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**The tyranny of the Organism.  
Criminal liability between anthropology,  
morality and neuroscience<sup>1</sup>**

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ABSTRACT: Abstract: This text focuses on the theme of criminal responsibility in Italian legal science at the end of the 19th century, when the development of new sciences such as comparative medicine, anthropology and sociology, favoured by the rise of positivism and Darwinism, radically changed the concept of criminal liability. In the following pages, I discuss the denial of free will in favour of the determinist theses expressed first by Cesare Lombroso and his criminal anthropology, and then by a series of jurists who prefer to hold that crime is generated by social factors, and that this being the case, the moral order of a society must be taken into account, which is the only way to maintain the notion of guilt in the penal system. In the end, a final mention is made of the impact of neuroscience, which once again seems to compress the freedom of the human will.

KEYWORDS: Criminal Liability, Cesare Lombroso, Bernardino Alimena, Social determinism, neuroscience.

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### 1. *The case of Phineas Gage and the crisis of the concept of criminal responsibility*

«I have the pleasure of being able to present to you, to-day, the history and sequel of a case of severe injury of the head, followed by recovery, which, so far as I know, remains without a parallel in the annals of surgery»<sup>2</sup>; thus begins Dr. John Harlow's description of the afternoon of September 13, 1848, when one of his patients, Phineas Gage (1823-1860), a young worker employed in the construction of the Vermont railroad, was tragically involved in an accident that would change his life<sup>3</sup> and also change the general knowledge of the human brain<sup>4</sup>. That day Gage inserted the dynamite charge on a boulder to be blasted, the iron used to push the explosive charge, probably in contact with the rock, causes a spark that produces an immediate and uncontrolled explosion. Gage's body is thrown many meters away, while the iron rod «passing completely through his head, and high into the air», is found meters away from the young worker «smeared with blood and brain»<sup>5</sup>. The iron pushed by the explosion became a projectile about one meter long, 6 kg in weight and 3 cm wide, that pierced the left cheek of the unfortunate, and escaping from the upper part of the head «at the back part of the frontal bone, near the coronal suture». However, after this terrible incident, Gage is still alive, even appears lucid and is even able to stand up and speak. The days that follow the accident are very long and difficult for Gage, the surgical interventions of Dr. Harlow are fundamental,

<sup>2</sup> J. Harlow, *Recovery from the passage of an iron bar through the head*, Boston 1886.

<sup>3</sup> For a complete treatment of all the events please consult: M. Macmillan, *Odd Kind of Fame: Stories of Phineas*, Cambridge 2000.

<sup>4</sup> On the importance of the Gage case for the medical sciences studying the functioning of the human brain see: M. Macmillan, *A wonderful journey through skull and brains: the travels of Mr. Gage's tamping iron*, in «Brain and Cognition» V, 1 (1986), p. 67 - 107; FG. Barker, *Phineas among the phrenologists: the American crowbar case and nineteenth-century theories of cerebral localization*, in «Journal of Neurosurgery», LXXXII, 4 (1995), p. 672 - 682; J.D. Van Horn, A. Irimia, CM. Torgerson, MC. Chambers, R. Kikinis, et al. *Mapping Connectivity Damage in the Case of Phineas Gage*, in «Plos One» VII, 5 (2012), <https://doi.org/10.1371/journal.pone.0037454>; M. Thiebaut de Schotten, F. Dell'Acqua, P. Ratiu, A. Leslie, et al. *From Phineas Gage and Monsieur Leborgne to H.M.: Revisiting Disconnection Syndromes*, in «Cerebral Cortex», XXV, 12 (2015), p. 4812 - 4827. Analyses some famous cases of cognitive pathologies or disorders and the consequences in terms of criminal liability and law Paolo Marchetti. For example, Felida X and his dual personality, the hypothesis of somnambulism and hypnosis, the criminal crowd, etc. See P. Marchetti, *L'inconscio in tribunale. Azioni incoscienti e diritto penale. Da Charcot alle Neuroscienze*, Milano 2014.

<sup>5</sup> J. Harlow, *Recovery from the passage of an iron bar through the head*, cit., p. 5.

who with expertise manages to avoid infections and more serious consequences. Two months later, Gage has lost his left eye, has a scar on his head and is practically returned to his usual life, showing no other outward signs of the terrible accident; however, important behavioral changes emerge, Harlow writes:

His physical health is good, and I am inclined to say that he has recovered. Has no pain in head, but says it has a queer feeling which he is not able to describe. [...] The equilibrium or balance, so to speak, between his intellectual faculties and animal propensities, seems to have been destroyed. He is fitful, irreverent, indulging at times in the grossest profanity (which was not previously his custom), manifesting but little deference for his fellows, impatient of restraint or advice when it conflicts with his desires, at times pertinaciously obstinate, yet capricious and vacillating, devising many plans of future operation, which are no sooner arranged than they are abandoned in turn for others appearing more feasible. A child in his intellectual capacity and manifestations, he has the animal passions of a strong man. Previous to his injury, though untrained in the schools, he possessed a well-balanced mind, and was looked upon by those who knew him as a shrewd, smart business man, very energetic and persistent in executing all his plans of operation. In this regard his mind was radically changed, so decidedly that his friends and acquaintances said he was “no longer Gage”<sup>6</sup>.

After the accident Gage is no longer the same person from the moral and behavioral point of view, he has become irreverent and aggressive, often intractable and prey to mood swings; he carries with him everywhere the iron rod that almost killed him and becomes the main attraction of a circus in which he tells his story; he will die on May 10, 1861, twelve years after the accident. As in a Robert Louis Stevenson novel<sup>7</sup>, it seems that the incident favored the surfacing of Gale’s evil side, limiting the good part of his conscience.

Over the years, the case has attracted the interest of many neuroscientists who have exhumed Gale’s body and analyzed the man’s skull with modern technology<sup>8</sup>. According to the analysis the accident seems to have compromised the frontal orbito cortex celebrating provoking damages to the neuronal

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<sup>6</sup> *Ivi*, p. 14.

<sup>7</sup> Cf. R. L. Stevenson, *Strange Case of Dr Jekyll and Mr Hyde*, London 1886.

<sup>8</sup> See: H. Damasio, T. Grabowski, R. Frank, AM. Galaburda, AR. Damasio, *The return of Phineas Gage: Clues about the brain from the skull of a famous patient*, in «*Science*», 264 (1994), p.1102-1110; M. Macmillan, *Commemorating the 150th anniversary of Phineas Gage’s accident*, in «*Journal of the History of the Neurosciences Basic and Clinical Perspectives*», IX (2000), p. 90-93; B. Kolb, I. Whishaw (eds.), *Brain and Behaviour Revisiting the Classic Studies*, Los Angeles 2016; and in particular the essay of Antoine Bechara, *Revisiting Phineas Gage - Lessons we learned from damaged brains*.

connections and going so to compromise some perceptions of the victim, and above all changing its behaviour<sup>9</sup>. In the opinion of the famous neuroscientist Antonio Damasio the lesions to the ventromedial prefrontal cortex is the cause of Gage's behavioral variations, that even keeping intact his cognitive abilities his emotional and moral sensitivity would have been greatly compromised, as it happened in other patients in much more recent times, whose emotional and moral abilities would be significantly connected to the presence of lesions in the ventromedial prefrontal cortex<sup>10</sup>. On the extraordinary Gage case Damasio writes:

Gage's story hinted at an amazing fact: Somehow, there were systems in the human brain dedicated more to reasoning than to anything else, and in particular to the personal and social dimension of reasoning. The observance of previously acquired social convention and the ethical rules could be lost as a result of brain damage, even when neither basic intellect nor language seemed compromised. Unwittingly, Gage's example indicated that something in the brain was concerned specifically with unique human properties, among them the ability to anticipate the future and plan accordingly within a complex social environment; the sense of responsibility toward the self and others; and the ability to orchestrate one's survival deliberately, at the command of one's free will. The most striking aspect of this unpleasant story is the discrepancy between the normal personality structure that preceded the accident and the nefarious personality traits that surfaced thereafter and seem to have remained for the rest of Gage's<sup>11</sup>.

This is not the place to analyze in detail the neuroscientific theses confirming the connection between the morphology of the brain and the behavior of the individual, it is sufficient to affirm, in the introduction of this contribution, that the same conclusions were reached by some Italian physicians and anatomists during the 19th century, who are among the first to connect the behavior of individuals to the shape of their brain, proposing to revolutionize the concept of free will and placing a new vision of human action in all fields of knowledge even in law, given that no one can be responsible for actions that he did not want to commit; after all, without freedom of action there can't be crime.

The history of Phineas Gage, therefore, allows us to introduce the scientific discoveries that in the nineteenth century caused, and at the same time tried to solve, the crisis of the concept of criminal responsibility. The crisis of European

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<sup>9</sup> Relative to the connection between frontal lobe and behavior: F. Lhermitte, B. Pillon, M. Serdaru, *Human autonomy and the frontal lobes. Part I: Imitation and utilization behavior: a neuropsychological study of 75 patients*, in «Annals of Neurology», XIX (1986), p. 326-334.

<sup>10</sup> Cf. D. Koenigs, L. Young et al., *Damage to the prefrontal cortex increases utilitarian moral judgments*, in «Nature», 466 (2007), p. 908-911.

