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“CESARE LOMBROSO’S ATAVISTIC THEORY OF CRIME: A CRITICAL RE-EXAMINATION IN THE ERA OF NEUROCRIMINOLOGY AND BIOSOCIAL APPROACHES”

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Abstract

This paper critically examines Cesare Lombroso’s legacy, evaluating how his debunked theories of the "born criminal" relate to 21st-century advancements in genetics and neuroscience. It explores whether modern neurocriminology represents a genuine scientific evolution or a sophisticated revival of Lombrosian determinism. While acknowledging the insights of biosocial research, the study highlights significant ethical risks, including potential eugenics, issues of legal culpability, and the stigmatization of vulnerable populations. By comparing historical foundations with contemporary biological approaches, the research addresses challenges regarding predictive labelling, privacy, and the marginalization of social factors. Ultimately, the paper argues that while Lombroso’s original methods lack validity, his influence persists in current debates. It concludes by advocating for an interdisciplinary framework that balances biological data with sociological perspectives, ensuring that justice remains grounded in human dignity and free will.

Keywords: Cesare Lombroso, Biological Determinism, Neurocriminology, Atavistic Theory, Biosocial Criminology, Criminal Responsibility, Human Dignity and Criminal Justice

CHAPTER - 1

INTRODUCTION

1.1 Statement of Problem

Cesare Lombroso's atavistic theory, which proposed that certain individuals are "born criminals" due to evolutionary throwbacks and identifiable through physical stigmata, marked a revolutionary shift in criminological thought by introducing biological positivism. However, despite its historical significance, the theory has been widely criticised for its methodological flaws, cultural and racial biases, and strong biological determinism. In the 21st century, advances in neurocriminology and biosocial criminology have offered more sophisticated, interactive explanations of criminal behaviour through brain imaging, gene-environment interactions, and epigenetic mechanisms.

The central problem this study addresses is: To what extent does Lombroso's atavistic theory retain relevance in contemporary criminology? While his specific claims of visible criminal markers and fixed "born criminal" types have been largely discredited, his foundational idea that biological factors influence criminal behaviour continues to echo in modern scientific discourse. This creates the Lombrosian Paradox a theory that is empirically flawed yet conceptually influential. The study critically examines this tension and explores whether Lombroso's ideas can be meaningfully integrated into a balanced biosocial framework without repeating the reductionist and ethically problematic mistakes of the past.

1.2 Objectives of Study

1. To understand the conceptual framework of Lombroso's biological theory of crime
2. To study whether contemporary approaches completely discard atavistic theory
3. To critically analyze the limitations of Lombroso's theory
4. To propose a balanced Framework through Conclusions and Suggestions

1.3 Research Hypothesis / Research Questions

1.3.1 Research Hypothesis

The atavistic theory of crime propounded by Cesare Lombroso is scientifically inadequate and ethically problematic; however, its underlying premise of biological influence on criminal behaviour persists in modified and refined forms within contemporary neurocriminology and biosocial criminology, which replace deterministic explanations with probabilistic and integrative frameworks

1.3.2 Research Question

1. How can the conceptual framework of Lombroso's biological theory of crime be understood?
2. Do contemporary criminological approaches completely reject the atavistic theory, or do they retain certain elements of it?
3. What are the key limitations and criticisms of Lombroso's theory of crime?
4. How can a balanced framework be proposed by integrating conclusions and suggestions regarding Lombroso's theory?

1.4 Literature Review

In *Born to Crime* (2002), Mary Gibson reevaluates Cesare Lombroso, arguing that his "criminal anthropology" was not merely pseudoscience, but a political tool integrated into 19th-century discourse to modernize Italy's legal system. Gibson details how Lombroso's racism toward Southern Italians shaped his theory of atavism, ultimately providing "scientific" justification for harsh penal policies and colonialism. For this paper, Gibson's work serves as a vital historical warning about the sociopolitical dangers of biological determinism in modern neurocriminology.¹

Joel Peter Eigen highlights Rafter's masterful tracing of the "biological turn" in criminology. The literature review emphasizes that Rafter does not simply dismiss biological theories as historical curiosities; instead, she maps their evolution from the flawed phrenology of the early 19th century through Cesare Lombroso's Italian School, and finally to modern neurocriminology. According to the review, Rafter's work exposes how these theories often reflect the social prejudices of their time, particularly regarding race, class, and gender. While the 19th-century focus was on "atavistic" facial features, the 21st-century focus has shifted to the "faulty wiring" of the prefrontal cortex.²

Albrecht offers a balanced appraisal of Cesare Lombroso's foundational role in modern criminology. The review highlights Lombroso's shift from classical free-will theories to a positivist, empirical approach, notably his concept of the "born criminal" driven by biological determinism and atavism. While acknowledging the pioneering scientific methods in *L'Uomo Delinquente*, Albrecht critically examines Lombroso's methodological flaws, racial biases, and

¹MARY GIBSON, *BORN TO CRIME: CESARE LOMBROSO AND THE ORIGINS OF BIOLOGICAL CRIMINOLOGY* (Praeger 2002).

