies of the bodies of executed offenders and deceased criminals, measured the bodies in many different ways.[215] He claimed that, using his system, not only could criminal offenders be separated from the general population, but also specific types of criminals could be identified.

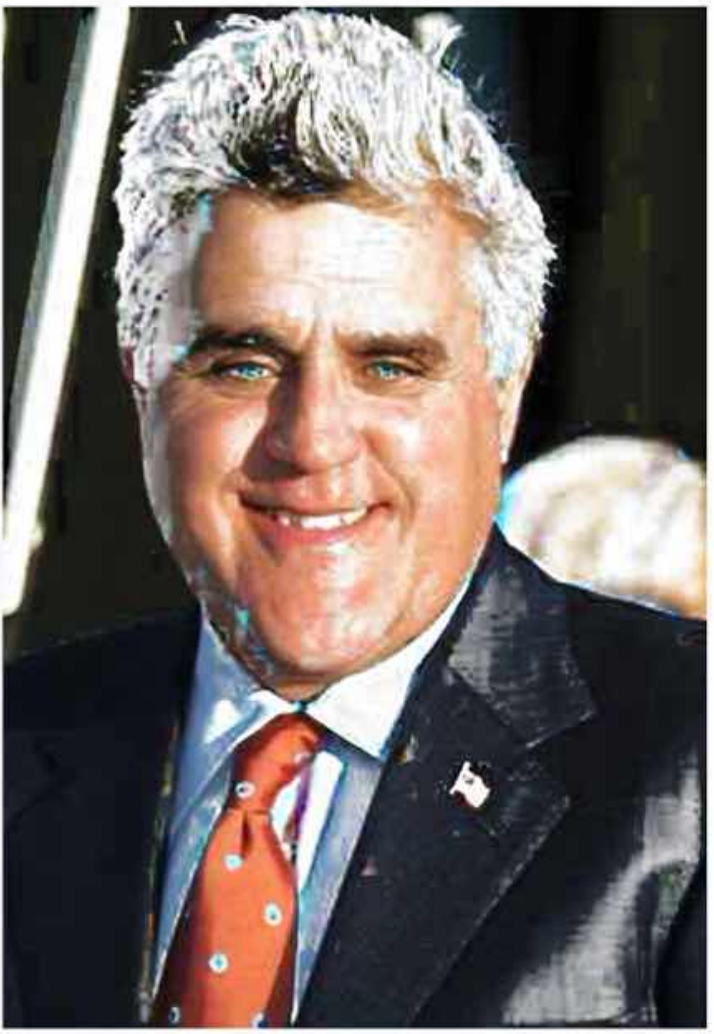
Discussing murderers, for example, Lombroso wrote, "He has a cold concentrated look; sometimes the eye appears injected with blood; the nose is often aquiline or hooked, always large; the ears are long; the jaws powerful; the cheekbones widely separated; the hair is crisp and abundant; the canine teeth well developed, and the lips thin; often a nervous tic or contraction, upon one side of the face only, uncovers the canine teeth, producing the effect of a threatening look or a sardonic laugh."[216]

Lombroso believed that thieves could be recognized because they have "less cranial capacity" and "a remarkable mobility of countenance, the eye small and restless, the eye-brows thick and meeting, the nose flat, and the forehead always low and retreating."

Lombroso called physical features that he thought to be indicative of criminality *stigmata of degeneration,* and suggested that they could be used to predict later criminal behavior among individuals who possessed them. He described "the nature of the criminal" as "an atavistic being who reproduces in his person the ferocious instincts of primitive humanity and the inferior animals."[217] Writing around the

possessed them. He described "the nature of the criminal" as "an atavistic being who reproduces in his person the ferocious instincts of primitive humanity and the inferior animals."[217] Writing around the same time as Lombroso, Italian Raffael Garofalo noted that "[o]ne has but to go into a prison, and by the aid of this description one can distinguish almost at a glance those condemned for theft from those condemned for murder."

Lombroso's ideas gave rise to the Italian School of Criminology, also referred to today as criminal anthropology. Criminal anthropology is the scientific study of the relationship between human physical characteristics (in particular anthropometric features, or bodily measurements) and criminality. Criminal anthropology probably derives from earlier subjective feelings, prominent for millennia, that unattractiveness, deformity, and disfigurement are somehow associated with evil, spiritual malaise, and general uncleanliness.