<sup>11</sup> A. Damasio, *Descartes' Error. Emotion, Reason, and the Human Brain*, New York 1994, p. 10.

criminal law is evident in the statistics of the time, in France, for example, the *Compte général de l'administration de la justice criminelle en France pendant l'année 1880 et rapport relatif aux années 1826 à 1880*<sup>12</sup> gives a worrying balance of the increase in French crime; in the last thirty years delinquency has tripled and the percentage of recidivism<sup>13</sup>, which in 1826 was 8%, in 1880 rose to 56%<sup>14</sup>. In Italy, the new Kingdom had to come to terms with the rule of the «knife and revolver», which had become the «sad symbol of the Italians»<sup>15</sup> in view of the increase in crime and recidivism<sup>16</sup>, as well as the emergence of new harmful conduct linked to the new industrial, banking and urban structure of society<sup>17</sup>, conduct which was not however provided for as a crime by the penal codes of the time<sup>18</sup>. The

<sup>12</sup> Today it is possible to consult the statistical report in the republication edited and commented by M. Perrot, P. Robert, *Compte général de l'administration de la justice criminelle en France pendant l'année 1880 et rapport relatif aux années 1826 à 1880*, Genève - Paris 1989.

<sup>13</sup> Analyses the subject of recidivism and the theories produced between the 19th and 20th century from different fields of knowledge P. Marchetti, *L'armata del crimine. Teoria e repressione della recidiva in Italia. Una Genealogia*, Ancona 2008. About the figure of the *incorrigible criminal* and recidivism see: N. Derasse, «*L'incorrigible*»: un autre regard sur la récidive, in M. Bassano, L. Brunori, C. Ciancio, F. Garinier (eds.), *La volonté. Italie-France Allers-Retours*, Toulouse 2022, p. 455-470.

<sup>14</sup> Read more: J-M Carbasse, *Histoire du droit pénal et de la justice criminelle*, Paris 2014.

<sup>15</sup> N. Colajanni, *L'omicidio in Italia*, in «*Rivista Penale*», LIII (1901), p. 5-25: 5. The author reconstructs, with statistics at hand, the influence of homicide in Italian society between the 19th and 20th centuries. Please note: the translation of Colajanni's words is mine. Likewise, for the quotations between the quotation marks « », that follow in the text, and also the quotes in the centre of the page from Italian jurists.

<sup>16</sup> F. Virgili, *La criminalità italiana secondo le ultime statistiche penali e carcerarie*, in «*La scuola positiva nella dottrina e nella giurisprudenza penale*», II (1911), p. 433-455. A. Bosco, *La delinquenza in vari stati d'Europa*, Roma 1903. For a direct study of crime rates, see the ISTAT data in Istituto Centrale di Statistica, *Sommario di statistiche storiche italiane, 1861-1955*, Roma 1958. In more general terms on the Italian criminal question L. Lacchè, M. Stronati (ed.), *Questione criminale e identità nazionale in Italia tra Otto e Novecento*, Macerata 2014.

<sup>17</sup> From the early 1860s, a series of new analyses of the criminal phenomenon developed, from which emerged a state of profound inadequacy of criminal law to regulate society, in particular numerous crimes related to the new socio-economic conditions were committed. There is a growing difference between provincial crimes: such as rebellion, vagrancy, theft of livestock and tools; and city crimes: exploitation of prostitution, alcoholism, gambling, usury and general property crimes.

<sup>18</sup> An author who was particularly sensitive to these issues was Pietro Ellero (1833-1933) who, in his work *La tirannide Borghese* of 1879, identified a series of new criminal behaviours that were not considered crimes or were punished lightly because, in his opinion, they were carried out by the social class that held power: the bourgeoisie. On the same subject we can also cite: F. Turati, *Il delitto e la questione sociale. Appunti sulla questione penale*, Milano 1883, and G. B. Impallomeni, *Il diritto penale è diritto di classe?*, in «*Critica Sociale*», XV, 14-15 (1905), p.

development of the *questione meridionale*<sup>19</sup> and *brigantaggio*<sup>20</sup>, from the 1860s onwards, highlighted the inadequacy of the penal system, which reacted extremely harshly and with liberticidal measures to the discontent of the populations of southern Italy<sup>21</sup>. The reasons for the crisis of the criminal justice system are to be found in the profound changes that affected European society in the 19th century, changes that did not seem to affect the law, because of the new socio-legal approach following the French Revolution. At the heart of nineteenth-century law, in fact, is the need to overcome the *legal particularism* of the old regime, so the new society is created on the concept of the *citizen man*, an individual purified of all social contamination, whose aggregation gives rise to a group of men all equal and endowed with the same rights and duties. The protagonist of nineteenth-century European law is a *non-person* individual whom Paolo Grossi defines as «without earth and without sky», extracted and isolated from social reality «un uomo astratto, che non esisteva in nessun luogo, [...] un uomo cioè dalla umanità rarefatta, una sorta di robot che esiste solo in quel

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237-328. Cf. P. Schirò, *From Pietro Ellero to Enrico Ferri: the genesis of Penalistica Sociale*, in «Italian Review of Legal History», VII, 8 (2021) p. 257-291.

<sup>19</sup> For a lucid look at the origins and spread of the *questione meridionale* (southern question), see Napoleone Colajanni's collection of writings on the subject, *La questione meridionale. Scritti e discorsi*, edited by A. M. Cittadini Cipri, Roma, Bibliopolis, 1994. Also, the essential but complete summary by G. Pescosolido, *La questione meridionale in breve: centocinquant'anni di storia*, Roma 2017.

<sup>20</sup> F. Molfese, *Storia del brigantaggio dopo l'Unità*, Milano 1979; and also R. Martucci, *Emergenza e tutela dell'ordine pubblico nell'Italia liberale. Regime eccezionale e leggi per la repressione dei reati di brigantaggio (1861-1865)*, Bologna 1980. While on the figure of the *brigante* (bandit) the essay of M. Stronati, *Il brigante tra antropologia e ordine giuridico: alle origini di un'icona dell'uomo criminale nel XIX secolo*, «Quaderni Fiorentini per la storia del pensiero giuridico moderno» XXXVIII, I (2009), p. 953-1008.

<sup>21</sup> Regarding the crisis of the Italian liberal state, halfway between the need to control society and liberal principles, see the essays by L. Mangoni, *La crisi dello Stato liberale e i Giuristi italiani*, in A. Mazzacane (ed.), *I giuristi e la crisi dello Stato liberale in Italia tra Otto e Novecento*, Napoli 1986, p. 29-56; as well as the contribution in the same volume by R. Gherardi, *Le libertà limitate: "discentramento" e liberalismo tra vecchio e nuovo Stato*, p. 259-272. While with reference to the history of criminal law and the question of liberty, certainly concerning the principle of legality, the volume XXXVI of 2007 of *Quaderni Fiorentini per la storia del pensiero giuridico moderno* entitled: *Principio di legalità e diritto penale*; especially the two essays contained therein, by P. Costa, *Pagina introduttiva (Il principio di legalità: un campo di tensione nella modernità penale)*, p.1-42, and F. Colao, *Il principio di legalità nell'Italia di fine Ottocento tra "giustizia penale eccezionale" e "repressione necessaria e legale [...] nel senso più ritto e saviamente giuridico, il che vuol dire anche nel senso più liberale"*, p.697-742. Again, L. Lacchè, *Le crisi dell'ordine penale liberale i livelli della legalità tra Otto e Novecento nell'esperienza italiana*, in «Revista brasileira de ciências criminaís», 131 (2017), p.187-221.

paradiso artefatto [...] che è lo stato di natura delle correnti secolarizzate giu-snaturalistiche»<sup>22</sup>. This conception of law and the citizen, which was so necessary at the beginning of the century, turned out to be completely unsuitable for the regulation of society as a result of the great socio-cultural changes that insisted on the 19th century, and crime is a clear sign of this unsuitability. The metaphysical and naturalistic criminal law, designed on the undifferentiated individual, necessarily equal among equals, soon became the result of an artificial law, made up of narrow legal figures incapable of adapting to the vibrant human reality. Now the individual is changing his features, and the all the same shapes drawn by the law are made original and unmistakable by the action of society, which demands a new notion of freedom adaptable to the conception of the individual in society and therefore not abstract, but historicised and adapted to the heterogeneous needs of each individual.

So, during the nineteenth century, an extraordinary transformation of the face of Europe took place in a short time period. Significant changes occurred on several fronts, including scientific, economic, social and cultural. From the 1860s, there was a movement away from the *Ancien régime* and towards secularism. New movements developed in all fields of knowledge that were oriented towards the rediscovery of the individual as a social being.

The era of sociality was marked by theories of social Darwinism, Spencer's evolutionism, Marx's communism and Comte's sociology<sup>23</sup>. Society as the object of analysis was conceived of as a living organism; therefore, all the laws linked to organic factors also applied to social phenomena<sup>24</sup>. Industrialisation also changed the face of society, leading it towards an increasingly communal and *class-based* structure. Individualism and formal legal equality – the two main paradigms of post-French Revolution Europe – were shattered by the irresistible impact of the social<sup>25</sup>.

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<sup>22</sup> P. Grossi, *Mitologie giuridiche della modernità*, Milano 2007, p. 149. The italics are instead of Hannah Arendt, *Le origini del totalitarismo*, Milano 1997, p. 404, quoted by Grossi in his text.