²NICOLE HAHN RAFTER, *THE CRIMINAL BRAIN: UNDERSTANDING BIOLOGICAL THEORIES OF CRIME* (N.Y.U. Press 2008).

his later inclusion of environmental factors. Ultimately, Albrecht frames Lombroso as a transitional, flawed pioneer whose work fundamentally shaped forensic science.³

Emma Mason's *The "Born Criminal"? Lombroso and the Origins of Modern Criminology* revisits the influential yet controversial ideas of Cesare Lombroso, who proposed that criminality is biologically determined and identifiable through physical traits. Mason critically evaluates Lombroso's theories within their historical context, highlighting how they shaped early criminological thought while also exposing their scientific limitations and ethical concerns. The work underscores the transition from biological determinism to more nuanced, sociological and psychological explanations of crime. By reassessing Lombroso's legacy, Mason contributes to a deeper understanding of how modern criminology evolved, emphasizing the importance of interdisciplinary approaches and caution against reductive theories of criminal behavior.⁴

The article critically examines Cesare Lombroso's theory of crime, particularly his concept of the "born criminal." The article evaluates Lombroso's biological determinism, which attributes criminal behavior to inherited physical and psychological traits. Ellwood acknowledges Lombroso's contribution in shifting criminology toward empirical and scientific inquiry, yet highlights significant limitations, including overgeneralization and lack of methodological rigor. He argues that crime cannot be explained solely through biological factors and emphasizes the importance of social and environmental influences. Overall, the work represents an early critique that helped pave the way for more balanced, multifactorial approaches in modern criminological theory⁵

1.5 Rationale of the Study

This research is significant because it bridges 19th-century biological positivism with 21st-century neurocriminology and biosocial criminology. Lombroso's ideas, though largely discredited, laid the foundation for studying individual biological differences in criminal behaviour. Understanding the strengths and limitations of his theory is essential to avoid repeating historical mistakes such as reductionism, stigmatisation, and racial bias. The study is particularly relevant in the Indian context, where biological and forensic evidence is increasingly used in courts. By proposing a balanced biosocial framework, this research aims

³ Adalbert Albrecht, *CESARE LOMBROSO: A GLANCE AT HIS LIFE WORK*.

⁴ E. Mason, *The "Born Criminal"? Lombroso and the Origins of Modern Criminology*, 64 *HIST. TODAY* (2014).

⁵ Charles A. Ellwood, *Lombroso's Theory of Crime*, 2 *J. AM. INST. CRIM. L. & CRIMINOLOGY* 716 (1912).

to contribute to more ethical, scientifically sound, and humane criminal justice policies.

1.6 Research Methodology

This research adopts a doctrinal and critical analytical methodology. It is primarily based on qualitative analysis of primary sources (Lombroso's *L'Uomo Delinquente* and translated editions) and extensive secondary sources including peer-reviewed journal articles, books, and reports from databases such as Manupatra, LexisNexis, Google Scholar, and JSTOR. A comparative and critical approach has been used to evaluate Lombroso's theory against contemporary neurocriminological and biosocial perspectives. The study follows a descriptive, analytical, and evaluative method. has been adopted for referencing. No primary empirical data or field survey has been conducted due to the theoretical nature of the research.

1.7 Scope and Limitation

The scope of this study is limited to a critical doctrinal analysis of Lombroso's atavistic theory, its historical context, classification system, and its re-examination through the lens of modern neurocriminology and biosocial approaches. The research focuses primarily on theoretical and conceptual comparison rather than empirical data collection. While global scholarship is considered, special emphasis is given to its implications for criminal justice. Limitations include heavy reliance on secondary sources, absence of primary empirical research, and restricted focus on biological aspects without extensive sociological or cultural analysis. The study does not cover all biological theories of crime, only those connected to Lombroso's legacy.

CHAPTER -2

CONCEPTUAL FOUNDATION

2.1 Introduction

Criminology is the scientific study of crime, criminal behaviour, and society's responses to it, including prevention, punishment, and rehabilitation. Crime itself can be defined in two primary ways: as a violation of criminal law (legal definition) or as behaviour that causes serious harm to individuals or society (sociological definition). While the legal definition focuses on acts prohibited and punishable by the state, the broader sociological view examines why certain behaviours are labelled as criminal and how social, economic, and cultural contexts shape them. Understanding criminological thought requires tracing its evolution from philosophical ideas about human nature to empirical scientific inquiry.

Inspired by Auguste Comte's philosophy and Darwin's theory of evolution, positivists sought to explain crime through empirical observation rather than abstract moral or legal principles. This section examines the intellectual foundations of positivism, the 19th-century socio-scientific context, Cesare Lombroso's background and atavistic theory, his classification of criminals, and the early reception of his ideas.

2.2 Emergence of Positivist School

The Positivist School emerged as a reaction to the limitations of classical criminology, which focused heavily on legal reforms but offered little explanation for why people commit crimes despite harsh punishments. Positivists advocated applying the scientific method observation, measurement, experimentation, and empirical data collection to the study of crime, treating it as a natural phenomenon rather than a philosophical or moral issue. This approach sought objective facts about the causes of criminal behaviour instead of abstract notions of justice or free will.⁶

The intellectual foundation of positivism came from the French philosopher Auguste Comte (1798–1857), who coined the term “positivism” and is regarded as the founder of sociology. Comte argued that human knowledge progresses through three stages theological, metaphysical, and positive (scientific) and that society should be studied using the same rigorous, empirical methods as the natural sciences (physics, biology). He believed social phenomena, including deviance and crime, could be observed, classified, and explained

⁶ TERYNN VANDERPYL, *INTRODUCTION TO CRIMINOLOGY*.