Comedian Jay Leno, showing off his strong chin. Cesare Lombroso believed that people with weak chins were especially prone to criminality. How might physical features relate to criminality?
Pictorial Press Ltd/Alamy Stock Photo

Although the earlier works of Gall and others might be subsumed under the umbrella of criminal anthropology, the term is usually reserved in today's criminological literature for the work of Lombroso and other members of the Italian School of Criminology, especially **Enrico Ferri** and **Raffael Garofalo**.

At about the time that Lombroso's ideas were becoming popular, Charles Darwin was making a substantial impact on the scientific world with his theory of biological evolution. Darwin proposed that human beings and other contemporary living organisms were the end products of a long evolutionary process governed by rules such as natural selection and survival of the fittest. Lombroso adapted elements of Darwin's theory to suggest that primitive behavioral traits survived in present-day human populations and led to heightened criminal tendencies among individuals who harbored them. Darwin himself had proposed this idea when he wrote, "With mankind some of the worst dispositions which occasionally without any assignable cause make their appearance in families, may perhaps be reversions to a savage state, from which we are not removed by very many generations."[218]

Lombroso has been called "the father of modern criminology" because he was the first criminologist of note to employ the scientific method—particularly measurement, observation, and generalization —in his work. Other writers have preferred to limit his influence, referring to him simply as the father of the Italian School of Criminology in recognition of the fact that nineteenth-century positivism began in Italy under his tutelage.

Lombroso's most famous term, *atavism*, implies that criminals are born that way. Lombroso was continuously reassessing his estimates of the proportion, from among all offenders, of born criminals. At one point, he asserted that fully 90% of offenders committed crimes because of atavistic influences; he later revised the figure downward to 70%, admitting that normal individuals might be pulled into lives of crime. In addition to the category of born criminal, Lombroso described other categories of offenders, including the insane, "criminaloids," and criminals incited by passion. The insane were said to include mental and moral degenerates, alcoholics, drug addicts,

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In 1893, Lombroso published *The Female Offender.*[219] In that book, he expressed his belief that women exhibited far less anatomical variation than do men, but he insisted that criminal behavior among women, as among men, derived from atavistic foundations. Violence among women, although a rarity in the official statistics of the late 1800s, was explained by the masculinity hypothesis, or the belief that criminal women exhibited masculine features and mannerisms. Lombroso saw the quintessential female offender, however, as a prostitute, who was "the genuine typical representative of criminality" among women.[220] Prostitutes, he claimed, act out atavistic yearnings and, in doing so, return to a form of behavior characteristic of humankind's primitive past. Learn more about Lombroso and the theory of atavism via **https://www.encyclopedia.com/topic/Cesare_Lombroso.aspx**.

Theory versus Reality

Positivism: The Historical Statement

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In 1901, Enrico Ferri, one of the founders of the Positivist School of criminology, was invited to deliver a series of lectures at the University of Naples. Ferri used the occasion to admonish classical criminologists and to advance the principles of positivism. Following are excerpts from those lectures:

> Let us speak of this new science, which has become known in Italy by the name of the Positive School of Criminology. The 19th century has won a great victory over mortality and infectious diseases by means of the masterful progress of physiology and natural science. But while contagious diseases have gradually diminished, we see on the other hand that moral diseases are growing more numerous. And this makes it very evident that the science which is principally, if not exclusively, engaged in studying these phenomena of social disease should feel the necessity of finding a more exact diagnosis of these moral diseases of society, in order to arrive at some effective and more humane remedy.

> The science of positive criminology arose in the last quarter of the 19th century. [T]he positive school of criminology arises out of the very nature of things, the same as every other line of science. It is based on the conditions of our daily life.

The general opinion of classic criminalists and of the people at large is that crime involves a moral guilt, because it is due to the free will of the individual who leaves the path of virtue and chooses the path of crime, and therefore it must be suppressed by meeting it with a proportionate quantity of punishment. And the illusion of a free human will (the only miraculous factor in the eternal ocean of cause and effect) leads to the assumption that one can choose freely between virtue and vice. How can you still believe in the existence of a free will, when modern psychology armed with all the instruments of positive modern research denies that there is any free will and demonstrates that every act of a human being is the result of an interaction between the personality and the environment of man?

And how is it possible to cling to that obsolete idea of moral guilt, according to which every individual is supposed to have the free choice to abandon virtue and give himself up to crime? The positive school of criminology maintains, on the contrary, that it is not the criminal who wills; in order to be a criminal, it is rather necessary that the individual should find himself permanently or transitorily in such personal, physical and moral conditions, and live in such an environment which become for him a chain of cause and effect, externally and internally, that disposes him toward crime. This is our conclusion and it constitutes that vastly different and opposite method, which the positive school of criminology employs as compared to the leading principle of the classic school of criminal science.