<sup>23</sup> For further detail on the birth and development of nineteenth-century ideas and sciences, particularly positivism, see the collection of essays contained in E. R. Papa (ed.), *Il positivismo e la cultura italiana*, Milano 1985; the third volume of the collection: «Il pensiero politico idee teorie e dottrine», by G. Pasquino, entitled *Ottocento e Novecento*, Torino 1999. Also the book L. Cavazzoli - C. G. Lacaíta (ed.) *Riforme e istituzioni fra otto e Novecento*, Manduria-Bari-Roma 2002; Last: M. Degl'Innocenti, *La cultura delle riforme tra Otto e Novecento*, Torino 2003.

<sup>24</sup> Cfr. Y. Cartuyvels, A. Masferrer, *An introduction to the birth of criminal positivism in Europe and Latin America at the end of the 19th century: rise and resistance*, in «Glossae. European Journal of Legal History» XVII (2020), p. 1-21.

<sup>25</sup> On the subject: F. Mazzarella, *Darvinismo, storicismo, socialità. «La nuova tendenza» di Giuseppe Vadalà-Papale*, «Quaderni Fiorentini per la storia del pensiero giuridico moderno», XLI

The initial rediscovery of the social only marginally involved the jurists. The «immovable jurists»<sup>26</sup>, who were tied to the exegetical tradition of law and opposed the contamination and socialisation of the legal system, were flanked by the «juristes inquiets»<sup>27</sup>, who perceived the crisis of law and understood the need for socialisation to satisfy the new demands of society. They argued that laws must follow the people's needs that come from below and reflect the image and likeness of the society that created them in order to govern. New sciences such as anatomy, forensic medicine, psychiatry, criminal anthropology and sociology began to reflect on the question of criminal law, giving new perspectives to jurists.

From these social and cultural premises emerges a profound decline of criminal law, the idea of free will enters into crisis and with it the freedom to act<sup>28</sup> and therefore the traditional concept of criminal responsibility, which is overtaken by determinist suggestions<sup>29</sup>. From this context the Italian Positive School developed with its atavistic determinism, and subsequently European social

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(2012), p. 583-626.

<sup>26</sup>Cimbali writes: «si agitano pure, spargendo dappertutto grida di allarme e di spavento, gli immobilisti delle scienze». Cimbali defines as immobile those scientists of his time who are hostile to the new sciences and to the socialization of law, to these «fanatici adoranti del passato» are opposed «gli innovatori negli ordini scientifico-sociali». E. Cimbali, *Obbligazioni civili complemento e funzione della vita sociale, prolusione letta il 25 gennaio 1887 nella Università di Messina*, (1887) ora in *Opere Complete*, Torino 1900, p. 297-321: 318 and 320. See A. Di Majo, *Enrico Cimbali e le idee del Socialismo giuridico*, in «Quaderni Fiorentini per la storia del pensiero giuridico moderno», III-IV (1974-75), p. 384-429. Also: F. Mazzarella, *Dialoghi a distanza in tema di socialità e storicità del diritto*, in «Quaderni Fiorentini per la storia del pensiero giuridico moderno», XLIV (2015), p. 381-423.

<sup>27</sup>Paul Cuche observes a certain uneasiness of the scientists, and in particular of the jurists of the late nineteenth century towards the crisis of criminal law judged unable to regulate the society that is called to govern. He claims to belong to the Juristes Inquiets, whose concern is evidenced in the ability to perceive the crisis of law, which needs to take into account the results of the new social sciences in order to fully meet the new demands of society. For more about the *Juristes Inquiets* see: Marie-Claire Belleau, *Les juristes inquiets: classicisme juridique et critique du droit au début du XXe siècle en France*, en «Les Cahiers de droit», XL, 3 (1999), p. 507-544. This same concern is perceived by many European scientists including doctors such as Cesare Lombroso, in this sense see: D. Velo Dalbrenta, *La scienza Inquieta. Saggio sull'Antropologia criminale di Cesare Lombroso*. Padova 2004; and more generally: A.-J. Arnaud, *Les juristes face à la société du XIXe siècle à nos jours*, Paris 1975.

<sup>28</sup> On the individual's loss of certainty in the face of an increasingly complex society, results in a general distrust of the freedom of individuals in favour of determinism, see: J. Moleschott, *Der Kreislauf des Lebens*, Mainz 1855.

<sup>29</sup> In general, on the relationship between freedom and determinism in the 19th century: A. Fouillée, *Liberté et déterminisme*, Paris 1884.



criminal law with its social determinism, different responses to the crisis of the concept of criminal liability.

## 2. *The secret of delinquency a tyranny of the organism*

Tout à coup, un matin d'une triste journée de décembre, je trouve dans le crâne d'un brigand toute une longue série d'anomalies atavistiques, surtout une énorme fossette occipitale moyenne et une hypertrophie du vermis analogue à celle que l'on trouve dans les Vertébrés inférieurs<sup>30</sup>.

Cesare Lombroso (1835-1909) says he revealed the secret of delinquency by studying the skull of the brigand Villella<sup>31</sup>. He claims to have discovered proof of the atavism of the criminal phenomenon and identifies the figure of the born criminal, the protagonist of his *L'uomo delinquente* of 1876, a fundamental work not only for criminology and forensic medicine but also for criminal law. According to the Italian doctor's studies, the «germs of moral insanity and delinquency», the first signs of «monstrosity», are found in the «foetus»<sup>32</sup> and can develop throughout the life of the subject, who is pathologically destined to show his involution through various forms: madness, criminality, alcoholism, vagrancy; therefore he argues that modern medicine, renewed by pathological anatomy, physiology, embryology and above all psychiatry and forensic medicine, is able to solve the crisis of criminal law by replacing the concept of free will of classical criminal law, with the concept of atavistic and biological determinism. The professor himself explains the reasons that prompted him to study the phenomenon of crime, namely «the tide of crime that rises and rises, and threatens to submerge us, without anyone thinking of putting up dykes against it»<sup>33</sup>, and so the doctor tries to find a solution to the unstoppable increase in crime that the legal world seems unable to arrest. Since Lombroso, other doctors, psychiatrists, sociologists and philosophers have also intervened in the field of criminal law<sup>34</sup> with their theories enlightened by the new social sciences,

<sup>30</sup> C. Lombroso, *Discours d'ouverture du VI<sup>e</sup> congrès d'anthropologie criminelle*, in «Archives d'anthropologie criminelle de criminologie et de psychologie normale et pathologique», V (1906), p. 665-667.

<sup>31</sup> See: M. Renneville, *Un cranio che fa luce? Il racconto della scoperta dell'atavismo*, in S. Montaldo e P. Tappero (ed.), *Il museo di antropologia criminale di Cesare Lombroso*, Torino 2009, p. 107-112.

<sup>32</sup> C. Lombroso, *L'uomo delinquente, in rapporto all'antropologia, alla giurisprudenza ed alle discipline carcerarie*, I, IV ed., Torino 1880, p. 95.

<sup>33</sup> C. Lombroso, *Sull'incremento del delitto in Italia e sui mezzi per arrestarlo*, Torino 1879, p. III.

<sup>34</sup> On the reasons for the influence of medicine on criminology and on the Positive School see M. Portigliati-Barbos, *Medicina ed antropologia criminale nella cultura positivista*, in *Il positivismo*

which aim to explain the criminal phenomenon through a physiological investigation of the individual, studying the subject in the same way as positive science studies the object<sup>35</sup>. The introduction of the new sciences into criminal law found general consensus from almost the entire world of criminal science, but above all from two jurists, Enrico Ferri (1856-1929) and Raffaele Garofalo (1851-1934). It was with the latter that Lombroso founded the *Archivio di psichiatria, scienze penali ed antropologia criminale* (Archive of Psychiatry, Criminal Sciences and Criminal Anthropology) in 1880, which became a point of reference for all intellectuals interested in criminal anthropology<sup>36</sup>.

New research on crime and criminals gradually spread, such as the psychological study of criminals; the analysis of hereditary and evolutionary factors involving the offender; the influence of the physical and natural environment on the determination of the crime; up to the start of a social turning point, with the attempt to analyse and explain the criminal phenomenon on the basis of the social, historical and cultural influences that the offender undergoes. In particular, Lombroso and his criminal anthropology start the meticulous study of the

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*e la cultura italiana*, cit., p. 430-443; and also: A. Bargoni, *Affermazione e sviluppo del positivismo in medicina*, in «Diritto penale XXI secolo», X, 2 (2011), p.207-217.

<sup>35</sup> More generally, many of the themes affirmed in the last twenty years of the nineteenth century were already hinted at the end of the eighteenth century by doctors and phrenologists sensitive to the criminal question. It is enough to refer to Gall's phrenology, in particular to the medical-scientific discoveries of the early nineteenth century, which favoured the spread of criticism of the penal codes. For example, the *société phrénologique de Paris* of 1831 criticised the French penal code for its scanty treatment of mental illness and its consequences. Along the same lines Luigi Ferrarese (1795-1855) doctor and phrenologist, who criticised articles 61 and 62 of the Penal Code of the Kingdom of the Two Sicilies. Still on the subject it is possible to cite Giovanni Stefano Bonacossa (1804-1878) and Giuseppe Luigi Gianelli (1799-1872), doctors who expressed themselves critically on the penal code and on medico-legal expertise in the Italian system, (See Simone Baral, *Le phrénologiste au tribunal. Notes pour une recherche sur le cas italien*, «Criminocorpus, Folie et justice de l'Antiquité à l'époque contemporaine», Articles, mis en ligne). Finally, we must mention Adolphe Quetelet with his main works on criminal statistics: *Recherches sur le penchant au crime aux différentes ages* of 1832 and *Sur l'homme et sur le développement ses facultés ou Essai de physique sociale* of 1835. More specifically, on the precursors of Cesare Lombroso and his criminal anthropology, see: the volume *L'opera di Cesare Lombroso nella scienza e nelle sue applicazioni*, edited by G. Amedei, Torino 1908, and in particular the essay therein by E. Morselli, *Cesare Lombroso e l'antropologia generale*, p. 1-31. In general about frenology and law: A. Cesaro, G. Palermo, M. Pignata (ed.), *Mundus Alter, Dialoghi sulla follia*, Rende 2022.