through verifiable facts rather than speculation. Comte's ideas encouraged criminologists to move beyond punishment and instead discover the "laws" governing criminal behaviour.⁷

The rise of empirical methods in criminology was a direct outcome of this positivist philosophy. Researchers began collecting data through surveys, measurements, autopsies, and statistical analysis. In Italy, this led to the formation of the Italian School of Positivist Criminology, which emphasised individual differences among offenders. The positivist approach broadened criminology's scope to include biological, psychological, and later sociological factors, paving the way for interdisciplinary study and influencing fields like forensic science and penology (the study of punishment and prisons)⁸

2.2.1 Context of 19th-Century Positivism

The emergence of biological theories of crime in the late 19th century occurred against the backdrop of positivist criminology, which sought to replace the classical school's emphasis on free will and rational choice with a scientific, deterministic approach focused on identifying the causes of criminal behaviour. Positivism, inspired by Auguste Comte's philosophy, applied empirical methods from the natural sciences to the study of society and human conduct. In criminology, this shift marked a move from viewing crime as a product of individual moral failing or calculated choice (as in Cesare Beccaria and Jeremy Bentham's classical school) to seeing it as the result of internal or external forces beyond the offender's full control⁹

Charles Darwin's *On the Origin of Species* (1859) exerted profound influence. Darwin's theory of evolution by natural selection provided a framework for understanding human variation and "primitive" traits as evolutionary remnants. Cesare Lombroso, an Italian physician and psychiatrist, misinterpreted or extended Darwinian ideas to argue that certain criminals represented atavistic throwbacks to earlier, less evolved stages of humanity. This biological determinism aligned with the era's growing interest in heredity, degeneration theory, and social Darwinism, which often justified hierarchies based on race, class, and perceived "fitness."¹⁰

Phrenology, popularised by Franz Joseph Gall and Johann Spurzheim in the early 19th century, also shaped Lombroso's thinking. Phrenologists claimed that skull shape and brain "organs" revealed character traits, including criminal propensities. Although largely discredited by the mid-19th century, phrenology's focus on measurable physical indicators of moral character

⁷ Karl Thompson, Auguste Comte: Positivism and the Scientific Study of Society (Jan. 19, 2025).

⁸ Criminological Theory – Early Positivism, <https://sandratrappen.com/2018/06/25/criminological-theory-lombroso-positivism/> (last visited Apr. 5, 2026).

⁹ ANTHONY WALSH & LEE ELLIS, *CRIMINOLOGY: AN INTERDISCIPLINARY APPROACH* (Sage Publ'ns 2006).

¹⁰ Elisabeth Brookes, Cesare Lombroso (Oct. 13, 2025).

influenced Lombroso's anthropometric methods and his search for visible "stigmata" of criminality. Lombroso combined these ideas with elements of physiognomy (judging character from facial features) and psychiatry, particularly concepts of moral insanity and degeneration associated with Bénédict Morel.¹¹

In Italy, post-unification social and economic challenges poverty, brigandage in the South, rising urban crime, and prison overcrowding created a receptive environment for positivist explanations. Lombroso, along with Enrico Ferri and Raffaele Garofalo, founded the Italian School of Positivist Criminology. This school rejected classical notions of equal responsibility and instead advocated for tailored responses based on the offender's biological and social profile. Lombroso's work represented the biological wing of positivism, emphasising individual pathology over social or environmental factors (though later editions incorporated some environmental considerations). This intellectual climate reflected broader 19th-century anxieties about degeneration, urbanisation, and the "dangerous classes." Lombroso's theories offered a seemingly scientific tool for identifying and managing threats to social order.

2.3 Cesare Lombroso and His Intellectual Context

Cesare Lombroso (1835–1909) is often considered the father of modern criminology and he founded the positivist school. Cesare Lombroso was born in Verona, Italy, in 1835. He studied medicine at the University of Pavia and later specialized in psychiatry and anthropology. His work laid the foundation for [biological theories](#) of crime, marking a shift from [classical criminology](#), which emphasized free will and rational choice. Instead, Lombroso believed that criminals were biologically different from law-abiding citizens and that their deviant behavior could be identified through physical traits. While his theories have been largely discredited, they played a crucial role in the development of [criminology](#) as a scientific discipline.¹² In criminology, it has attempted to find scientific objectivity the measurement and quantification of criminal behaviour

While working as a physician in Italian prisons, Lombroso observed physical differences among inmates. He believed these differences indicated a biological predisposition to crime. His observations formed the basis of his most famous theory: the atavistic criminal. Cesare Lombroso, the founder of positivist criminology, developed theories linking biology to crime

¹¹ Mysoon Saifudeen, *Decoding Criminality: A Scholarly Review of Cesare Lombroso's Positivist Criminology*, 5 *INDIAN J. INTEGRATED RES. L.* (n.d.).

