

## Neuroscience as Revival on Lombroso's Theories

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### Abstract

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The purpose of this paper is to reflect, once again, about the dilemma of the existence of free will, and about the widening of the sphere of its implications from the legal and philosophical field to that of Neuroethics. This science tries to solve the problem of the imputability trying to understand whether a man is free to self-determination or if his conduct is inevitably influenced by the morphology of his brain and by the characteristics of its genes. The solution of these problems is essential to help the judge to decide on the criminal responsibility of the offender. Who committed a crime can be held responsible for his actions when a brain disease is detected? It is also necessary to solve the problem, that Lombroso had already posed nearly a century and a half ago, about the treatment of the 'born criminal': if he must be punished using the tools of the law or if he must be treated with solutions and adequate medical facilities. According to recent studies, the gene of crime may lie in the prefrontal cortex, area of the body where you can check if a person is destined to become a future criminal. This alarming theory has been formulated after extensive studies carried out on children, in which, according to some researchers, early signs of deviance could be identified.

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### 1. Lombroso and Positivist Science

When, in 1876, Lombroso began teaching Forensic Medicine and Hygiene at the University of Turin, for many years he had directed his studies and his research on the criminals and alienated. The attendance of asylums and prisons and several contacts with the sick had made him gain such a knowledge that he was able to set the foundation of his work *The Criminal Man (L'uomo delinquente)*, of which, in that year, he gave the first of the five editions to the press. Lombroso would formulate, later, more advanced and articulated theories with respect to his first arguments, and he would not stop to investigate on the genetic factors of the crime and on the link between crime and madness, issues that were much discussed in a cultural era which had begun to spread the new positivist science. Meanwhile, in the field of criminal law, the positive school was born as an attempt to react against the classical school, characterized by an abstract and unhistorical legal rationalism. The need to bring the law in the daily life, no longer observed in its being static but estimated in the essential link with the historical situation in which it lies, was trying to establish rules determined not to be 'good' for all time, but adapted to the social consciousness in its concrete contingency. The conception of the world, with positivism, was beginning to be funded primarily on scientific, physical and biological studies, and in Italy, which was going through many cultural changes, Lombroso's ideas were appreciated for their originality, thus attracting the interest of international intellectual circles<sup>1</sup>.

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### 1.1. Classical School and Positive School

The famous psychiatrist was soon considered one of the main protagonists of the positivist thought when he netted the attempt to coordinate the sciences that he had studied to found a new science, the criminal anthropology, of which he remains illustrious master, becoming, at the same time, one of the leaders of the positive school, or its real founder. In Italy, a lucid analysis on the meaning of punishment and of the penal schools and their basic theoretical principles is offered by the philosopher and jurist Ugo Spirito in his *The History of Italian criminal law by Cesare Beccaria in our day*<sup>ii</sup>. In this work, Spirito reveals the main reason for the contrast between the classical school and the positive school, which were established in Italy in the eighteenth and nineteenth centuries thanks to the theories of distinguished jurists such as – to name a few – Cesare Beccaria, Gaetano Filangieri, Francesco Carrara, members of the former, and Cesare Lombroso, Raffaele Garofalo and Enrico Ferri, members of the latter. During the mentioned centuries, the philosophical thought was developed in its revolutionary nature with a more negative than a constructive feeling, and in which different conceptions coexisted without being able to settle down in a systematic way. In the legal field, the natural law theories, inspired, first of all, by the Enlightenment, affirmed the existence of an ideal law whose nature is rational and divine, and were intertwined with the contractarian theories, characterized by a marked utilitarianism. The positivists, on their part, also seduced by the Enlightenment principles, but being little accustomed to the speculation, began to interpret their theories in the light of new and modern trends of thought, such as the French-English positivism, the evolutionism of Darwin, the sociology of Spencer, the eugenics of Galton, and were influenced decisively by the concept of universal determinism.

#### 1.1.1. The Dispute between the Two Schools

The reasons for the incessant debate that characterizes the comparison between the two schools in the mentioned centuries, developed primarily around the concept of punishment, whose sense and purpose change according to the different underlying principles. If the natural law identifies the purpose of punishment in the defense of a historical and transcendent justice, which degenerates into an ideology with rhetorical accents because of its alleged superhuman essence, the contractualism identifies the purpose of punishment in the defense of the social contract, which aims to protect the rights of the individual to ensure his sphere of private interests. In the classical school, in which both trends of thought were developed – that of the natural law and that of contractualism – the principle of moral responsibility of the offender, if deemed free and conscious of his actions, is upheld. For classicists, therefore, punishment has a juridical and ethical purpose and may be imposed only to a morally responsible subject. For the positivists, instead, who oppose to the theories of natural law and the social contract of the classical school with the theory of universal determinism and, therefore, with the principle of the inevitability of each offense – for which the offender must be held accountable only on a social basis – to defend society is the only aim of punishment, that is consequential and is imposed on anyone who commits a crime and represents a threat to society itself.

The positive school, therefore, that emphasizes up to boredom the errors of the classical school, that gets lost in the investigation of the crime and not of the criminal and that is more attentive to juridical essence overlooking the fact, intends to impose, against the abstractness of an alleged unhistorical and apolitical law, the tangibility of concrete scientific procedures. The followers of the classical school responded to the allegations of the positivists, but their responses lost effectiveness in an empty controversy about the relationship between law and sociology and exalted, emphatically and without order, free will against immoral determinism. In this context, the criminal anthropology of Cesare Lombroso, and his concepts of delinquent-born and delinquent-man, became very big popular in Italy and in Europe. However, according to Spirito, the pretense of characterizing the delinquent-type, and defining the various criminals from a morphologically and physiologically point of view, is doomed to fail because the physiological abnormalities can't be the cause of crime and nothing can be born only by nature, but all becomes and is spiritually conquered. Man can commit crimes, but can't be a delinquent, says the new-idealist philosopher, who will become, later, the founder of Problematicism. The theories of criminal anthropology, referring to the alleged relationship of cause and effect between anthropological characteristics and the crimes, by using natural patterns and fixed laws, can't be found in the concrete world, where there are only moral personalities that act freely. The anthropologist that performs his analysis effectively, according to Spirito, can study only the person of the offender in his specific constituents and his historical existence and realize the depth of his feelings and his moral qualities within a work of rehabilitation.