<sup>36</sup> Cf. D. Velo Dalbrenta, *La scienza inquieta*, cit., p. XLII. For an in-depth look at Lombroso's review see: P. Marchetti, *Cesare Lombroso e l'«Archivio di psichiatria»* in L. Lacchè, e M. Stronati (eds.), *Una tribuna per le scienze criminali. La cultura delle riviste nel dibattito penalistico tra Otto e Novecento*, Macerata 2012, p. 69-96.

body of the *criminal man* in search of the sign of the crime. Delinquents are subjected to analyses and comparisons with *normal individuals* in order to identify a physical malformation or the presence of a pathology capable of provoking the criminal phenomenon, a proof of a lack of evolution of the individual, who, like a savage, therefore, commits a crime<sup>37</sup>, with the intention to discover and stop dangerous individuals<sup>38</sup>. These theories are imbued with an obvious social Darwinism<sup>39</sup> and an exasperated evolutionary positivism that leads a group of doctors to search, often too zealously<sup>40</sup>, for evidence of involution and delinquency. Scientists such as Lombroso, Lorenzo Tenchini (1852-1906), Salvatore Ottolenghi (1861-1934) and Mario Carrara (1886-1937)<sup>41</sup> began to meticulously study the bodies of criminals by comparing them with those of *normal* individuals in search of the sign of deviance, certain of finding the atavistic stigma of delinquency; In this way, the presence of tattoos, the shape and composition of the beard, the greater length of one limb compared to the other, the shape of the ears, the presence of hair, the use of the left hand, etc., become clear evidence of the involuntary nature of the crime, the proof of the involution of the individual and therefore the symptom of delinquency<sup>42</sup>. In particular, Lorenzo

<sup>37</sup> On this topic R. Villa, *Il deviante e i suoi segni. Cesare Lombroso e l'origine della antropologia criminale in Italia*, Milano, 1985; and also M. Gibson, *Born to crime. Cesare Lombroso and the Origin of Biological Criminology*, London 2002; and finally the book *Cesare Lombroso cento anni dopo*, edited by S. Montaldo e P. Tappero, Torino 2009.

<sup>38</sup> Paolo Marchetti reconstructs the figure of the dangerous individual in 19th century society in his book: *L'armata del crimine cit., and his essay Le "sentinelle del male". L'invenzione del criminale nemico della società tra naturalismo giuridico e normativismo psichiatrico*, in «Quaderni fiorentini per la storia del pensiero giuridico moderno», XXXVIII (2009), pp: 1009-1080.

<sup>39</sup> Cfr. T. Bonazzi, *Darwinismo sociale*, in *Enciclopedia delle Scienze Sociali*, vol. II, Roma 1992, p. 674-683.

<sup>40</sup> Soon the search for the sign of delinquency from the criminal's body shifted to language, to the presence of tattoos, the creation of artefacts and artistic works, and more generally even particular customs and traditions became the symptom of an involution that led to crime. On this subject, and more specifically on Lombroso's errors, we can already cite the 1900 article: J. Mesnil, *Le phénomène Lombroso*, en «Mercure de France», XXXIV, 126 (1900), p. 627-650. Again, G. Colombo, *La scienza infelice. Il museo di antropologia criminale di Cesare Lombroso*, Torino 2000 and P. Bianucci, *Orrori ed errori. La lezione della scienza che sbaglia*, in *Il museo di antropologia criminale*, cit. p. 59-64.

<sup>41</sup> But also Luigi Monti (1830-1914), Enrico Morselli (1852-1929) e Augusto Tamburini (1848-1919).

<sup>42</sup> It is enough to consult Lombroso's *Archivio di psichiatria* to see the extent of his studies on the physical characteristics of criminals, e.g. C. Lombroso, *Fossa occipitale mediana nelle razze umane e nei criminali*, in «Archivio di psichiatria» IV (1883), p. 501-507; S. Ottolenghi, *L'occhio dei delinquenti*, «Archivio di psichiatria», VII (1886), p. 543-554; M. Carrara, *Sullo sviluppo del terzo dente molare nei criminali*, «Archivio di psichiatria», XVII (1895), p.15-28. On Lombroso's

Tenchini began a study of the brains and faces of criminals<sup>43</sup>, which led to his attempt to create a *Museum of Criminal Anthropology* in which to exhibit the brains of criminals and masks made of wax reproducing their faces<sup>44</sup>, so that every citizen could recognise the somatic features of each specific crime.

From the suggestions of Lombrosian criminal anthropology, the Positivist School of Criminal Law<sup>45</sup> developed in the early 1880s, thanks also to the intuitions of the above-mentioned jurists Ferri and Garofalo<sup>46</sup>, who developed the theses of the Veronese doctor in criminal law.

Contaminating the penal system with the new sciences leads to place at the centre of the system no longer the crime but the offender, who is driven by various factors to commit a crime and whose actions must be prevented in order to protect society<sup>47</sup>;

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«unquiet» review, see: P. Marchetti, *Cesare Lombroso e L'Archivio di psichiatria*, in L. Lacché e M. Stronati (ed.) *La 'cultura' delle Riviste nel dibattito penalistico tra Otto e Novecento*, Macerata 2012, p. p. 69-96.

<sup>43</sup> Hence his major work in four volumes entitled *Cervelli di Delinquenti*, produced between 1885 and 1895. About Tenchini see E. Musumeci, *Tra criminologia, arte e medicina: le maschere della collezione «Lorenzo Tenchini»*, in S. Montaldo (ed.), *Il Museo di Antropologia criminale «Cesare Lombroso»*, Cinisello Balsamo 2015, p. 183-191; and also: P. Schirò, *Medicina e diritto nell'Ottocento attraverso l'opera di Lorenzo Tenchini (1852-1906). La Scuola medica positiva*, in «Historia et Ius» 21 (2022), p.1-44.

<sup>44</sup> Cf. R. Toni, E. Bassi, S. Montaldo, A. Porro (ed.), *Lorenzo Tenchini and his Masks. An anatomical clinical collection of the late 19th century at the University of Parma and Turin*, Milano 2017.

<sup>45</sup> On the Italian positive criminal school see: U. Spirito, *Storia del diritto penale italiano, Da Cesare Beccaria ai giorni nostri*, Torino 1932; M. Sbriccoli, *La penalistica civile. Teorie e ideologie del diritto penale dell'Italia unita*, in A. Schiavone (ed.), *Stato e cultura giuridica in Italia dall'unità alla repubblica*, Roma – Bari 1990, p. 147-232; G. Neppi Modona, *Diritto penale e positivismo*, in E. R. Papa (ed.) *Il positivismo e la cultura italiana*, Milano 1985, p. 47-61. But also: F. Colao, *Le scuole penalistiche*, in *Enciclopedia Italiana di Scienze, Lettere ed Arti*, VIII, Milano 2012, p. 349-356. On the international resonance of the Positive School the collection of essays edited by Michele Pifferi, *The Limits of Criminological Positivism The Movement for Criminal Law Reform in the West, 1870-1940*, London-NewYork 2022.

<sup>46</sup> R. Garofalo, *Di un criterio positivo della penalità*, Napoli 1880, and E. Ferri, *La scuola positiva di diritto criminale. Prelezione al corso di diritto e procedura penale nella Regia Università di Pisa*, Siena 1883.

<sup>47</sup> The theses of the Positive School on crime factors and types of criminals are well known. In particular, Ferri distinguishes: «anthropological factors» which are «the factors related to the person of the delinquent». These factors can be divided into three further subclasses: a) «the organic constitution» and thus «abnormalities of the skull and brain, sensitivity and all somatic features in general, such as the specialities of physiognomy and tattooing»; b) the «psychic constitution of the offender» and therefore «all abnormalities of intelligence and feelings»; while the third category of anthropological factors is constituted by c) «personal characteristics of the offender such as race, age and sex». The second group of factors that

Adopting this perspective, i.e. to admit that human thought and actions are dependent on the functioning of the brain, just as blood circulation depends on the beating of the heart, all conduct considered abnormal such as madness, criminality but also genius<sup>48</sup> is connected to a specific malformation or failure to evolve of the subject's body; the consequence of this thesis is the negation of all forms of free will, a perspective that has enormous consequences for criminal law. Ferri himself observes that in the light of the new positivist scientific discoveries, the concept of criminal responsibility must be radically changed. Classical imputability, which is based on the freedom of action of the individual who freely chooses to commit a crime, is completely unsuitable and inapplicable to a much more complex social reality that requires the law to leave behind the principle of guilt. In fact, if the crime is caused by the physical malformation of the individual's brain, by the poor education received, by the influence of climate and temperature, as argued by the Positive School, no criminal action is caused by the real will of the criminal, who cannot be considered responsible for his action and the application of punishment is, therefore, completely useless as well as unjust. In *Sociologia Criminale* the jurist explains that «The positive criminal school does not accept this unanimous syllogism of the jurists» according to which «Man is equipped with free will, with moral freedom: and so he can will good or evil; and therefore, if he chooses to do evil, he is imputable to it and must be punished for it», and does not accept this approach because «positive physio-psychology has completely annihilated this belief in free will» which is a pure illusion; furthermore, he explains that even accepting «that criterion of individual imputability»<sup>49</sup> the penal system would end up creating a series of errors and legal loopholes. Criminal law must necessarily take into consideration the non-existence of free will and accept that human actions

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generate delinquency are the «Physical Factors», i.e. «causes belonging to the physical environment»: hence climate, latitude, soil, seasons, temperature, meteors, agricultural production. Finally, the third category for Ferri is represented by «social factors». Lombroso and the entire Positive School enthusiastically welcomed the tripartition of the factors that generate delinquency, maintaining however the preponderance of the anthropological factor that remains «the primary coefficient of crime».