¹² Cesare Lombroso and His Contributions, <https://docmckee.com/cj/docs-criminal-justice-glossary/cesare-lombroso-definition/> (last visited Apr. 6, 2026).

through atavism and physical traits. His ideas, outlined in works like *L'Uomo Delinquente* (1876), shifted focus from free will to scientific determinism but faced later criticism for methodological flaws. His intellectual roots blended psychiatry, anthropology, physiognomy, degeneration theory, and Social Darwinism, rejecting classical school's free-will emphasis for empirical observation of criminals. By the 1880s, as professor of psychiatry (1896) and criminal anthropology (1906), he amassed data from thousands via anthropometry, craniometers, and esthesiometers, institutionalizing scientific psychiatry. Lombroso died in 1909 in Turin; his brain and skull were measured per his will, preserved at Turin's Museum of Psychiatry and Criminology.¹³

2.4 Atavism Theory

The word 'Atavistic' comes from Latin word "atavus", which means ancestor in Latin. In [biology](#), an atavism is a modification of a biological [trait's](#) structure or [behavior](#) whereby an ancestral genetic trait reappears after having been lost through [evolutionary](#) change in previous generations. Atavisms can occur in several ways, one of which is when [genes](#) for previously existing [phenotypic](#) features are preserved in [DNA](#), and these become expressed through a [mutation](#) that either knocks out the dominant genes for the new traits or makes the old traits dominate the new one.

One of the central ideas in the work of Cesare Lombroso is the concept of the "born criminal." Lombroso argued that criminal behaviour is not merely the result of environment, poverty, or moral failure, but is rooted in biological inheritance. According to him, certain individuals are born with physical and psychological traits that predispose them to crime. In his view, these individuals are fundamentally different from law-abiding members of society.¹⁴

He also developed the "Theory of Deviance" and according to this theory, a person's bodily constitution indicates whether or not an individual is a born criminal or not. In developing this theory, Lombroso observed the physical characteristics of Italian prisoners and compared them to those of Italian soldiers over 4000 claiming about one-third of criminals fit this category. This deterministic view rejected free will, arguing that born criminals act on innate instincts rather than rational choice. This observation led him to formulate the theory of atavism, suggesting that some criminals represent a throwback to earlier stages of human evolution. He

¹³ P. Mazzarello, Cesare Lombroso: An Anthropologist Between Evolution and Degeneration, 26 *FUNCTIONAL NEUROLOGY* 97 (2011).

¹⁴ Born Criminal Theory by Cesare Lombroso, <https://www.crimpsy.com/born-criminal-cesare-lombroso/> (last visited Apr. 6, 2026).

believed that such individuals had not fully evolved and therefore lacked moral sensitivity and self-control.¹⁵ Therefore Lombroso claimed that born criminals could be identified through physical stigmata visible anomalies or “marks of degeneration” on the body

- Asymmetrical faces and skulls
- Large jaws and protruding chins
- Long arms relative to body size
- Large ears
- High cheekbones
- Flattened or receding foreheads
- Excessive tattoos (which he linked to primitive expression)

Lombroso claimed that these traits could be used to identify criminals before they even committed crimes. This approach implied that criminality could be detected through anthropometric measurements an idea that fascinated both scientists and policymakers at the time.

Marro had already designated certain criminal marks as atavistic in character (*I Caratteri dei Delinquenti*, 1887), because, though subject to variability, they are the marks which distinguish man from the anthropoid ape. They appear chiefly in the brain and skull and are more or less connected with the development of the brain, or are noticeable in the jaw and teeth. Among them belong prognathy; that is, the prominence of the lower part of the face, showing a lesser development of the brain, and the accompanying receding forehead. Prognathy and receding forehead, approaching the type of the anthropoids, are recognized by the Lombroso school as marks of the criminal type¹⁶

2.5 Classification of Criminals

Recognizing the diversity of criminal behavior, Lombroso developed a nuanced typology across the five editions of *L'Uomo Delinquente* (1876–1897). He categorized offenders based on their biological predisposition, physical anomalies, and environmental influences. This framework allowed him to reconcile his deterministic views with the reality of situational crime, fundamentally departing from the Classical School by advocating for individualized treatment. His central category was the "born criminal" (*delinquente nato*), which he initially

¹⁵ Charles A. Ellwood, *Lombroso's Theory of Crime*, 2 *J. AM. INST. CRIM. L. & CRIMINOLOGY* 716 (1912).

¹⁶ Exploring Biological Theory: Lombroso's Impact on Criminology, <https://www.cliffsnotes.com/study-notes/33400454> (last visited Apr. 5, 2026).

estimated comprised 65–70% of offenders, though he progressively revised this figure down to roughly one-third (33–40%) as his research evolved.¹⁷

- **Born criminals** represented the purest expression of atavism evolutionary throwbacks possessing a concentrated cluster of physical stigmata (such as the median occipital fossa, prognathism, asymmetrical cranium, and excessive arm length) along with profound psychological and moral deficiencies. These individuals were characterised by impulsivity, cruelty, idleness, excessive sexuality, lack of remorse, and an “irresistible craving for evil for its own sake.” Lombroso argued they were almost irredeemable due to hereditary and evolutionary factors and frequently overlapped with concepts of moral insanity and epilepsy. Their crimes tended to be particularly monstrous, violent, or recidivist in nature, making them the most dangerous segment of the “criminal army.”¹⁸
- **Insane criminals**, whose offences stemmed primarily from various forms of mental alienation or psychological degeneration rather than pure atavism. This category included individuals suffering from imbecility, melancholia, general paralysis, dementia, monomania, inebriate lunacy (linked to alcoholism), epileptic seizures, or hysterical conditions. Lombroso noted that some insane criminals shared physical and psychic traits with born criminals, such as anomalies in skull shape or reduced sensibility to pain, creating overlap between the two groups. However, the primary driver here was pathology or disease rather than evolutionary regression. He believed many such offenders required medical treatment or asylum confinement rather than ordinary punishment, reflecting his psychiatric background.
- **Occasional criminals** are the largest and most heterogeneous group comprised, who did not exhibit the marked biological anomalies of born or insane criminals. Their criminality arose mainly from external pressures such as poverty, opportunity, bad associations, imitation, or sudden emotional impulses. Within this broad category, Lombroso distinguished **criminals by passion** individuals who committed impulsive, emotion-driven acts (often violent) in response to honour, jealousy, love, or provocation. These offenders were frequently described as morally and emotionally the

¹⁷ GINA LOMBROSO-FERRERO, *CRIMINAL MAN ACCORDING TO THE CLASSIFICATION OF CESARE LOMBROSO* (2009).