## 2. Criticism of Lombroso's Work

With the huge success, Lombroso was joined by many critics, although his scientific investigations were notable and extended to various searches and to the institution of criminal asylums, that the illustrious thinker first proposed in Italy. His *L'uomo delinquente* is a valuable array of social and scientific problems to which he tried to give an answer<sup>iii</sup>, but this work was considered often a collection of texts and articles published in a different times with a provision of heterogeneous elements and frequent and inconsistencies repetitions. They were also criticized for the lack of a uniform method of research, the failure to control the used sources, and the poor material for an adequate comparison<sup>iv</sup>. However, by this work the cultural background was begun, from which it would germinate the original criminological theory, and primarily the influence of philosophers and biologists who were busy to demonstrate the harmony that unites the soma to the psyche, from Lavater's to Della Porta's theories and to the Gall's phrenological doctrine, while Darwin's research was oriented towards a subversive conception of the crime<sup>v</sup>. On the former hand, Lombroso saw a fundamental affinity between the criminal rampage, the ingenious intuition and the epileptic crisis; on the latter, he identified in the violent behavior of offenders ancient traits of anthropoids apes. Before Lombroso, "had not been offered a serious scientific approach to the study of crime"<sup>vi</sup> and this is the reason of the disruptive impact which had his work, at the very short distance from its publication, in the world cultural era. The criminal is represented as a special anthropological type, a crazy atavistic, a specimen *sui generis* whose abnormality is due to an irregular physical and psychic development, for which he has stopped to a primitive human degree. According to Lombroso, the cause of psychic reality of man is to be found in his physical reality, as the criminal, morally degenerate, must also be corrupted in the body.

The famous psychiatrist in his work tries to establish a relationship of cause and effect between the anatomical and physiological characteristics of individuals and their criminal behavior, showing particular attention to the size of the skull, of the feet, of the nostrils, to the thickness of the hair and of the ears, and to the skin color, then to the every human characteristic of anatomical, biological and even psychological type which detects a predisposition to crime and with which it is possible to outline various types of criminals. Snatchers, swindlers, murderers, robbers would not choose evil freely, but they would be induced to do harm by a natural necessity, because they are characterized by some special morphological elements. The offender can be pushed to become what he is also because of other factors, such as race, birth rate, nutrition, alcoholism, education, imparted education; or because of natural phenomena, such as climate, meteors, topography and geology; or because of social phenomena, such as economic situation, religion, marital status, imprisonment or other crimes. The eminent psychiatrist, therefore, tried not to neglect the external factors or the value of the psychological sphere, but his theories were so marked by the important diagnostic value given at the somatic elements, to give rise to the concern that every human decision capacity would be dissolved in a hopeless biological fatalism. But there is no doubt that he was able to influence the culture with great suggestions, directing judicial practice and psychiatric, inspiring research and promoting statistical surveys in line with the methodology of the time. His passion for the photographic objectivity, favored, for example, the realistic documentation, both in psychiatry and in criminology, causing, however, the typing of the alienated and of the criminals. His continued use of statistics – transferring within static and methodical grids of learning the countless and unpredictable forms of the transgressive social world – fueled the theoretical abstractions of a sociology which underestimated the subject with his unrepeatable and unique experience life.

### 2.1. The Discovery of the Median Occipital Dimple: the Vilella Case

Lombroso funded the theory that the delinquent is an anthropological special type, and he completed his conception deciding to make "a comparison between the alienated man, prehistoric man, the wild and our"<sup>vii</sup>. This connection was realized in the winter of 1870, one morning in which, opening the skull of an outlaw, namely Giuseppe Vilella, an about-seventy-years-old Calabrian peasant who was convicted several times for theft and fire, he found instead of the occipital ridge "a median occipital dimple which is found only in some *Quadrumana*"<sup>viii</sup>. The outlaw was analyzed as the bearer of "a true median cerebellum, as can be seen just in the last lemurs"<sup>ix</sup>, an anomaly of such significance as to exclude its juridical liability. Lombroso, in fact, concluded that "a man, constructed differently from others in the organ of thought, [...] [should] unlike the other be responsible for his actions"<sup>x</sup>. The birth of criminal anthropology is traced precisely to that winter morning on which autopsy on the corpse of the bandit was performed.

While he was preparing to examine the brain of the man, finding the anomaly of the median occipital dimple, Lombroso reached the confirmation of his theories, namely the demonstration that certain organic anomalies constitute for the delinquents the proof of their regression to the primitive state that assimilates them to the beasts. The Vilella case constituted a real turning point, although for much time the illustrious thinker had conducted his investigations on the physical and mental characteristics of offenders, especially on the field of war during his medical service rendered to the army, where he had spent whole days to analyze the bodies of the soldiers, convinced that there were some important differences between honest soldiers and dishonest ones<sup>xi</sup>. But elements in his possession were not yet sufficient to give solid foundations to his ideas. The discovery of the median occipital dimple conferred finally to the well-known psychiatrist a chance to prove that his theories on the psychic-physical abnormalities of the offenders, first of all, the theory of atavism, were actually well-founded. There are, in fact, according to Lombroso, frequent monstrous regressions in the offenders which approach them to the lower animals, wild or primitive men who are back in time and unable to adapt in modern society, marked by a strong tendency to commit crimes of unprecedented ferocity and violence. The physical characteristics combined with the cultural habits, as the jargon and the tattoos of images that recall sex or other primitive instincts, as well as “the physical deformities and cultural primitive manufactures”, are all explicit signs of a developmental failure<sup>xii</sup>. The Vilella case, although widely considered as the most important and famous of all those studied by Lombroso and a necessary step in the development of the ‘born criminal’ theory, and in spite of its contribution to the development of the atavism’s theory, is the story of which we are probably less informed. Many contradictions are found in the notes of Lombroso: Vilella is sometimes described as a simple thief, other times as a bloodthirsty murderer and in the description of the autopsy there are non-negligible uncertainties on the conformation of the skull of the robber. This suggests that, probably, Lombroso has voluntarily given prominence to the discovery of the median occipital dimple to increase the focus on the newborn criminal anthropology, and has created a kind of myth around this case to defend against his detractors who accused his research, based – according to them – on prejudice and not on objective facts<sup>xiii</sup>.