Enrico Ferri also introduced a classification of criminals. On the basis of how the factors of crime affect the offender, it is possible to distinguish between: «insane delinquents - born, incorrigible delinquents - delinquents by acquired habit - occasion delinquents - delinquents for passion». Cfr. E. Ferri, *La scuola positiva di diritto criminale*, cit. p. 37 e ss.

<sup>48</sup> On this topic C. Lombroso, *L'uomo di genio in rapporto alla psichiatria, alla storia ed all'estetica*, Milano 1894.

<sup>49</sup> For the quotations reported here I have used the fourth edition of 1900, see E. Ferri, *Sociologia criminale*, Torino 1900, p. 467-468. I translated Ferri's text into English.

are determined by factors external to the individual such as temperature or social abstraction; and internal factors such as a pathology or malformation insisting on the brain:

A hot climate, a sirocco wind, a nervous breakdown due to overwork, a period of poor digestion, and so on, each of us has experienced how much our willpower and even our feelings change. The most peaceful man becomes quarrelsome and aggressive when in the Pampas of South America he feels the wind of a given origin. It is well known that health and even more so the well-being of an excellent digestion make man more benign, more generous, so that misery is really a great cause of physical and moral degeneration<sup>50</sup>

Faced with the «fatal tyranny of the organism», which revolutionises the concept of guilt and responsibility, the only solution to solve the criminal problem, according to Ferri, consists in *social defence*<sup>51</sup>, attributing to criminal law the purpose of defending society from crime, which translates into overcoming the traditional approach to criminal law, which must not focus on the retributive aim of the criminal system nor on amends, but it is necessary to prevent crimes by intervening on the factors that generate delinquency<sup>52</sup>. The consequence of

<sup>50</sup> «Un clima caldo, un vento di scirocco, un esaurimento nervosa per eccesso di lavoro, un periodo di attiva digestione e via dicendo, ognuno di noi ha provato quanto valgono a modificare e la forza di volontà e persino i sentimenti nostri. L'uomo più pacifico diventa litigioso ed aggressivo quando nelle Pampas dell'America Meridionale sente il vento di una data provenienza: è notoria che la salute e più ancora il benessere di un'ottima digestione rendono l'uomo più benigno, più generoso, sicché la miseria (fame cronica) è veramente una grande causa di degenerazione fisica e morale», *ibid.*, p. 476.

<sup>51</sup> On social defence for Ferri see E. Florian, *Difesa sociale*, in E. Florian, A. Niceforo, N. Pende (ed.) *Dizionario di criminologia*, I, Milano 1943; F. Colao, "Un fatale andare". Enrico Ferri dal socialismo all'"accordo pratico" tra fascismo e Scuola positiva, in I. Birocchi and L. Loschiavo (ed.), *I giuristi e il fascino del regime (1918-1925)*, Roma, 2015, p.129-157. In more general terms Michele Pifferi focuses on the theoretical construction of the principle of social defence, and its codification in legal texts and in the Italian penal code of 1930, purged of certain radicalisms of the positive school; on the individualisation of punishment and the consequences on the function of criminal law see: M. Pifferi, *The Theory of Social Defence and the Italian Positive School of Criminal Law*, in «Glossae. European Journal of Legal History», XVII (2020), p. 22-46.

<sup>52</sup> Ferri identifies measures aimed at crime prevention which he calls «sostitutivi penali (penal substitutes)»; these consist of economic, social and administrative reforms aimed at improving the living conditions of citizens and promoting the evolution of society. The reforms identified by Ferri are the most varied, from the provision of taxes on alcoholic substances to discourage alcohol abuse, to the introduction of free public education to encourage education and combat illiteracy; also, encouraging emigration, reducing customs tariffs to combat smuggling, lighting up night-time streets to make theft more difficult. See E. Ferri, *Dei sostitutivi penali*, «Archivio di psichiatria», II (1880), p. 66-93, and 194-215. See also C. Latini,

this approach reverberates on the concept of imputability<sup>53</sup>, if criminal liability cannot have a general and abstract meaning that is the same for all, because every individual is different and «new scientific discoveries widen the circle of those causes, which are said to remove the moral culpability of man»<sup>54</sup>; then the traditional notion of human or «moral» imputability must also be surpassed, the application of which would lead to the assertion that: since no one is guilty of their own actions then no punishment can be applied. The solution identified by Ferri consists in the concept of «social responsibility», according to which «every man is always responsible to society for any action he takes», which has the consequence of identifying preventive «means» for each type of offender and for containing the factors that generate crime<sup>55</sup>.

The concept of responsibility is complemented by the idea of social *risk* and social *dangerousness*; in fact, delinquency is not the result of a free decision taken by the offender, but he is determined by various factors to commit a crime and therefore puts society at risk by his action. Thus, according to the theses of the *Scuola positiva*, it is possible to estimate the risk of crime according to precise natural laws and statistics. Indeed, just as new technology and industrial development have produced new risks for workers and the well-being of citizens, the same evolution of society has led to new social risks associated with crime<sup>56</sup>.

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*I "segni" della devianza e la criminalità dei poveri. Pena e prevenzione nel pensiero di Enrico Ferri, un socialista fuzzy*, «Historia et Ius», 11 (2017), p. 1-12, and also P. Schirò, *From Pietro Ellero to Enrico Ferri*. cit.

<sup>53</sup> For more on this subject, I refer to P. Marchetti, *De la responsabilité au risque. L'École positive et les 'nouveaux horizons' du droit pénal* in «Revue de Droit Pénal et de Criminologie» X, 6 (2017) p. 562-585, and also Michele Pifferi, *From Responsibility to Dangerousness? The Failed Promise of Penal Positivism*, in M. Pifferi (ed.), *The Limits of Criminological Positivism. The Movement for Criminal Law Reform in the West, 1870-1940*, London - New York, 2022, p. 255-279; who, in a comparative key, analyses the concept of dangerousness aimed at replacing the concept of responsibility, according to the positive school, but without success.

<sup>54</sup> E. Ferri, *La scuola positiva di diritto criminale*, cit., p. 48.

<sup>55</sup> The jurist of the Scuola Positiva thus comes to envisage various categories of measures as a consequence of the new idea of social imputability: «I. preventive measures », i.e. means aimed at preventing crimes that «cut off the criminal plant from its roots», these are the already mentioned criminal substitutes; «II. reparatory measures» which take the form of civil compensation for the damage caused by the offender; «III. repressive measures» which take the form of certain prison sentences already present in the system which Ferri considers useful for certain types of criminals such as occasional offenders; finally, «IV. eliminative measures» which are to be adopted against recidivists and born criminals, these measures take the form of life imprisonment, detention in criminal mental hospital and even deportation. *Ivi*, p. 56.

<sup>56</sup> On this point Ferri writes that *criminal men* perceive crime «as a risk inherent in their criminal industry, like any other danger that accompanies honest industries, such as the risk of falling

The individual considered involuted, the *abnormal*, those belonging to *dangerous races*<sup>57</sup>, and more generally those who are different from the normal outline of the bourgeois individual can become a risk for society. In this context, assessing the dangerousness of an individual is almost more important than actually punishing a crime. The concept of responsibility inevitably changes and does not only concern criminal law but also extends to other branches of law, particularly civil and labour law<sup>58</sup>.

According to these theses, crime is an unfortunate natural production, a form of *disease*, for which the criminal must be cured. It is therefore necessary to measure the offender's dangerousness against the seriousness of the crime committed, the social alarm caused, and the real possibility that he will re-offend. On the basis of these elements, it is possible to punish the individual in order to protect the community from his criminal action. Hence, the crime is not considered the necessary prerequisite for punishment, but is evidence of the dangerous nature of the offender. It is a symptom of both the disease, and of the involuntary nature of the criminal. In this context, then, punishment is not justified because of the material act, the crime committed, but is based on the need to cure that person by excising him from society, and at the same time preventing the criminal from re-offending.

In my opinion, it can be said that the theses of the positive school lead to the crisis of criminal responsibility, a crisis that is manifested through the theses

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from a height for a bricklayer or the risk of a collision for railway drivers», cfr. E. Ferri, *La sociologia criminale*, cit. p. 226. On this topic see: P. Marchetti, *De la responsabilité au risque*, cit. p. 577.