Discussion Questions

1. Why did Ferri link control over contagious diseases with the study of crime?

2. If Ferri had been asked to define positive criminology, what kind of definition do you think he would offer?

3. How are notions of moral guilt and free will associated in Ferri's line of thought?

Source: Ernest Unterman, trans., *The Positive School of Criminology: Three Lectures Given at the University of Naples, Italy, on April 22, 23, and 24, 1901, by Enrico Ferri* (Chicago: Charles H. Kerr, 1913).

Evaluations of Atavism

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Following in Lombroso's positivistic footsteps around the turn of the twentieth century, English physician **Charles Buckman Goring** (1870–1919) conducted a well-controlled statistical study of Lombroso's thesis of atavism. Using newly developed but advanced mathematical techniques to measure the degree of correlation between physiological features and criminal history, Goring examined nearly 3,000 inmates at Turin prison beginning in 1901. Enlisting the aid of London's Biometric Laboratory, he concluded that "the whole fabric of Lombrosian doctrine, judged by the standards of science, is fundamentally unsound."[221] Goring compared the prisoners with students at Oxford and Cambridge Universities, British soldiers, and noncriminal hospital patients and published his findings in 1913 in his lengthy treatise *The English Convict: A Statistical Study.*[222]

A similar study was conducted between 1927 and 1939 by **Earnest A. Hooton**, a professor of anthropology at Harvard University. In 1939, Hooton published *Crime and the Man*,[223] in which he reported having evaluated 13,873 inmates from ten states, comparing them along 107 physiological dimensions with 3,203 nonincarcerated individuals who formed a control group; his sample consisted of 10,953 prison inmates, 2,004 county jail prisoners, 743 criminally insane, 173 "defective delinquents," 1,227 "insane civilians," and 1,976 "sane civilians." Hooton concluded that criminals showed an overall physiological inferiority to the general population and that crime was the result of "the impact of environment upon low-grade human organisms."[224] Learn more about the life and work of Earnest Hooton at **https://www.newworldencyclopedia.org/entry/Earnest_Hooton.**

Today the ideas of the Italian School, which linked observable physical abnormalities to crime, are largely seen as a dead end in

Today the ideas of the Italian School, which linked observable physical abnormalities to crime, are largely seen as a dead end in criminological thinking. However, as Nichole Hahn Rafter says, "Because criminal anthropologists' doctrine of the criminal as a physically anomalous human has long been discredited, we tend to ignore their work, at the same time overlooking the legacy of professional that they, as the first criminologists, bequeathed to us." [225]

Even though mainstream criminology is no longer concerned with claims that physical abnormalities may be linked to crime, some contemporary researchers have examined the link between criminality and minor physical abnormalities (MPAs), including neuro-deficits, fetal alcohol syndrome, and hormone deficits. In a study of teenage boys reported in 2000, for example, Canadian researchers L. Arseneault, Richard E. Tremblay, and colleagues conducted hormonal, anthropometric, psychophysiological, neuropsychological, and psychiatric evaluations of 1,037 boys who had attended kindergarten in 1984 in a socially and economically disadvantaged area of Montreal.[226] Using evaluations provided years later by parents, teachers, classmates, and the children themselves, Arseneault and Tremblay concluded that subtle physical abnormalities, including minor abnormalities in the shape of the ears, tongue, and teeth, were associated with an increased risk of behavioral and psychiatric problems in later years. The researchers suggested that such minor physical abnormalities might have resulted from genetic problems or prenatal insults associated with exposure to toxins. They concluded that "both the total count of minor physical anomalies and the total count of minor physical anomalies of the mouth were significantly associated with an increased risk of violent delinquency in adolescence, beyond the effects of childhood physical aggression and family adversity." Arseneault and Tremblay recognized, however, that abnormalities of the type they identified might be associated with neurological deficits and that abnormalities of the mouth could lead to feeding problems in the first months after birth, which might somehow cause problems in development or socialization.

Constitutional Theories

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Constitutional theories explain criminality by reference to offenders' body types; genetics; or external, observable physical characteristics. A constitutional, or physiological, orientation that found its way into the criminological mainstream during the early and mid-twentieth century was that of somatotyping (classifying according to body types), primarily associated with the work of **Ernst Kretschmer** and **William H. Sheldon**. Kretschmer, a professor of psychiatry at the German University of Tubingen, proposed a relationship between body build and personality type and created a rather detailed "biopsychological constitutional typology."