### 3. The Science of Deviance

Before devoting himself to the study of criminals, Lombroso had dealt with the phenomenon of deviance, or of any human manifestation of deviation by the so-called ‘normality’ that takes the name of ‘science of deviance’. In the group of the so-called ‘abnormals’, in addition to the criminals, is placed a set of individuals who, for their physical and mental characteristics, arise out of the sphere of ‘normality’; a set very varied and criticizable, which includes women and children, because they are closer to the primitive stage; and then the morally insane, the epileptic, the mattoid, the man of genius. Continuing his studies on the origin of delinquency, Lombroso realized that the factors which came into play were increasingly complex, observation which led him to extend his investigation to other sectors and to expand his theories than the early stages of his research. During the study of the so-called ‘abnormals’, he analyzed especially the man of genius, believing that his characteristics are more similar to those of a crazy man than to those of a normal man, convinced that various pathological elements are traceable in the genius of some of the famous men of the past, similarly to what happens with crazy men. This theory is developed in one of his most famous works that, as *L'uomo delinquente*, made him famous worldwide: *Genius and Madness (Genio e follia)*, of which he published six editions<sup>xiv</sup>.

### 4. The Editions of L'uomo Delinquente

Two years after the first publication, in 1878, was printed the second edition of *The Criminal Man* with the title *The Criminal Man in relation to anthropology, law and prison frameworks*, which was followed by three more prints<sup>xv</sup>. The book retains the substance of the first issue, but the material is neater and better organized, and Lombroso takes the opportunity to respond to the criticism of those who had objected that he did not examine, in the previous edition, the psychological characteristics of the offender, reserving all his attentions to the physical ones. In the classification of offenders, next to the ‘habitual offender’, bearer of physical abnormalities and mental, that in the previous edition were given to criminals in general, Lombroso introduced two new categories: the ‘crazy delinquent’ and ‘delinquent for passion’. The novelty of the second edition of the work is therefore the chapter on the delinquents for passion, in which are found, according to Lombroso, different characteristics from those of ‘habitual delinquents’ because they are subjects pushed to criminal behavior by outbursts of anger, or by strong passions that impair their ability to control, taking them to act contrary to their character and making them fall, soon thereafter, in a strong repentance.

The addition of this chapter on 'delinquents for passion' is likely to be the answer to those who had criticized, in the first edition of the work, the exclusive analysis of the physical abnormalities of the offenders and the lack of consideration of the various factors involved in the push to crime<sup>xvi</sup>.

### 5. The Treatment of Delinquency

The criminal act is involved, according to Lombroso, in a long process of causes and effects that ends up cancelling the moral responsibility of the offender, and punishment should be free from any purpose of revenge or of absolute justice: the only purpose of punishment may be that of the social defense. Although this theory repeats the theses already supported by famous exponents of the classical school, such as Beccaria, Romagnosi, Carmignani, Carrara, the social defense considered by the well-known psychiatrist is based on the natural selection or the preservation of species, certainly not on the assumptions of social contract or on the concept of moral responsibility of which the paladins of free will are spokesmen. The finding that the offender is a being comparable to an abnormal crazy, at first, seems to cause uneasiness the same Lombroso. Before then, the solution proposed by him concerning the function of the criminal justice system was only to safeguard the society with the elimination of the possible threats that could have put it in danger. With the comparison of the offender to the crazy, as part of the 'abnormality', the situation takes on new contours: the criminal, like a crazy man, must first be isolated and treated, rather than punished<sup>xvii</sup>. Lombroso speaks then of the etiology of the crime and his research begins to aim for prevention or treatment of delinquency: the offender is an anthropological type which has a special abnormal or diseased personality whereby the society has to provide support and care to offer him the possibility of healing. Developing the concept of care combined with that of defense, Lombroso opens the path to a definition of ethics education of punishment, and criminal anthropology becomes a tool that improves the positive school with intentions more modern than those, for example, of Carrara and Pessina, mostly preoccupied with establishing the right dosage between the severity of the right infringed and the penalty to be imposed. The specific survey on the offender advocated by the criminal anthropology, therefore, despite its limitations, brings him to the forefront of criminal justice. The crime, with Lombroso, takes the value of a symptom of a serious malaise of the individual who has committed it, and establishment of liability must be reached with the diagnosis of criminal capacity and prognosis of dangerousness. The famous thinker is the mouthpiece of the need of social rehabilitation of offenders and to him we owe the introduction in Italian criminal law of criminal asylums and of innovative projects that not only permeate the doctrine, but that succeeded to inspire legislative reforms in all civilized countries<sup>xviii</sup>.