<sup>57</sup> On dangerous races and more generally on dangerous classes see: P. Costa, "Classi pericolose" e "razze inferiori": la sovranità e le sue strategie di assoggettamento, in F. Benigno, L. Scuccimarra (ed.), *Il governo dell'emergenza. Poteri straordinari e di guerra in Europa tra XVI e XX secolo*, Roma 2007, p. 239-257; P. Marchetti, *Razza e criminalità. Un dibattito italiano di fine Ottocento*, in L. Lacchè, M. Stronati (eds.), *Questione criminale e identità nazionale* cit., p. 139-140; and also E. Musumeci, *Against the Rising Tide of Crime: Cesare Lombroso and Control of the "Dangerous Classes" in Italy, 1861-1940*, in «Crime, History & Societies», XXII, 2 (2018), p. 83-106; and L. Lacchè, *La paura delle «classi pericolose». Ritorno al futuro?*, in «Quaderno di storia del penale e della giustizia», I (2019), p. 159-178.

<sup>58</sup> Paolo Marchetti on the subject observes that: «risk has established itself as an interchangeable concept, i.e. a concept capable of bringing together different sciences such as economics, law, morality or politics»; thus, in the same years of criminal law reflection, the theses concerning the principle of liability regarding workers and also civil law were developed. They set new principles on the subject of risk, liability for guilt and compensation for damage. Cfr. P. Marchetti, *De la responsabilité au risque*, cit. p. 578 ; and in more detail on these topics : G. Cazzetta, *Responsabilità aquiliana e frammentazione del diritto comune civilistico (1865-1914)*, Milano 1991, p.143 ss; but also Id. *Scienza giuridica e trasformazioni sociali. Diritto e lavoro in Italia tra Otto e Novecento*, Milano 2007.



of the new criminalistics:

- determinism takes the place of free will, freedom of conscience and action is a luxury that late 19th century man seems not to be able to afford, being embedded in nature and in the complex, living society that renders each individual incapable of a spontaneous will;
- the causes of crime are sought primarily in the offender's body, so the criminal is replaced with the sick person, crime with a pathology, social defence becomes the ultimate aim of criminal law;
- theses on the individualisation of punishment are produced, which lead to trying to adapt the sanction to the character of the criminal rather than to the actual crime committed, thus advancing radical changes in the punitive system such as open-ended punishment<sup>59</sup>;
- social reforms and criminal policy measures are suggested, such as Ferri's *sostitutivi penali*, aimed at preventing crime by neutralising the criminal's actions;
- an alternative penal system is therefore proposed with a mitigation and modification of the principle *nullum crimen nulla poena sine lege*, «the principle of legality undergoes sweeping transformations and reductions», in fact the theses of the new criminologie «deeply affect the notion of legality, disassembling legality into the two parts of *nullum crimen* and *nulla poena*. *Nullum crimen* is re-conceptualized in light of the social dangerousness paradigm and is reformulated as *nulla poena sine crimine*. *Nulla poena* is abandoned so as to maximize the individualization of each sentence and tailor sentences to the variable needs of both offenders and society»<sup>60</sup>.

Liberal criminal law built on individualism and on a simple society in which the penal law has the task of guaranteeing the freedoms of the individual is flanked by the model proposed by The Positive School<sup>61</sup>. A new juridical system

<sup>59</sup> On this point Michele Pifferi states: «Individualising punishment means, in fact, abandoning the criterion of a strict proportion between offence and sanction pre-established by the legislator, questioning the function of the legality of punishment, rethinking the role and discretionary margin of the judge, modifying certain evidentiary rules of the trial, hypothesising new functions in the execution phase for administrative bodies», which is an attack on the foundations of liberal criminal law. Cfr. M. Pifferi, *L'individualizzazione della pena: difesa sociale e crisi della legalità penale tra Otto e Novecento*, Milano 2013, p. 15.

<sup>60</sup> M. Pifferi, *Reinventing Punishment. A comparative History of criminology and Penology in the Nineteenth and Twentieth Centuries*, Oxford 2016, p. 34.

<sup>61</sup> The «Foundations of punitive law», which were an evolution of the principles of the legal enlightenment as expressed by Cesare Beccaria, are thus revisited; on this subject, I refer again to M. Pifferi, *Oltre Beccaria? Le proposte della criminologia tra Otto e Novecento*, in G. Chiodi, L. Garlati (ed.), *Dialogando con Beccaria. Le stagioni del processo penale italiano*, Torino 2015, p. 107-

that translates the profound anxieties of the new society, it becomes the spokesman for new social needs, new mentalities that mix criminal law with the results of the new anthropological and criminological sciences, thus drawing *new horizons* for criminal law.

The theses of the Positive School, after an initial international and national consensus<sup>62</sup>, found widespread opposition from the liberal Italian penal tradition<sup>63</sup>, which Enrico Ferri himself defines as the *Scuola Classica*, and which did not hesitate to point out the contradictions expressed by the positivists in elaborating a concept of imputability connected to a substantial irresponsibility of the agent, who in fact is not responsible for his actions, thus ending up punishing a subject who is recognised as not guilty of anything, justifying such punishment by requirements of social necessity, to protect society from the lack of evolution of certain subjects. In spite of the contradictions and fierce conflicts with the liberal penal tradition, the undoubted merits of Cesare Lombroso and the Positive School must be recognised for having placed the figure of the delinquent at the centre of the penal system, introducing a new method of multidisciplinary and comparative study into law aimed at reconsidering traditional penal law, which was experiencing a profound crisis, but above all allowing new penal theories to be developed.

### 3. Public morality as a “guarantee” of criminal guilt

The theses of the Positive School on criminal responsibility and the tyranny of the organism are in continuity with a certain naturalistic view of the criminal

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138, in which the author analyses how criminology of the second half of the 19th century modified certain fundamental thoughts/themes of Italian penalistics.

<sup>62</sup> The literature on the resonance of the theses of the Positive School in Europe and around the world is vast, I will only refer here to the most recent: for example, the special issue dedicated to Cesare Lombroso of the journal *Crime, History & Societies* and in particular the introduction by J. Dunnage, *The Work of Cesare Lombroso and Its Reception: Further Contexts and Perspectives*, in «Crime, History & Societies» XXII, 2 (2018), p. 5-8. The aforementioned rich study published in the journal *Glossae* of 2020, whose introduction Y. Cartuyvels, A. Masferer, *An introduction to the birth of criminal positivism in Europe and Latin America at the end of the 19th century*, cit.; and then, the valuable collection of essays *The limits of criminological positivism*, with an introduction by the editor: M. Pifferi, *An historiographical reassessment of criminological positivism*, p. 1-15.

<sup>63</sup> In general concerning «The impact of criminology on liberal criminal law», see M. Pifferi, *Reinventing Punishment*, cit., p. 163 ss. While, more specifically on the principles affirmed by the Italian School and the criminal liberal procedures M. N. Miletto, *Scientific utopia and reactionary nostalgia. Criminal procedure and the early positivist school*, in M. Pifferi (ed.), *The Limits of Criminological Positivism*, cit. p. 16-41.

phenomenon, which depend on the application of Darwinism and positivism to social reality. These are theses that drive one to consider human society as an animal organism and therefore subject to the natural laws that regulate organic life. This naturalism, this triumph of biology and evolutionism even in the criminal sciences led to a reaction from some criminal lawyers, notable among them: Bernardino Alimena<sup>64</sup>, Napoleone Colajanni<sup>65</sup>, Alfredo Pozzolini<sup>66</sup>,

<sup>64</sup> Bernardino Alimena (1861-1915) was an internationally renowned Calabrian jurist. A professor of law and criminal procedure at several universities, most notably Cagliari and Modena, he carried out an intense political activity that saw him serve as mayor in Cosenza, his home town. His most important works include: the three volumes of *I limiti e i modificatori dell'imputabilità* (1894-1898); then *Studi di procedura penale* (1906); finally *Principi di diritto penale* (1910). For further study see: G. Arangio Ruíz, *Commemorazione del socio prof. Bernardino Alimena*, in *Mem. d. R. Accad. d. Scienze, Lettere e Arti in Modena*, Mem. della Sez. Scienze, XII 1916, p. 391-425; R. Abbondanza, *Bernardino Alimena*, in *Dizionario biografico degli italiani*, vol. 2, Treccani, Roma 1960. S. Vinci, *Bernardino Alimena and Emanuele Carnevale: The Third School of Criminal Law Searching for a Compromise*, in «Glossae: European Journal of Legal History», 17 (2020), p. 47-82.

<sup>65</sup> Napoleon Colajanni (1847-1921) was born in Castrogiovanni (present-day Enna) to a family of sulphur industrialists. After graduating in medicine, he practised as a ship's doctor on a ship operating in Latin America. Thus began a study that ended in 1903 with the publication of the work *Latini e anglo-sassoni. (Razze superiori e razze inferiori)*, with which the author opposes the alleged inferiority of the Latin race. Back in Italy, he took an active part in Republican politics, entering Parliament in 1890. In the following year he obtained a professorship in Statistics at the University of Palermo and then Naples. For the biographical information given here, see the entry Colajanni, Napoleone, by S. M. Ganci, in *Dizionario Biografico degli Italiani*, Istituto dell'Enciclopedia Italiana, Treccani, vol. XXVI, 1982, p. 681-688. In particular, on his political choices, but also in general and truly exhaustively on the figure of the 'positiviste et réformiste' sociologist, the two studies by Jean-Yves Frégné, *Biographie intellectuelle d'un protagoniste de l'Italie libérale: Napoleone Colajanni (1847-1921). Essai sur la culture politique d'un sociologue et député sicilien à l'âge du positivisme (1860-1903)*, Roma 2002 and Id. *Dall'ottimismo al pessimismo: itinerario politico e intellettuale di Napoleone Colajanni dalla svolta liberale al fascismo (1903-1921)*, Roma 2007, works that also provide a complete bibliography of the Sicilian author.