¹⁸ K. Bradley, Cesare Lombroso (1835–1909), in *FIFTY KEY THINKERS IN CRIMINOLOGY* (K. Hayward, S. Maruna & J. Mooney eds., Routledge 2010).

opposite of born criminals, showing genuine remorse, repentance, and a capacity for reform after the passionate episode subsided. He also included **habitual criminals**, who gradually developed a criminal lifestyle through repeated exposure to unfavourable social conditions or prison environments, rather than innate predisposition.¹⁹

- **Criminaloids** (a term he popularised) as a milder variant falling between occasional criminals and the more serious types. Criminaloids possessed only minor or partial anomalies and were more strongly influenced by circumstantial factors than by biology. They tended to adopt a criminal career later in life, showed some moral sense and affection, and were capable of confession and repentance. Often labelled as “borderline” or “minor offenders,” criminaloids were seen as qualitatively similar to born criminals in some behavioural tendencies but quantitatively different less extreme and more responsive to environmental improvements or rehabilitative measures.

Overall, Lombroso’s classification system demonstrated his growing recognition that crime has multiple causes biological, pathological, and social even though he continued to assign central importance to innate biological factors for the “born” type. By differentiating offender types, he moved beyond simplistic explanations and laid the foundation for individualised responses in penology, such as indeterminate sentencing, asylums for the insane, segregation for born criminals, and preventive or reformatory measures for occasional and criminaloid types. This typology, while still heavily deterministic, represented an important step toward a more scientific and nuanced understanding of criminal behaviour. However, as later sections will examine, its reliance on subjective observations and cultural biases would face substantial empirical and ethical challenges in the 20th and 21st centuries.²⁰

2.6 Early Reception and Influence

Lombroso’s ideas received widespread attention and initially enthusiastic reception across Europe and the Americas in the late 19th and early 20th centuries. His emphasis on scientific observation shifted criminology from abstract philosophy to empirical study, earning him recognition as the founder of modern criminology. The theory influenced penology by promoting tailored responses indeterminate sentencing, treatment for insane criminals, and segregation for born criminals rather than uniform punishment.

¹⁹OFFENDER TYPOLOGIES AND CRIMINAL PROFILING, Discipline of Psychology, IGNOU, School of Social Sciences, Delhi.

²⁰ Mysoon Saifudeen, Decoding Criminality: A Scholarly Review of Cesare Lombroso’s Positivist Criminology, 5 *INDIAN J. INTEGRATED RES. L.*

Lombroso's work also impacted policing and criminal identification. It encouraged the use of anthropometric measurements (body and skull measurements) and physiognomic observation in prisons and by police. His assistant Salvatore Ottolenghi helped establish the first School of Scientific Policing in Rome in 1903. Concepts of criminal identification through physical traits influenced early forensic practices, though they were later superseded by fingerprinting and more reliable methods. Overall, Lombroso popularised the idea that crime could be studied scientifically and that prevention or rehabilitation might be possible for certain offender types, laying foundations for later biosocial and neurocriminological approaches despite the eventual critiques of his specific claims.

2.7 Conclusion

In conclusion, the emergence of the Positivist School marked a fundamental shift in criminological thought from philosophical speculation about free will to the scientific study of the causes of crime. Cesare Lombroso, as the leading figure of the Italian School, introduced biological positivism through his theory of atavism, visible criminal stigmata, and the concept of the "born criminal." His nuanced classification of offenders and emphasis on empirical methods represented a pioneering attempt to treat criminology as a science. Although his ideas gained significant influence in penology, policing, and criminal identification during the late 19th and early 20th centuries, they were deeply embedded in the social anxieties and scientific assumptions of his time.

CHAPTER – 3

LIMITATIONS OF LOMBROSO THEORY

3.1 Introduction

Cesare Lombroso's atavistic theory, once a cornerstone of biological positivism, proposed that many criminals were evolutionary throwbacks identifiable through physical stigmata and innate criminal instincts. While Lombroso pioneered the scientific study of the offender rather than merely the offence, his ideas of fixed "born criminals," visible markers of degeneration, and strong biological determinism have faced sustained scrutiny. This chapter critically re-examines Lombroso's core claims through the lens of contemporary neurocriminology and biosocial criminology. It analyses the rejection of atavism and evolutionary regression, the discrediting of physical stigmata, the shift away from pure biological determinism, and the methodological, cultural, racial, and ethical shortcomings of his framework. By contrasting Lombroso's nineteenth-century views with twenty-first-century evidence-based interactive models, the chapter highlights both the limitations of early biological positivism and the nuanced insights offered by modern approaches.