### 6. The Variesly Appropriate Punitive Systems

The theme on which Lombroso focuses his attention during the five editions of *L'uomo delinquente*, is just what concerns the punishment. Being the criminal abnormal and sick, driven to crime because of his physical and biological degeneration, the task of the society should be to treat him, offer him assistance and the possibility of healing. The punishment aims at exclusion and isolation of socially dangerous people that constitute a serious threat to society, but it should not aim at the revenge or intimidation of citizens<sup>xix</sup>. For Lombroso the biggest job must be done in advance: anthropology criminal justice must help to 'diagnose' the inclination to crime, to identify in advance the predestined to antisocial behavior by intervening before they can pose a serious danger to all. The punishment, so, to be effective, according to Lombroso, should be individualized and modeled as much as possible on the criminal rather than on the crime. The punitive systems must be based on the correlation between the punishment and the offender rather than between the punishment and the crime and appropriately evaluate the specific features of each offender. The eminent psychiatrist seeks to counter decisively a system of penalties to be imposed indiscriminately to every type of criminal, because, of course, effective penalties for some kind of criminals can be counterproductive for others. Not properly consider these differences is tantamount to compromising the objectives and the function of criminal law. The punitive systems must be 'variously appropriate' according to the different characteristics of offenders that can't be ignored, recognizing inequalities of the real world to which the law must adapt without denying them blindly. It is interesting to read what Lombroso wrote in *Troppo tardi* (Too late), a study containing notes on the new draft of Penal Code published in 1888, against the Zanardelli project, specifically in chapter *L'Italia è unita non unificata* (Italy is united not unified).

"To unify the law, really, not on paper, should level the costumes, births, sexual precocity, also should level the climate, soil, crops, otherwise the law remains similar to the *ukase* that ordered the change of language; you can torture or persecute people, but you can't make them change the language because you can't change the climate, the air, the larynx, the nerves whence arise necessary glottological modifications: the *ukase* remains only a test of 'useless barbarity of human ignorance'".

## 7. The Criminal Anthropology and Modern Neuroscience

Although Lombroso is now considered outdated, more than a century after their processing, his theories are the cultural substratum that has left many significant traces on our current system of criminal law by contributing to formulate the different classifications of offenders, including the theory developed by Enrico Ferri, which divides the criminals in five categories: born, crazy, usual, for passion, occasional. According to Lombroso, certain categories of offenders, such as the atavistic delinquent, the moral insane and the epileptic, examined and outlined in their characteristic features, can't be considered criminally responsible. The absence of criminal responsibility is explained first with atavism, which brings back to the criminals ancestral characters of a primitive condition and devoid of any moral feeling, and then with epilepsy, a clinical condition that cancels the ability of discernment in the moment in which the subject is affected by the convulsive raptus. In our criminal justice system, some figures are recognized as the 'habitual offender', which differs from the 'professional criminal' and from the 'thug for trend', and the question of holding that admits the institute of mental illness or the inability of discernment, with exclusion by criminal responsibility of the persons affected by it, in whole or in part, at the time of the implementation of the crime. The thesis of Lombroso also constitute fertile ground for the birth of modern criminal sciences. The criminal anthropology can be considered, in fact, the source of modern criminology that "embraces the origin of the laws, their violation and the response to their violation, that is the crime, the offender and the social reaction: it appears today as a complex science because it is both theoretical, namely speculative activity, systematic and controllable, but also practical, capable to limit the social harm of the crime"<sup>xx</sup>. Sciences which investigate crimes analyzing them from different points of view and different perspectives, are victimology, criminal policy, criminal law, penitentiary law, judicial psychology, criminalistics; they include in their sphere of relevance also a number of human sciences, such as medicine, sociology, psychiatry, pedagogy, psychology<sup>xxi</sup>. The term neuroscience, in fact, indicates the set of studies conducted on the nervous system encompassing various fields of knowledge, such as chemistry, computer science, medicine, mathematics, psychology, philosophy and sociology, disciplines that are highly developed in recent years due to the increase in number of scientists involved in the study of the nervous system with the use of ever more advanced techniques.

## 8. The Entry of Neuroscientists in the Courts

It is known that the high technological progress of recent decades has allowed the science in general, but especially scholars of the nervous system, to have access to increasingly sophisticated tools to examine the functioning of the brain; tools that certainly were not available to Lombroso and his students more than a century ago. Lombroso adopted, however, the rudimentary experimental method, that science in general has always used, spending most of his time in collecting data, analyzing skulls, doing autopsies, convinced that the reasons for criminal behavior would be traced in the biological elements. Today neuroscientists, like Lombroso, believe that there is a link between criminal behavior and the genetic map, and make their entry in the courts trying to formulate, with increasingly sophisticated techniques, assumptions about matters that have always been at the center of legal and philosophical reflection, such as the existence of free will, imputability, moral responsibility, and they wonder what happens to the human brain affected by congenital pathologies and how they can affect the behavior of the individual<sup>xxii</sup>. As Lombroso had proposed more than a century ago, neuroscientists are convinced that there is a genetic predisposition to the crime and there are many court cases which raise a stir for the increasingly specific and important role that they play in the processes<sup>xxiii</sup>. The advance of neuroscience in the courts leads us to reflect not only on the question of holding of persons who have committed a crime, whose genetic tests exclude the ability of sound mind, but it is leading the evolution of the same methods of investigation to produce significant consequences both in terms of procedural law and ethics<sup>xxiv</sup>. The question is therefore still the one concerning the eligibility of responsibility of the offender at the time of the implementation of the crime. If until a few years ago there was the topic of Neuroimaging techniques and genetic tests in the countries of Anglo-Saxon origin, in that they were considered essential to help the judge to decide on the criminal responsibility of the offender, today we talk about Neurolaw and the American neuroscientific techniques are crossing also borders of our country.

It is certainly interesting to see to what extent increasingly elaborated instruments employed for the study of the brain can be helpful to condemn or acquit the accused, and how they can condition the judgment on the assessment of their criminal liability in criminal events<sup>xxv</sup>. The Neurolaw can be understood in two different ways, because it represents, according to first view, the branch of neuroscience that studies how the brain gives shape and organizes basic legal concepts. From a second perspective, the Neurolaw seeks to explore the boundaries within which neuroscience can act in the field of law. In both cases, the impact on the traditional legal system is inevitable and will touch all aspects, from the concept of imputability and free will, to that of liability for the determination of the sentence.