<sup>66</sup> Alfredo Pozzolini (1877-1936) was a lawyer and academic from Pisa, near to the Italian Positive School, although he gradually distanced himself from the theses closer to the atavistic fatalism and radicalisms of Enrico Ferri. From his earliest years he showed himself close to the theses of social criminal law by writing a dissertation dedicated to the social idea in criminal proceedings, a treatment later published in *Archivio Giuridico* and then in an autonomous essay in 1898. A professor of criminal law at various Italian universities, but above all at Pisa, in 1900 he created and directed, together with Zerboglio, the *Rivista di diritto penale e sociologia criminale* (Journal of Criminal Law and Criminal Sociology), which soon became a point of reference for social criminalistics. For more on Pozzolini see: M. Stronati, *Pozzolini Alfredo*, in *Dizionario biografico dei giuristi italiani (secc. XI-XX)*, Bologna 2013, vol. II, p. 1622-1623; and the essay M. P. Geri, *Novecento penalistico: Appunti per una ricerca su Alfredo*

Michele Angelo Vaccaro<sup>67</sup>, which anticipate the critiques of the French *l'École du milieu social* and the other observations of international criminalistics<sup>68</sup>.

Napoleone Colajanni represents the opposite of Cesare Lombroso<sup>69</sup>, replacing the atavistic determinism of the Veronese doctor with a type of social determinism. The Sicilian doctor and sociologist opposed the Positive School in all his major works<sup>70</sup>, arguing, along with other authors, for the incidence and

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*Pozzolini (1877-1936)*, in «Diritto penale del XXI secolo. Europeo, storico, comparato», XVII, 2 (2018), p. 316-331. By the same author, an interesting reconstruction of the affair concerning Pozzolini's library, with in-depth analysis of its contents and in particular the volumes on Pozzolini's career as a lawyer. Id. *Alfredo Pozzolini: dalla biblioteca alle tracce di un'esperienza professionale*, in «Historia et ius» XIV 7 (2018), p. 1-30.

<sup>67</sup> Michele Angelo Vaccaro (1854-1937) was born in Casteltermini (Ag) and graduated in Law at the University of Palermo. He first embarked on a legal career on the island and later became a collaborator at the Ministry of Justice. His scientific activity focused in the last twenty years of the 19th century on the study of sociology and social criminal law. His most important works include: *La lotta per l'esistenza e i suoi effetti nell'umanità* (1886); *Genesi e funzioni delle leggi penali* (1889); *Le basi del diritto e dello stato* (1893); *Saggi critici di sociologia e criminologia* (1903). For more details see G. A. Belloni, *Michele Angelo Vaccaro criminalista*, Foggia, Quaderni de «La Corte d'Assise», 45, 1938, p. 1-8. For a general reconstruction of Vaccaro's life and main works see the entry by A. Bettoni, *Vaccaro Michele Angelo*, in *Dizionario biografico dei giuristi italiani*, Bologna 2013, p. 2006.

<sup>68</sup> The theses of the Italian school were accepted in France with initial consensus, with the doctor Alexandre Lacassagne personally translating Lombroso's main works, and trying, without making a secret of it, to realise in France what Lombroso did in Italy. From the Second Congress of Criminal Anthropology in Paris in 1889, the climate for the Italian school changed completely, with the French doctors and anthropologists attacking the fatalism of biological determinism and supporting the importance of social factors in the genesis of crime. However, it should be noted that the solutions proposed by the French do not deviate from the theses of the positive school. Lacassagne himself possesses little sociological knowledge, always maintaining that the main cause of the criminal act lies in a hereditary and biological determinism of which he merely affirms the strong link with society. On these themes L. Mucchielli, *Hérédité et Milieu social, le faux antagonisme franco-italien, la place de L'École de Lacassagne dans l'histoire de la criminologie*, in *Histoire de la criminologie française*, cit., p. 189-214; M. Renneville, *La criminologie perdue d'Alexandre Lacassagne (1843-1924)*, in «Criminocorpus, Histoire de la criminologie, 1. La revue et ses hommes», mis en ligne le 01 janvier 2000, and also P. Marchetti, *L'armata del crimine*, cit. p. 76 ss. For more on the relationship between Cesare Lombroso and French anthropological science, see issue VI of of the journal: *Beccaria. Revue d'Histoire du droit de punir*, 2020-2021. in particular the article M. Kaluszynski, *Lacassagne/Lombroso. Mythes et réalités d'une relation fratricide et fraternelle*, p. 39-65.

<sup>69</sup> On this topic: J-Y. Frétigné, *Una critica dimenticata delle teorie di Cesare Lombroso*, in «Il Politico», LXIV, 3 (1999) p. 369-393.

<sup>70</sup> Colajanni's main works opposing the ideas of Lombroso's criminal anthropology include: *La questione sociale e la libertà* (1879), *Il Socialismo* (1884), *La delinquenza della Sicilia e le sue cause* (1885), *L'Alcolismo* (1887), *La Sociologia Criminale* (1889), *Ire e spropositi di Cesare Lombroso*

importance of social factors in the spread and generation of crime. Colajanni, with Turati, inaugurated the line of criticism that struck Lombroso, affirming that social factors such as the context in which one lives, one's upbringing, education, economic conditions, etc., generate the criminal phenomenon, and not the anthropological and atavistic factors identified by the Veronese doctor. According to the author, crime is a purely historical fact that depends on the society in which it occurs, so that only careful political and social reforms can counteract and reduce delinquency<sup>71</sup>. By arguing for a type of social determinism, the Sicilian doctor criticises the idea that organ malformations, such as occipital dimples, have consequences for organ function; more often, according to him, the signs of delinquency in the criminal's body are consequences of a poor lifestyle and harsh conditions, and do not depend on pathological degeneration. In other words, for Colajanni there is no *tyranny of the organism* responsible for the crimes, but it is the misery, the exploitation of one social class by another that drives to delinquency<sup>72</sup>. So it is not the criminal gene that disfigures the face of criminals, but the grin of misery and despair which creates the physiognomy of the criminal. The author, especially in his two works *La sociologia criminale* (*Criminal Sociology*) and in *Ire e sproporzioni di Cesare Lombroso* (*Ire and disproportions of Cesare Lombroso*), analyses in detail Lombroso's theses and those of the Positive School concerning crime and its atavistic origin, and denounces the defects of these theories that end up exhuming Gall and legitimizing a series of «popular beliefs and ancient traditions», exasperating the physical characteristics of the criminal «exaggerated to the point of monstrosity»<sup>73</sup>. He analyses and compares many studies carried out by Lombroso and by the major authors of the Positive School, noting their contradictions. In particular, according to Colajanni, «biology» and «physiology» clearly «do not lend themselves to explaining the hypotheses of Criminal Anthropology, which seeks to find a relationship between morphology and the psycho-moral qualities of criminals»<sup>74</sup>; Lombroso and his followers searched for the sign of the delinquent «in the color of the skin, of the hair, of the beard, of the pupil» also in the «anomalies of the weight and of the stature, of the length of the arms [... ] of the hand and of the teeth», and even

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(1890).

<sup>71</sup> He analyses the Sicilian situation in particular and connects criminality on the island to the social and cultural backwardness of the territory, which is still closely connected to a medieval system, as «the political and social organisation of Sicily is medieval». N. Colajanni, *La delinquenza della Sicilia e le sue cause*, Palermo 1885, p. 41.

<sup>72</sup> N. Colajanni, *La Sociologia Criminale*, Catania 1889, p. 74.

<sup>73</sup> *Ivi*, p. 64.

<sup>74</sup> *Ivi*, p. 162.

in the «agility, in the slang and in the tattoos»<sup>75</sup> but the statistical results, even just comparing the studies of Lombroso, show the erroneousness of these anthropological studies, so that the same malformation in some cases belongs to a delinquent and in as many cases does not. Indeed, Colajanni's studies, his statistical references and above all his comparisons of the theses of the Lombrosians, which often conflict with each other, highlight the fragility and contradictions of the criminal anthropology of the time. The Sicilian author observes, in fact, that: «among all those concomitant characters the main one is missing, which is precisely.... the CRIME», without the crime it cannot be criminal regardless of the hereditary defects or actual pathologies found in the subject. To «judge a person like a criminal», therefore, it is necessary that there is inevitably be a crime. Finally, Colajanni admits that there may be certain biological predispositions to delinquency, but without the «social factors» these predispositions can remain dormant. He therefore concludes that «statistics does not authorize attributing to race an influence on murder», and also that it «does not authorize admitting the so-called biological law of delinquency», and above all that «it is the social factors that determine delinquency, so every society has the delinquency it deserves»<sup>76</sup>.

The jurist Michele Angelo Vaccaro summarises the criticism of Colajanni. He, for example, observes that the denial of free will advocated by the Positive School appears to be correct, as Lombroso echoes a certain tradition of authors who are sceptical about «psychological freedom»<sup>77</sup>, such as «Hobbes, Locke, Leibnitz, Spinoza, Holbach, Hume, Kant, Condillac»<sup>78</sup>, whose theories, in the light of the new evolutionary consciousness, can be held to reject free will. However, Vaccaro specifies that recognising determinism does not translate into a denial of the moral liability of the criminal, as would appear from Lombroso's theories of criminal anthropology. The error of the anthropological school, according to the Sicilian jurist, resides in the non-application of the determinist theses on the concept of criminal responsibility. In fact, applying «social determinism» must not be translated into denying «psychological determinism», and one must not explain the nature of crime by focusing exclusively on the concept of «natural crime». According to Vaccaro, crime depends, in

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<sup>75</sup> *Ivi*, p. 176.