Influenced by Kretschmer, Sheldon utilized measurement techniques to connect body type with personality.[227] Sheldon studied 200 boys between the ages of 15 and 21 at the Hayden Goodwill Institute in Boston and concluded that four basic body types characterized the entire group (**Figure 4-3**):

1. The endomorph is soft and round, with "digestive viscera [that] are massive and highly developed" (the person is overweight and has a large stomach).

2. The mesomorph is muscular and athletic, with "somatic structures [that] are in the ascendancy" (the person has larger bones and considerable muscle mass).

3. The ectomorph is thin and fragile and has "long, slender, poorly muscled extremities, with delicate, pipestem bones."

4. The balanced type is a person of average build, not overweight, thin, or exceedingly muscular.[228]

Check Your Understanding

Evolutionist **Edward O. Wilson** is credited with coining the term *sociobiology.* In his groundbreaking book, *Sociobiology: The New Synthesis*, Edwards defined *sociobiology* as "the systematic study of the biological basis of all social behavior [that is] a branch of evolutionary biology and particularly of modern population biology." [258] Because of the important role of biology in social evolution that Wilson was able to demonstrate, his work brought renewed attention to biological theories throughout the social sciences.

Through studies of primates, Wilson was able to demonstrate that the human brain and mind are the products of natural selection that occurred early in human evolution as developing hominids overcame the limits to sociality posed by weak social ties, which are characteristic of most primates. In so doing, they were able to develop close-knit social groups based on strong social ties. Wilson then showed how the ability to form largescale societies contributed to the long-term survival of the social group.

Through his entomological study of social insects (especially ants), Wilson provided examples of altruism (selfless, helping behavior) in multiple species and, contrary to the beliefs of some evolutionary biologists, he found that helping behavior facilitated the continuity of the gene pool among altruistic individuals. The primary determinant of behavior, including human behavior, said Wilson, was the need to ensure the survival and continuity of genetic material from one generation to the next—and altruism played a role in survival.

Territoriality, according to Wilson's writings, explained many of the conflicts, including homicide, warfare, and other forms of aggression, between and among species, especially human beings. In Wilson's words, "Part of man's problem is that his intergroup responses are still crude and primitive, and inadequate for the extended extraterritorial relationships that civilization has thrust upon him." The "unhappy result," as Wilson terms it, may be tribalism, expressed through the contemporary proliferation of street gangs, racial tension, and hardened encampments of survivalist and separatist groups, as well as the resilience of ethnic divides in the Middle East and throughout Europe and Asia.

Sociobiological theory not only tells us that the violence and aggressiveness associated with territoriality are often reserved for strangers but also explains intragroup aggression (violence occurring within groups). Wilson's theory suggested that within the group "a particularly severe form of aggressiveness should be reserved for actual or suspected adultery. In many human societies, where sexual bonding is close and personal knowledge of the behavior of others detailed, adulterers are harshly treated. The sin is regarded to be even worse when offspring are produced."

Hence, territoriality and acquisitiveness extend to location, possessions, and even other people. Human laws, explained Wilson, are designed to protect genetically based relationships that people have with one another, as well as their material possessions and their claimed locations in space; thus, violations of these intuitive relationships result in crime and in official reactions by the legal system.

Wilson's writings propelled social researchers into a flurry of studies intended to test the validity of his assertions. One Canadian study of violence in the homes of adoptive children found that stepchildren run a risk 70 times greater of being killed by their adoptive parents than do children living with their natural parents. Some writers concluded that "murderous behavior, warfare, and even genocide were unavoidable correlates of genetic evolution, controlled by the same genes for territorial behavior that had been selected in primate evolution."[259]

Others have suggested that biological predispositions developed during earlier stages of human evolution color contemporary criminal activity. Male criminals, for example, tend toward robbery and burglary—crimes in which they can continue to enact their "hunter" instincts developed long ago—but the criminality of women often involves shoplifting and simple theft, more typical of "gatherer" instincts.