3.2 Rejection of Atavism and Evolutionary Throwbacks

The cornerstone of Lombroso's biological positivism was his theory of atavism, which argued that "born criminals" were evolutionary throwbacks to primitive stages of human development. He posited that these individuals retained the physical traits and savage instincts of early humans, making crime a result of hardwired ancestral traits like cruelty and impulsivity rather than free choice or social circumstance. Misinterpreting Darwinian evolution, Lombroso ultimately viewed criminals as biological regressions who simply failed to evolve into civilized humans.²¹

Contemporary neurocriminology firmly rejects Lombroso's atavism, arguing that criminal behavior stems from complex interactions between genetics, brain function, and the environment, rather than evolutionary regression. Leading scholar Adrian Raine distances modern research from Lombroso's deterministic models; while Raine's brain imaging reveals measurable neurodevelopmental variations in offenders such as reduced prefrontal cortex activity that impairs impulse control he emphasizes these are not signs of "primitive" evolutionary inferiority. Instead, they are subtle biological risk factors for antisocial behavior,

²¹ A. Bedoya & J. Portnoy, *Biosocial Criminology: History, Theory, Research Evidence, and Policy*, 18 *VICTIMS & OFFENDERS* 1599 (2023).

not evidence of a separate subspecies.²²

Biosocial criminology explicitly rejects the concept of the "born criminal," focusing instead on probabilistic risk factors. While biological elements like genetic variants or structural brain differences increase vulnerability to antisocial behavior, they rarely determine outcomes alone. Scholars emphasize that criminal trajectories emerge from dynamic, lifelong interactions between biology and social context. Consequently, the field has abandoned Lombroso's rigid, 19th-century evolutionary hierarchies in favor of nuanced, evidence-based biosocial models.²³

3.3 Criticism of Physical Stigmata (Visible Criminal Markers)

Lombroso emphasized "criminal stigmata" external bodily anomalies such as facial asymmetry, protruding jaws, and sloping foreheads as visible proof of atavism and moral inferiority. He argued that the accumulation of these physical features reliably identified the "born criminal." Ultimately, Lombroso viewed the criminal body as a readable text that revealed innate criminal tendencies, effectively eliminating the need for social or psychological investigation. This reliance on observable physical characteristics faced devastating empirical challenges in the early twentieth century. The most systematic and influential critique came from Charles Goring's landmark study *The English Convict* (1913)²⁴, which involved precise anthropometric measurements of over 3,000 British convicts compared against carefully selected non-criminal control groups, including soldiers and university students. Using rigorous statistical methods, Charles Goring refuted Lombroso's concept of criminal stigmata, demonstrating that minor physical differences among convicts such as lower weight or shorter stature stemmed from environmental deprivation like poverty, not inherent biology. Modern biosocial criminologists reinforce Goring's findings, noting that Lombroso's work lacked scientific validity due to profound methodological flaws, including biased sampling of marginalized groups, missing control groups, and subjective judgments. Ultimately, what Lombroso interpreted as evolutionary degeneration were actually markers of societal deprivation, heavily skewed by 19th-century confirmation bias and stereotypes.²⁵

Neurocriminology further distances itself from Lombroso by shifting focus from external

²² Shichun Ling & Rebecca Umbach, Biological Explanations of Criminal Behavior, 25 *PSYCHOL., CRIME & L.* 626 (2019).

²³ Marvin E. Wolfgang, Pioneers in Criminology: Cesare Lombroso (1825–1909), 52 *J. CRIM. L., CRIMINOLOGY & POLICE SCI.* 361 (1961).

²⁴ CHARLES GORING, *THE ENGLISH CONVICT* (1913).

²⁵ Edwin D. Driver, Pioneers in Criminology XIV—Charles Buckman Goring (1870–1919), 47 *J. CRIM. L., CRIMINOLOGY & POLICE SCI.* 515 (1956–57).

physical features to the living brain. Using advanced imaging like fMRI and PET scans, contemporary researchers have identified internal correlates of antisocial behavior such as reduced prefrontal cortex activity (impairing impulse control) and amygdala abnormalities (affecting empathy). Crucially, these subtle neurodevelopmental variations are entirely invisible to the naked eye. While scholars like Adrian Raine acknowledge Lombroso's foundational interest in biology, they reject his visible stigmata as crude and unscientific, emphasizing that meaningful biological insights require objective internal measurement.²⁶

3.4 Rejection of Pure Biological Determinism

Lombroso's atavistic theory was fundamentally deterministic. He posited that "born criminals" roughly one-third of offenders were biologically predestined to commit crime due to hereditary and evolutionary factors. These individuals, marked by strong physical and psychological stigmata, were viewed as almost irredeemable. Their criminality stemmed primarily, if not solely, from innate biological constitution rather than free will, social conditions, or personal choice. Lombroso argued that such offenders possessed an irresistible drive toward evil, reduced moral sense, and impulsive tendencies rooted in their evolutionary regression. Consequently, he advocated segregation or indefinite confinement for this group, believing rehabilitation efforts would largely prove futile. This strong biological determinism represented the most radical element of his positivist framework and sharply distinguished it from the Classical School's emphasis on rational choice and proportionate punishment.