## 9. Jurists and Neuroethics

For some years, as it has been said, in the Italian criminal trial the techniques of cognitive neurosciences were flanked to the traditional instruments of investigation measures, leading to a rethinking of the concept of scientific evidence in the criminal procedure and causing different reactions in the jurists<sup>xxvi</sup>. On the one hand, there is a group of enthusiastic for the entry into the legal landscape of these new scientific points of view, on the other, a group of critical against the aid of neurosciences in the determination of criminal responsibility. The first orientation is made from those jurists that welcome the study of genetic causes in the predisposition to crime, convinced that, after the discovery and the studies on DNA, it is essential today to understand how the genetic map, next to the psychological state, can influence the offender in the commission of the offense. The entrance of neuroscience in the courts would not represent, in any case, a revolutionary breakthrough but a contribution to the modernization of the means of investigation measures that allow the court to assess the genetic predisposition to crime as a contributory cause of mental illness, institute already governed by Italian Code, which has so far carried out the investigation through the techniques of traditional psychiatry in a “natural evolution of the methods already in use to assess the imputability”<sup>xxvii</sup>. On the opposite side is placed, however, the group of contraries, which includes those jurists who do not accept the entry of neuroscientific techniques in the courts<sup>xxviii</sup>. The proof that there is a genetic predisposition to crime in some individuals, could become, according to them, a destabilizing factor in the current system of criminal law, and the possibility that an individual is convicted or acquitted for his genes – denying at the same time, the individuality of guilt and free will of the subject – could jeopardize the investigation of the criminal law.

This question poses once again, in terms of its relevance, the dilemma of the existence of free will, and the widening of the sphere of its implications from the legal and philosophical field to that of Neuroethics<sup>xxix</sup>, science that tries to solve the problem of the imputability trying to understand whether a man is free to self-determination or if his conduct is inevitably influenced by the morphology of his brain and by the characteristics of its genes, and if those who have committed a crime can be held responsible for their actions when a brain disease is detected. It is also necessary to solve the problem, that Lombroso had already posed nearly a century and a half ago, about the treatment of the ‘born criminal’: if he must be punished using the tools of the law or if he must be treated with solutions and adequate medical facilities<sup>xxx</sup>. It is believed that behavioral tests and the practice of Neuroimaging is evidence that potentially offers a method for accurately predict human behavior, especially useful for determining criminal convictions and important to decide on the fate of criminals who are released or have to remain in prison because of the possibility committing future offenses, and to prevent the recidivism with an indication of how to rehabilitate the offender. Therefore, not only could it aid in the process of recidivism, but also in that of personal rehabilitation. In light of this information and its potential applications, the legal system seeks to create a balance between criminal liability and just punishment based on the ability to predict additional criminal activity.

## 10. The Relevance of the Juridical Figure of the Delinquent-Born

Recently, we talk about criminal brain and rather than criminal mind because the crime could be an innate trait of personality or it could develop in the early period of life<sup>xxxi</sup>. This seems to become a certainty for some neuroscientists, which, reversing the affirmation of Ugo Spirito that “man can’t be delinquent, can only commit crimes”<sup>xxxii</sup>, believe that criminals are born, not made<sup>xxxiii</sup>. According to recent studies, the gene of crime may lie in the prefrontal cortex, area of the body where one can check if a person is destined to become a future criminal.

This alarming theory was formulated after extensive studies carried out on children, in which, according to some researchers, early signs of deviance could be identified. Adrian Raine, a neuroscientist and professor of criminology at the University of Philadelphia, after performing several tests of brain scanning on detainees, was able to discover that their prefrontal cortex, delegated in the human body to regulate impulses, decisions and feelings, had instincts<sup>xxxiv</sup>. The practice to test and to refer to genetic analysis of the brain function of the perpetrators of a crime, can't bring back to mind the figure of the delinquent-born theorized by Lombroso and dropped into oblivion as outdated and disproven on charges of eugenics and fascism, while the positive sciences have gone turning to sociological theories based on factors influencing man's action only from the outside<sup>xxxv</sup>. The school of Lombroso, in fact, continued to deeply influence scholars of criminal law with the warning that the offender is considered, as mentioned, only a 'sick', and that the task of the law is not to punish him but to treat him with appropriate 'therapies' that seek to keep the dangerous subject away from society until healing has occurred.

The sentence should therefore not be commensurate with the seriousness of the act committed but adequate to the characteristics of each individual offender, and therefore proportionate to the seriousness of the disease that affects him. This theory exerted its influence and was examined by the scholars of the criminal law of the time. Lombroso, in fact, demanded, as we have seen, a reform of the entire system of criminal law and the development of 'substitute penalties' that were supposed to create social and environmental conditions that promote the prevention and cancel or dampen the crimes. The criminal trial should have been transformed "into a scientific evaluation"<sup>xxxvi</sup> based on the participation of scientist along with jurists. The well-known psychiatrist formulated several proposals on the reform of criminal procedure in order to adapt it to his theories, some aspects of which passed in the new penal Code came into force in 1931, as a result of supporters of the 'technical legal' address led by Arturo Rocco, from which it took its name, which foresaw, in art. 88 and 89, the vice of all or part of the mind, reflecting the fact that a healthy person should be punished with a sanction different from the one provided for the mentally ill<sup>xxxvii</sup>. The introduction, in the article 108, of the figure of the 'delinquent for trend' was considered a victory by the positivists; above all, the supporters of Lombroso's theories identified this legal figure with that of the delinquent-born, giving strength to the purpose, as Lombroso had hoped, that the punishment should be commensurate with the personality of the offender rather than with the nature of the offense. Another important sign of the positivist influence was the introduction of security measures, administrative penalties alternative to sanctions to be applied to the socially dangerous, which can be considered the equivalent of penal substitute conceived by Lombroso in such a way that the law becomes able to perform its primary function of prevention<sup>xxxviii</sup>. Despite the many criticisms that have been leveled at his thought, then, surely Cesare Lombroso has left us a considerable legacy. He was a pioneer, "a unique thinker"<sup>xxxix</sup>, to the level that the current hypotheses about crime developed by neuroscientists are based, as we have seen, on the genetic predisposition to crime in a revival that seems an update of his theories.