Human behavioral predilections can be studied in a variety of ways. In the 1989 book *Evolutionary Jurisprudence*, John H. Beckstrom reported on his examination of over 400 legal documents, as well as

like most academicians, were wedded to the belief that only social theories could explain nearly all human behavior. The importance of Wilson's work was its recognition that human nature is not so much an inherent quality of our species, but rather the "result of culture workings its ways on a biology that somewhat channeled (but did not fix) the subsequent nature of our species."[261]

Today, many open-minded scholars are beginning to sense the growing need for a new synthesis, a way to integrate the promise of biological theories like sociobiology and insights drawn from studies of twins with other long-accepted perspectives, like sociology and psychology, in explaining human behavior. Recently, for example, a statistical analysis of data on twins using the National Longitudinal Study of Adolescent Health (Add Health) database found that as much as 64% of the variance in low levels of self-control could be explained by genetic factors.[262] The study, based on Gottfredson and Hirschi's General Theory of Crime (see **Chapter 8**), was designed to determine how levels of self-control were related to biological factors. Studies like these seem to indicate that the field of criminology is ripe for a new integrative approach. Some say that this approach can be found in contemporary biosocial explanations of criminal behavior, to which we turn our attention in the next chapter.

Survey

Sociobiology

Critique of Early Biological Theories of Criminal Behavior

4.5 Identify some criticisms of early biological theories of criminal behavior.

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The Dark Age of Criminal Biology

A central concern with all early biological theories of criminal behavior has to do with the fact that they seemed to relegate the role of free will in human behavior to a kind of philosophical dustbin. If a person's behavior is largely determined, for example, by inherent and unchangeable atavistic features, then he or she may be condemned to a life of crime, and efforts at reformation can be expected to have little positive effect on future behavior. Consequently, some people continue to shy away from biological explanations for criminality and disordered behavior because phrases like "genetic determinism," which are often voiced by the popular media, have come to be synonymous with inevitability. People unschooled in criminology or modern biology tend to believe that "biological" equals "hopeless"[263] —after all, the physical makeup of a person is hard to change.

synonymous with inevitability. People unschooled in criminology or modern biology tend to believe that "biological" equals "hopeless"[263] —after all, the physical makeup of a person is hard to change.

Other concerns stem from aligning the concept of crime with biological variables because crime is itself a social construction and its meaning varies from place to place and from time to time. Years ago, for example, it was illegal to own physical gold for investment purposes in the United States, but today such ownership is permitted. Similarly, Islamic law in Saudi Arabia makes it a crime for a woman to drive a car while unaccompanied by a male relative, but in the United States (and much of the rest of the world) such activity is far from criminal. While it is possible to hypothesize, for example, that a particular biological trait leads to a desire for gold ownership (or for ownership of shiny things of value) or produces the urge to drive a motor vehicle, the fact that such ownership (or driving) may or may not be criminal makes it hard to link specific biological features with potential criminality. It seems unlikely that any biological feature (or a combination of features) could explain the wide variety of criminal offending today—from insider stock trading and white-collar crime to violent attacks, rape, and murder.

A more sensible approach might be to work to identify biological influences on characteristics that most criminals share. Such characteristics could include the level of aggression, risk taking, and danger seeking that individuals demonstrate. Possession of these characteristics may be found to increase the likelihood that some people will gravitate toward criminal activity or to related behaviors. Even if that is true, however, such characteristics might be shared by people who routinely violate the law as well as by those who enforce it. Many on both sides of the law, for example, may be risk takers, danger seekers, and aggressive personalities. Consequently, in some ways criminals and enforcement agents may share any number of characteristics, and even some genes related to behavior propensities, but differ significantly in their orientation toward social life. What separates one from the other might be the nature of the social environment to which people are exposed when growing up.

Given the difficulty in sorting out this kind of complex relationship, it may be impossible to identify any biological features shared solely by

Summary

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- Early proponents of biological theories argued that at least some human behavior is the result of biological propensities inherited from more primitive developmental stages in the evolutionary process. Today's biosocial theories, on the other hand, look to the interaction between human physiology and the physical and social environments in an attempt to explain behavior. These newer perspectives, which will be discussed in the next chapter, hold that genes and related biological features are more likely to be facilitators rather than determinants of human behavior.

- Biological theories of crime causation adhere to the principle that many behavioral predispositions, including aggression and criminality, are constitutionally or physiologically influenced. According to some criminologists, human behavior is, to some degree, adapted instinctual behavior, and aggression is a form of biological inheritance from more primitive times. Aggression today may manifest as criminal behavior when environmental conditions conspire to elicit such instinctive responses.

- The Positivist School, which was also discussed in the previous chapter, sees human behavior as determined not by the exercise of free choice, but by causative factors beyond the control of the individual. It was built upon scientific techniques that were applied to the study of criminal behavior.

- Sociobiology is a theoretical perspective developed by Edward O. Wilson that can be described as "the systematic study of the biological basis of all social behavior." Wilson