Modern neurocriminology and biosocial criminology strongly criticize Lombroso's deterministic approach as overly reductionist. While research identifies brain correlates linked to antisocial behavior—such as prefrontal cortex hypoactivity (impairing impulse control) and amygdala abnormalities (affecting empathy)—these function as probabilistic risk factors rather than inevitable causes. Because many individuals with these brain patterns never offend, experts like Adrian Raine emphasize that biological vulnerabilities do not operate in isolation; they require specific environmental triggers to manifest, accounting for only a modest variance in criminal outcomes.²⁷

Biosocial criminology explicitly rejects pure biological determinism by emphasizing gene-environment interactions (GxE). A key example is the MAOA gene: individuals with the low-

²⁶ Theodore Dalrymple, Crimes and Misdemeanors, 334 *BMJ* 699 (2007).

²⁷ Adrian Raine, The Criminal Mind: Advances in Genetics and Neuroscience Are Revolutionizing Our Understanding of Violent Behavior, *WALL ST. J.*, Apr. 26, 2013.

activity variant only exhibit elevated risks for violent behavior if they also experience severe childhood maltreatment; without this environmental stressor, the genetic predisposition has little to no effect. Furthermore, epigenetics demonstrates how environmental factors like trauma or poverty can alter gene expression without changing the DNA sequence itself. Ultimately, these interactions prove that biology is not destiny, but rather part of a dynamic, lifelong feedback loop conditionally activated by social experience.²⁸

This interactive model directly challenges Lombroso's rigid classification system, particularly his category of the fixed "born criminal." Modern biosocial scholars view criminal trajectories as developmental and potentially modifiable rather than predetermined at birth. Early adverse experiences can amplify biological vulnerabilities, while positive interventions such as enriched early childhood programmes, family support, or targeted cognitive-behavioural treatments can mitigate risks and promote desistance from crime. The emphasis has therefore shifted from segregation of "irredeemable" offenders to prevention and rehabilitation strategies that address both biological and social domains. By rejecting the notion of a criminal unaffected by social context, biosocial criminology restores a degree of human agency and plasticity that Lombroso's deterministic framework largely denied.²⁹

3.5 Methodological and Ethical Critiques

Lombroso's atavistic theory, though pioneering in its attempt to introduce scientific methods into criminology, suffers from significant methodological deficiencies. His research was largely based on observational studies of prison populations, particularly Italian inmates, many of whom belonged to the socio-economically disadvantaged southern regions of Italy. This resulted in a sampling bias, as his conclusions were drawn from a non-representative and highly selective group, rather than the general population.

Further, Lombroso failed to employ control groups, a fundamental requirement in scientific inquiry. Without comparing criminals to non-criminal populations under similar conditions, his conclusions regarding "criminal stigmata" lacked empirical validity. His reliance on anthropometric measurements—such as skull size, jaw structure, and facial asymmetry—was often subjective and inconsistent, leading to confirmation bias, where observations were interpreted to support preconceived hypotheses. In contrast, contemporary neurocriminology

²⁸ MAOA, Abuse Exposure and Antisocial Behaviour: 30-Year Longitudinal Study, 198 *BRIT. J. PSYCHIATRY* 457 (2011).

²⁹ Kevin M. Beaver, *The Intersection of Genes, the Environment, and Crime and Delinquency* (2006).

and biosocial criminology adopt far more rigorous methodologies. These include:³⁰

- Large-scale, representative datasets
- Longitudinal studies tracking individuals over time
- Twin and adoption studies to separate genetic and environmental influences
- Advanced statistical modelling and neuroimaging techniques (fMRI, PET scans)

Such methods ensure greater reliability, replicability, and scientific validity, distinguishing modern approaches from Lombroso's rudimentary framework.

3.5.1 Cultural, Racial, and Class Bias

Another major critique of Lombroso's work lies in its deeply embedded cultural, racial, and class biases. His identification of "atavistic stigmata" often reflected prevailing Eurocentric and colonial attitudes, where certain physical traits associated with marginalized groups were labelled as indicators of criminality.

For instance:

- Features attributed to southern Italians, colonized populations, and lower socio-economic classes were frequently described as "primitive" or "degenerate."
- Lombroso's framework implicitly reinforced the notion that criminality was concentrated among the poor and socially disadvantaged, thereby legitimising structural inequalities.

This not only undermined the scientific credibility of his theory but also contributed to **stigmatization and systemic discrimination**. Modern criminological approaches, particularly **biosocial criminology**, consciously distance themselves from such problematic foundations. Contemporary scholars emphasise that: There is also a strong normative commitment to ensuring that scientific findings are not misused to justify racial profiling, class-based discrimination, or social exclusion. Ethical review boards, interdisciplinary scrutiny, and human rights frameworks act as safeguards against such misuse.³¹

3.5.2 Ethical Risks and Contemporary Concerns

Lombroso's theory established a problematic, deterministic framework by labeling individuals as "born criminals," effectively justifying harsh penal practices and eugenics while denying the possibility of reform. This reductionist view directly contradicts modern justice principles

³⁰ Uberto Gatti & Alfredo Verde, Cesare Lombroso: Methodological Ambiguities and Brilliant Intuitions, 35 *INT'L J. L. & PSYCHIATRY* 19 (2012).

³¹ FRANCIS T. CULLEN & PAMELA WILCOX, EDS., *THE OXFORD HANDBOOK OF CRIMINOLOGICAL THEORY* (Oxford Univ. Press).

centered on free will and human dignity. While today's neurocriminology is more scientifically rigorous, it risks a "new biological determinism." Modern ethical concerns include the stigmatization of "high-risk" youth through predictive labeling, potential privacy violations via neurobiological surveillance, and a reductionist focus that ignores the vital social and economic drivers of crime.³²

In response to these challenges, contemporary criminological scholarship emphasises the need for a balanced and integrative approach that synthesises biological, psychological, and sociological perspectives. Such an approach seeks to ensure that scientific advancements are applied in a manner consistent with fundamental legal and ethical values.