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<sup>i</sup> See V.V.A.A., Cesare Lombroso cento anni dopo (Cesare Lombroso hundred years later), Utet, Necklace La storia, Torino 2009, pp. 5–9, and R. Barri Flowers, Biological Perspectives on Delinquent Behavior, from Kids Who Commit Adult Crimes: Serious Criminality by Juvenile Offenders, pp. 99–106, 2002, (See NCJ-197664), "National Criminal Justice Reference Service" – 197671, 2002; See my *Attualità delle teorie di Cesare Lombroso e Neurolaw*, "Rivista dei Diritti Umani", 41, set-dic2014.

<sup>ii</sup> Ugo Spirito (Arezzo, September 1896 – Roma, 28 April 1979) was one of the most important thinkers and philosophers of the Italian University of Rome (together with Carlo Antoni, a pupil of Benedetto Croce, Guido Calogero, philosopher of "dialogue" and Bruno Nardi), a pupil of Giovanni Gentile and author of *La storia del diritto penale italiano da Cesare Beccaria ai nostri giorni* (published in a first edition by the publisher De Alberti, Rome 1925. Spirito in the evolution of his thought, passed from neoidealist positions to the affirmation of Problematicism. See U. Spirito, *La storia del diritto penale italiano*, cit., Editori Bocca, Roma, 1932, pp. 24–25ff. Among his works: *La vita come ricerca* (1937), *La vita come arte*, (1941), *Il Problematicismo* (1948), *La vita come amore* (1953), *Dal mito alla scienza* (1966), *Cattolicesimo e Comunismo* (1975), *Dall'attualismo al problematicismo* (1976) and autobiographical work *Memorie di un incosciente* (1977).

<sup>iii</sup> Among the critical thinkers of Lombroso, we can cite the same Raffaele Garofalo, a member of the positive school and the founder of legal psychologism. He declares his ideas in the treaty of Criminology inspired to Lombroso's positions, however, without explicit references to the criminal anthropology. For Garofalo the crime is not a mere convention established by the code, like the classical school sees it, but a fact of nature whose gravity is present in the common feeling popular. Pessimism radical of Garofalo comes from the belief that criminals are generally psychically abnormal men, many also anthropologically abnormal; and because, among many men, placed in the same position, only a few come to commit a crime, you must logically inferred that "the



prime factor of the crime is always individual, and that without it the occasional pressures remain ineffective". The crime, then, is caused by an inescapable anomaly of the individual, while the family and social influences, including economic hardship, have little weight. After Lombroso, Garofalo moves the core of the research by the analysis of the body to the psychological sphere of the individual, meaning on psychic anomaly, but without specifying, as he wrote in *Criminology*, if this has an origin entirely physical. For the lawyers, criminal anthropology don't considers enough many important issues, reducing the subject at the body and at the study of the anatomy, ignoring the complexity of the spiritual life and failing so its objectives in an almost total. Garofalo wants to make use of psychological methods and not stop at the physical features and at the outward appearance of the delinquent, wanting, instead, take a step toward its spiritual reality in the remote folds of his mind. But his attempt and his goal, like that of Lombroso, remains to fix once and for all the characteristics of the offender presuming to be able to reduce him to a genre, a type, and therefore to something objective and classifiable.

<sup>iv</sup> *L'uomo delinquente in rapporto all'antropologia, alla giurisprudenza e alle discipline carcerarie*, See P. Baima Bollone, *Cesare Lombroso e la scoperta dell'uomo delinquente (Cesare Lombroso and the discovery of the criminal man)*, Priuli & Verlucca, Torino 2009, p. 180ff.

<sup>v</sup> In 1880, Lombroso, with Ferri and Garofalo, founded the "Archives of psychiatry and criminal anthropology".

<sup>vi</sup> See V.V.A.A., *Cesare Lombroso cento anni dopo*, cit., p. 20.

<sup>vii</sup> U. Spirito, *Storia del diritto penale italiano*, cit., Part II, ch. III, Cesare Lombroso, p. 119. Spirito draws this news from a letter written by Lombroso's girlfriend on 1 January 1870, as it is reported by Gina Lombroso Ferrero in the book of Cesare Lombroso, *The History of the life and works narrated by his daughter*, Publishers Editori Bocca, Torino 1915, p. 135ff.

<sup>viii</sup> U. Spirito, *Storia del diritto penale italiano*, cit., p. 119. Taken from the Statement of the Lombard Institute of January 12, Torino 1915.

<sup>ix</sup> C. Lombroso, *The cerebellar median dimple in a criminal*, *Proceedings of the Lombard Institute*, Vol. V, dos. XVIII, Milano 1872 (excerpt). See also N.H. Rafter, P. Ystehede, *Here be dragons: Lombroso, the gothic, and social control*, in Mathieu Deflem (ed.) *Popular Culture, Crime and Social Control, "Sociology of Crime Law"*, 2010.

<sup>x</sup> C. Lombroso-Bergonzoli, *The median occipital dimple and cerebellar vermis studied on 181 alienated*, *Il Morgagni*, 1874 (excerpt).

<sup>xi</sup> See P. Baima Bollone, *Cesare Lombroso. Ovvero il principio dell'irresponsabilità (Cesare Lombroso. That is the principle of irresponsibility)*, SEI, Torino 1992, pp. 107–108.

<sup>xii</sup> See E. Musumeci, *Cesare Lombroso e le neuroscienze: un parricidio mancato. Devianza, libero arbitrio, imputabilità tra antiche chimere ed inediti scenari (Cesare Lombroso and neuroscience: a failure to patricide. Deviance, free will, attribution between ancient chimeras and unpublished scenarios)*, Franco Angeli, Milano 2012, p. 64ff. and M. Gibson, *Nati per il crimine. Cesare Lombroso e le origini della criminologia biologica (Born to crime. Cesare Lombroso and the origins of biological criminology)*, Mondadori Bruno, Milano 2008, p. 23ff.

<sup>xiii</sup> A group of critics is formed by the positivists, whose activity is aimed to identify the material and social causes of crime. Among they stands out above all Filippo Turati, who with an essay entitled *The crime and the social issue of 1882*, criticizes Lombroso's theory of atavism, while sharing in general the scientific method through which the well-known psychiatrist had attempted to analyze the characteristics of offenders. Another group of critics is formed by supporters of free will, namely the heirs of the classical school and Beccaria, as Francesco Carrara, which firmly believe that man is endowed with freedom in his choices. They are opposed to theories of Lombroso, who considers that the offender is not responsible of his shares. A harsh criticism is also made by Agostino Gemelli, member of the Catholic front, who expresses a feeling of condemnation against the science in general and, especially, against the experimental methods of criminal anthropology. But the biggest opponent of the lombrosian works is Gabriel Tarde, father of criminology French of the nineteenth century, who, in 1885, publishes *The criminal type*, a lucid critique of the theory of the delinquent-born.

<sup>xiv</sup> C. Lombroso, *Genio e follia*, 1<sup>a</sup> ed., Giuseppe Chiusi, Milano 1864.

<sup>xv</sup> The work of C. Lombroso, *L'uomo delinquente in rapporto all'antropologia, alla giurisprudenza e alle discipline carcerarie*, output for the first time in 1876, was expanded, integrated and corrected until the fifth edition of 1896–97.

<sup>xvi</sup> See P. Baima Bollone, *Cesare Lombroso. Ovvero il principio dell'irresponsabilità*, cit., p. 127ff.

<sup>xvii</sup> *Ibid.* pp. 117–118. For an interesting study of the theme, see G.M. Gkotsi, L. Benaroyo, *Neuroscience and the Treatment of Mentally III Criminal Offenders: Some Ethical Issues*, *Journal of Ethics in Mental Health*, n. 6, 2012.

<sup>xviii</sup> Among the many works of Cesare Lombroso: *Pensiero e meteore* (1878), *Sull'incremento del delitto in Italia e sui modi per arrestarlo* (1879), *Il criminaloide* (1889), *La identità dell'epilessia con la pazzia morale e la delinquenza congenita* (1892), *La donna delinquente, la prostituta e la donna normale* (1893), *Genio e degenerazione* (1897), *L'ipnotismo applicato alla procedura penale* (1887), *La psicologia dei testimoni nei processi penali* (1890). See G. Lombroso-Ferrero, *Cesare Lombroso: storia della vita e delle opere narrate dalla figlia*, Editori Bocca, Torino 1915; G. Gentile, *Cesare Lombroso e la scuola italiana di sociologia*

criminale, in *Le origini della filosofia contemporanea in Italia*, II, I positivisti, Principato, Messina 1921; D. Frigessi, Cesare Lombroso, Einaudi, Milano 2003.

<sup>xix</sup> See V.V.A.A., Cesare Lombroso cento anni dopo, cit., p. 33ff. For an interesting discussion of the argument, see Y.C. Zarka, *Je pense, donc je suis un cerveau!*, Éditorial, Revue "Cités" n. 60, 2014.

<sup>xx</sup> See G. De Vita, T. Di Bona, C. Tatarelli, *Discipline demoeoantropologiche: diritti umani, demologia giuridica, antropologia criminale* (Ethnic-human Disciplines: human rights, legal folklore, criminal anthropology), Aracne, Roma 2006, pp. 45–46.

<sup>xxi</sup> Ibid. For a current confrontation on the issue of neuroscience, see L. Naccache, *Présentation: "Cerveau et pensée", rien de neuf sous le soleil philosophique?*, Id., *Neurosciences et sciences humaines: une relation à inventer*, V. Nurock, *Faut-il décerveler la morale? Un examen philosophique de la "neuroéthique"*, F. Ramus, *Les neurosciences, un épouvantail bien commode*, J. Sackur, *Les neurosciences cognitives, ou la science naturelle de l'esprit*, Revue "Cités" n. 60, 2014.

<sup>xxii</sup> See V.V.A.A., Cesare Lombroso cento anni dopo, cit., p. 367. For an interesting discussion of the topic, see G. Rizzolatti, C. Sinigaglia, *So quel che fai. Il cervello che agisce e i neuroni specchio* (I know what you do. The brain that acts and mirror neurons), Raffaello Cortina Editore, Milano 2006; A.C. Pustilnik, *Violence on the Brain: A Critique of Neuroscience in Criminal Law*, Harvard Law School Faculty Scholarship Series. Paper 14, 2008.

<sup>xxiii</sup> The first Italian court case which saw the introduction in the criminal trial of new methods of scientific investigation, in particular the neuroscientific techniques of behavioral genetics, is the case *Bayout* of 2009. This is a judgment of Trieste's Court of Assizes of Appeal of which granted a reduction of sentence a defendant, Abdelmalek Bayout, previously convicted of first degree murder. According to the court, the defendant could not be held responsible because he was in a state of partial infirmity of mind at the time of the crime and because genetically predisposed to crime. After only two years by the *Bayout* case, the neuroscience make back their entry in Italian processes: on May 20, 2011, the Criminal Court of Como sentenced to only twenty years in prison a 28 year old girl who had brutally killed his sister and tried to kill the parents, because it recognized her in a state of partial infirmity of mind. The ruling caused a sensation because the judge issued its decision on the basis of an appraisal which employed some neuroscientific techniques.

<sup>xxiv</sup> See *Come le neuroscienze cambiano i tribunali* (As neurosciences change courts),

<http://daily.wired.it/news/scienza/2013/03/11/neuroscienze-tribunale-cambiano-prove-323456.html>.