3.6 Conclusion

The Neurocriminology and biosocial criminology have systematically dismantled the central pillars of Lombroso's atavistic theory. The notions of evolutionary throwbacks, visible criminal stigmata, and rigid biological determinism are rejected as pseudoscientific, methodologically flawed, and laden with cultural, racial, and class biases. Modern research replaces these ideas with probabilistic risk factors, gene-environment interactions (G×E), epigenetic mechanisms, and subtle neurodevelopmental variations observable only through advanced imaging. While acknowledging Lombroso's historical contribution in directing attention toward the biological dimensions of crime, contemporary scholarship emphasises dynamic interplay between biology and environment, developmental plasticity, and the potential for prevention and rehabilitation. This paradigm shift not only advances scientific understanding but also demands ethical vigilance to prevent new forms of reductionism or stigmatisation in criminal justice policy.

CHAPTER- 4

CONCLUSION AND SUGGESTIONS

4.1 Introduction

This final chapter synthesises the key findings of the study on Cesare Lombroso's atavistic theory of crime and its critical re-examination in the context of 21st-century neurocriminology and biosocial approaches. It draws together the historical analysis, empirical critiques, and

³² S. Jayaweera, From Atavism to Eugenics: The Evolution and Misuse of Classical Criminological Theories in Shaping Racial Policies, 2 *J. SOC. SCI.* (2024).

modern scientific advancements discussed in previous chapters to propose a balanced integrative framework. The chapter highlights the enduring legacy and fundamental limitations of Lombroso's ideas while offering concrete suggestions for policy, research, and practice that avoid the pitfalls of pure biological determinism.

4.2 Lombroso Paradox

Lombroso's atavistic theory is obsolete in modern criminology. His specific claims regarding evolutionary throwbacks, physical stigmata, and "born criminal" identifiers have been empirically discredited as pseudoscience since Charles Goring's 1913 study. Today, Lombroso's work serves merely as a historical and cautionary starting point for biological positivism. It holds no active methodological value and is never directly applied in contemporary offender profiling, risk assessments, or judicial proceedings.³³

Despite the obsolescence of his specific claims, Lombroso's influence endures through what scholars call the **Lombrosian Paradox**. While his theories of atavism and fixed biological destiny were scientifically flawed and culturally biased, he pioneered the vital shift from abstract philosophical speculation to the empirical study of the individual offender.

Modern biosocial criminology and neurocriminology reject his deterministic, visible-marker methods but acknowledge his foundational intuition: that biological vulnerabilities can influence antisocial behavior. Ultimately, Lombroso was "wrong in the details but right in the spirit," laying the conceptual groundwork for contemporary scientific criminology.³⁴

4.3 Proposed Balanced Biosocial Framework

Drawing from the critical re-examination, the following balanced framework is proposed to integrate biological insights with social and environmental realities while safeguarding against Lombrosian-style reductionism:

- 1. Multifactorial Risk Assessment Model** Criminal behaviour should be understood through a layered risk model that combines biological markers (neuroimaging, genetic screening where ethically appropriate), psychological assessments, and detailed socio-environmental histories. Biology must never be viewed in isolation but always interpreted within the individual's life-course context.

³³ Christian Munthe & Susanna Radovic, The Return of Lombroso? Ethical Aspects of Preventive Forensic Screening, 8 *PUB. HEALTH ETHICS* 270 (2015).

³⁴ Biosocial Criminology and the Lombrosian Paradox, <https://quillette.com/2018/05/12/biosocial-criminology-lombrosian-paradox/> (last visited Apr. 7, 2026).

2. **Developmental and Preventive Orientation** Emphasis should shift from identifying “born criminals” to early intervention during critical developmental windows. Programs that address both biological vulnerabilities (e.g., nutritional support, cognitive training) and environmental risk factors (family support, education, trauma-informed care) have shown promising results in reducing antisocial behaviour.
3. **Ethical Safeguards and Human Rights Integration** Any use of neurobiological or genetic data in criminal justice must be guided by strict ethical principles: informed consent, protection of privacy, prohibition of predictive labelling of children, and avoidance of discriminatory practices. Biological evidence should support rehabilitation and treatment, not harsher punishment or indefinite detention.
4. **Interdisciplinary Collaboration** Criminologists, neuroscientists, geneticists, sociologists, psychologists, and legal scholars must work together to develop policies that are scientifically sound and socially just. This collaborative approach prevents the misuse of biological findings and ensures holistic understanding.
5. **Rehabilitation and Desistance Focus** Criminal justice systems should prioritise evidence-based rehabilitation programmes that leverage neuroplasticity and positive environmental changes. Even individuals with biological risk factors can show significant desistance when provided with appropriate social support and interventions.

4.4 Conclusion

Cesare Lombroso’s atavistic theory, though deeply flawed, opened the door to the scientific study of crime. The 21st-century response through neurocriminology and biosocial approaches has moved far beyond his deterministic vision. By adopting a balanced framework that respects both biological realities and human plasticity, criminal justice systems can develop more humane, effective, and ethically sound responses to crime. The ultimate goal must remain the prevention of crime and the rehabilitation of offenders while upholding the dignity and rights of every individual.

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