<sup>xxv</sup> Ibid. See also D.G. Horn, *The criminal body: Lombroso and the anatomy of deviance*, New York and London, Routledge, 2003 [http://www.destinationmi.com/documents/2011MANSpresentation\\_MarkHoeprich.pdf](http://www.destinationmi.com/documents/2011MANSpresentation_MarkHoeprich.pdf); H.T. Greely, *Neuroscience and criminal justice: not responsibility but treatment*, "University of Kansas law review", 56 (5), 2008. Of Neurolaw only recently it is started to talk, and in Italy it is working for the translation and production of a specific literature. Saxon countries, however, the argument is now common by some time, as has also highlighted the jurist Eugenio Picozza in a recent meeting of "International Paths of Psychiatry" held in Rome from 20 to 22 November 2014 on the theme *Psychotherapy, PsychoPharmacotherapy, Integrated Treatments*. According to some positions, such as that of the neurologist Emilio De Caro, in the future it will require a real overhaul of the law, because when will be proven the correctness of the determinism brain will need to replace the retributivist system with the consequentialist one.

<sup>xxvi</sup> See *La libertà personale e le neuroscienze cognitive* (Personal freedom and cognitive neuroscience), <http://eprints-phd.biblio.unitn.it/1067/>.

<sup>xxvii</sup> See E. Musumeci, *Cesare Lombroso e le neuroscienze*, cit., p. 121ff.

<sup>xxviii</sup> See *Diritto e neuroscienze finalmente insieme* (Law and neuroscience finally together),

<http://www.scienzainrete.it/contenuto/articolo/diritto-e-neuroscienze-finalmente-insieme>. See also L. Pignatell et O. Oullier, *Les neurosciences dans le droit*, Revue "Cités", n. 60, 2014.

<sup>xxix</sup> The term "Neuroethics" was used for the first time in the conference "Neuroethics: Mapping the Field" of 2002. See A. Roskies, *Neuroethics for the New Millennium*, "Neuron", 35, 2002, pp. 21–23. The term "Neurolaw" was used, instead, by neuroscientist and lawyer J. Sherrod Taylor in 1991. The book by J.S. Taylor, *Neurolaw: Brain and spinal cord negligence*, Clark Boardman Callaghan, New York in 1997, was used by lawyers in order to introduce properly the medical jargon in the classroom and to develop the implications of neuroscience on litigation. The connection between neuroscience and law is also analyzed from the project "Law and Neuroscience" of 2007 which will provide further evidence on how neuroscience can be able to change the law. This new field of study has attracted the interest of several universities, including the Baylor College of Medicine in Houston and the Center of Excellence of CAS–Penn University of Pennsylvania. The University of Pennsylvania's Center for Neuroscience and Society began in July 2009, and is working towards confronting the social, legal, and ethical inferences of neuroscience.

<sup>xxx</sup> The tendency of the criminal justice system of the United States has always been to limit the degree to which you can claim the innocence on the basis of mental illness. During the middle of the 20th century, many courts, through the Durham Rules and the American Law Institute Model Penal Code, among others, took into account, for the defense of insanity, the volition compromised by legitimate reasons. However, when John Hinckley was acquitted due to insanity, a reversal of opinion occurred, which then spurred a narrowing definition of mental illness. Decisions became increasingly based on the rules of the M'Naghten Rules, which made more difficult the chance to be recognized and processed as mentally disabled. Contemporary research conducted on the prefrontal cortex, however, has criticized this point of view, because it believes that in some subjects is seriously

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compromised volition as a determinant factor of a crime. Many judges are now considering 'irresistible impulse' as a legitimate reason to define mental illness. One of the factors that neuroscience has added to the insanity defense is the claim that the brain "made someone do it". In these cases, the argument is based on an understanding that decisions are made before the person is able to consciously realize what is happening.

xxxi See Quasi 150 anni dopo tornano di attualità le teorie di Cesare Lombroso (Nearly 150 years after they return current Cesare Lombroso's theories), <http://www.poliziapenitenziaria.it/public/post/blog>.

xxxii See supra paragraph 1.1.1.

xxxiii See Quasi 150 anni dopo tornano di attualità le teorie di Cesare Lombroso, cit.

xxxiv All men have violent instincts, and the prefrontal cortex would serve their to keep them under control, unless it is broken. Raine would have discovered that some criminals suffer from deficits of emotional capacity, identifying some of that, more than not distinguish right from wrong, they don't understand good or evil because of a reduced function of the amygdala. According to Raine, therefore, it would be appropriate to control the brain until from childhood to prevent criminal instincts, even if the brain of infants is fortunately malleable and, therefore, for a certain period of time, preserves the possibility of change. Most of the problems are already present during pregnancy, then the research was carried out on Danish prisoners, with mothers who smoked or drank during pregnancy, some born in forced mode or with lack of oxygen, others abandoned. Another factor found, always of biological origin, is the total absence of fear in the thought process, which can sometimes help (as in the case of athletes), but, along with other factors, it may become another serious threat to the release of criminal instincts. See A. Raine, *The Psychopathology of Crime: Criminal Behavior as a Clinical Disorder*, San Diego, Academic Press, 1993; see Quasi 150 anni dopo tornano di attualità le teorie di Cesare Lombroso, cit.

xxxv See Quasi 150 anni dopo tornano di attualità le teorie di Cesare Lombroso, cit.

xxxvi See P. Baima Bollone, *Cesare Lombroso e la scoperta dell'uomo delinquente*, cit., p. 315–316.

xxxvii See V. Lusa, M. Borrini, *L'atto criminale. Antropologia e scienze forensi per un'indagine sul male (The criminal act. Anthropology and forensic science for an investigation over evil)*, Lo Scarabeo Editrice, Milano 2008, pp. 91–92.

xxxviii See M. Gibson, *Nati per il crimine. Cesare Lombroso e le origini della criminologia biologica*, cit., p. 340ff.

xxxix See P. Baima Bollone, *Cesare Lombroso e la scoperta dell'uomo delinquente*, cit., p. 344–345.