<sup>76</sup> N. Colajanni, *La delinquenza Italiana*, in «Rivista Popolare di politica lettere e scienze sociali», VIII (1902), p. 64-65.

<sup>77</sup> M. A. Vaccaro, *Sul rinnovamento scientifico del diritto penale, Prelezione al corso di diritto e procedura penale, letta il 26 gennaio 1899*, after in *Rivista Scientifica del diritto*, today in Id., *Saggi critici di sociologia e di criminologia*, Torino (1903), p. 153-170.

<sup>78</sup> *Ivi*, p. 156.

fact, on social factors which are real and alone responsible for crime.

Cesare Lombroso's theses on the criminal as an *anthropological variety* of the human being simplifies many concepts and reduces the criminal phenomenon to a disease: «uncertainties, poorly concealed contradictions, a thick and heavy forest of biological data, etc.; titanic efforts of a great talent, which, he having unwittingly got into a labyrinth, can no longer get out»<sup>79</sup>. The idea that the delinquent is distinguished from other individuals by external characteristics, physical or biological anomalies, is for Vaccaro a very serious error that does not explain the nature of crime. Anthropology must therefore limit itself to dealing with cases where the offender actually has mental pathologies or evident mental disorders.

He wrote:

Criminal laws, by their nature and purpose, can only address persons capable of feeling the psychological compulsion, to which the threat of physical and moral pain, which constitutes punishment, tends. The child deprived of discernment, the insane, those who are driven by a blind and irresistible impulse to commit acts of violence against themselves or others, escape the domain of penal science<sup>80</sup>.

According to the Sicilian jurist, it is therefore fundamental to affirm the independence of criminal law from other sciences. Furthermore, he explains that Lombroso's and Ferri's theories, which affirm that the criminal is to be considered as a poorly-evolved man, in reality «implicitly includes the social factor», since what a society defines as illicit depends on the moral conception of that society, so that the involute of the positive school in a tribe of primitive men would not commit any crime, since his primitive actions are not morally considered abnormal. Delinquency, however, depends on society.

The Calabrian jurist Bernardino Alimena also criticises the concept of criminal responsibility as expressed by Lombroso's school, saying that the anthropological school has one great mistake: «to have followed a kind of biological-mode. [...] today you can't do less than talk about 'social cells', 'connective tissues' of society, 'nerves' and 'political-tendons'»

The anthropological school is wrong to have placed too much reliance on the theory of the "social organism"; to have too often confused man with other animals;

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<sup>79</sup> *Ivi*, p. 160.

<sup>80</sup> «Le leggi penali, per loro natura e per il loro fine, non possono rivolgersi che alle persone capaci di sentire la coazione psicologica, a cui tende la minaccia di un dolore fisico e morale, che costituisce la pena. Il fanciullo privo di discernimento, il pazzo, chi è trascinato da un impulso cieco ed irresistibile a compiere atti di violenza contro se stesso o contro altrui, sfuggono al dominio della scienza penale» *Ibid*.

to have given too much importance to the biological phenomenon as a factor in crime; to have identified the delinquent with the sick person for penal purposes; to have neglected the study of legislation; to have overlooked the differential element of penalty<sup>81</sup>.

Criminal purpose manifests itself in the offender's mind not because of an organic conformation but because of the combined effect of the delinquent's social environment and moral deficiency, thus the crime depends on the offender's moral values and not only on his physical conformation and instincts.

In his work *I limiti e i modificatori dell'imputabilità* he devotes many pages to the subject of criminal responsibility in a system in which free will is to be denied, affirming the importance of social determinism.

According to the jurist, the knowledge that the criminal phenomenon is determined by social factors cannot be translated into irresponsibility of the offender, but one must nonetheless go on to investigate his concrete responsibility since «liability refers to the manifestation and appearance of volition» while reasoning about free will or determinism concerns the «cause of volition».

To explain the relationship between determinist theories and concrete criminal liability he then states:

Thus, the scientific theory of light, which denies that colours are a property of bodies, does not prevent us from admiring the pinkness of a flower or the blue of the sea or the opal of the sky. All the efficient causes of volition do not prevent us from feeling imputable, for the same reason that we do not say that light gives leaves their green colour, but instead we say that leaves are green. This only happens because we do not see the secret workings of motives that determine the actions of others, nor the molecular vibrations that give bodies the appearance of colour. But, on the other hand, we can, in exceptional circumstances, distinguish the overpowering cause that comes to disrupt the workings of the motives of human actions, as we notice the lantern that comes to give the leaves, artificially, a colour they do not have<sup>82</sup>.

<sup>81</sup> «La scuola antropologica ha il torto di aver fatto troppo a fidanza con la teoria dell'«organismo sociale»; di aver voluto troppo spesso confondere l'uomo con gli altri animali; di aver dato una eccessiva importanza al fenomeno biologico come fattore di delitti; di aver identificato per i fini penali il delinquente con l'ammalato; di aver trascurato lo studio della legislazione, di aver trascurato l'elemento differenziale della penalità». B. Alimena, *Naturalismo critico e diritto penale*, in «Rivista di discipline carcerarie», XXI (1891), p. 614-636: 615.

<sup>82</sup> «Così, la teoria scientifica della luce, la quale nega che i colori siano una proprietà dei corpi, non impedisce che si ammiri il roseo d'un fiore o l'azzurro del mare o l'opale del cielo. Tutte le cause efficienti delle volizioni non c'impediranno di sentirci imputabili, per la stessa ragione per la quale non diciamo che la luce dia alle foglie il color verde, ma, invece, diciamo che le foglie sono verdi. Tutto questo succede sol perchè noi non vediamo il lavoro segreto dei motivi che determinano le azioni altrui, nè le vibrazioni molecolari che danno ai corpi la



In other words, according to Alimena, it is still possible to distinguish the offender who has been totally driven to perform an action by factors external to his own will, from the subject who instead «is determined by his own temperament», so that it can be said that «morality is almost the colour with which we see human actions». For the author, therefore, there are anthropological predispositions, instincts that can certainly be the cause of some actions, just as social factors can determine others; and it is in all cases possible to distinguish the concrete degree of responsibility of the subject according to the individual's moral sense.

In fact, Alimena argues that punishment is essentially a *right evil*, which on the one hand punishes those who have committed a crime, giving satisfaction to the victim, and on the other, serves as a warning to all citizens, since it exerts a «psychological coercion», on those who think about the crime. Thus, he goes so far as to argue that «the greatest efficacy of punishment occurs precisely in this continuous, slow and hereditary strengthening of the moral sense» of citizens, who know that evil follows a criminal action.

Alimena expresses a very original concept of criminal liability that tries to combine the new theses of criminal law with what has been affirmed in the European penal tradition on the concept of responsibility. In fact on the one hand he rejects free will and affirms that the ultimate purpose of criminal law is to defend society together with other social sciences; at the same time, however, the way in which criminal law actually performs its function recalls categories of liberal criminal law. So much so that the theories on free will re-emerge when dealing with the subject of liability.

In particular, criminal law, by imposing a penalty on the offender, activates a mechanism of psychological coercion in society whereby the penalty determines in the conscience of citizens the will not to suffer evil, thus developing «the feeling of punishment».

From this it follows that a subject is actually indictable when he perceives the psychological coercion of punishment and hence the feeling of punishment; thus, the offender is responsible when he perceives the «feeling of responsibility».

According to the Calabrian criminalist, it is therefore necessary to investigate the conscience of the individual in order to understand whether or not in that specific social and natural context he wanted to carry out the criminal action, as

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parvenza dei colori. Ma, invece, possiamo, in circostanze eccezionali, distinguere la causa prepotente che venga a sconvolgere il lavoro dei motivi delle azioni umane, come notiamo la lanterna che venga a dare alle foglie, artificialmente, un colore che non hanno». B. Alimena, *I limiti e i modificatori dell'imputabilità*, Torino 1894, p. 27.

he states:

Our conscience attests that we are free to do what we want; but it does not attest that we are free to want one thing rather than another. Our conscience attests that, if we want, we can; but it does not attest that we can want, indifferently, one thing rather than another<sup>83</sup>.

Therefore, the individual subject is responsible for his actions when he perceives in his conscience the freedom of his will, which may or may not decide to commit a crime.

It therefore follows that:

Man, therefore, acts according to his conscience and, practically, feels and recognises himself as free. In conclusion, not only can one not speak of 'free will', but perhaps it is not even accurate to speak of 'denial of free will'. This expression - unfortunate, just as the other, against which it arose, is unfortunate - gives rise in our minds, rather than the idea of causality, to the idea of something being accomplished by us against our will. Instead, it is not so: causality slowly forms our 'I', and, when our volition is formed, it is formed in agreement with our 'I' - that is, freely - ; but it is formed according to an 'I', which is formed by causality. When our 'I' wants something, we have the consciousness of wanting it, and we have the consciousness of why we want it, but we do not also have the consciousness (as of so many separate, extraneous, external, enemy entities) of the different layers of which the 'I' is composed and of the different moments and forces which, interposing themselves, are concurrent in forming it.

And this is so true that man feels himself less free, and therefore less responsible, precisely because of the influence of new elements upon his volition, which do not mingle with consciousness, but, though they are in it, remain separate and distinct<sup>84</sup>.

<sup>83</sup> «La nostra coscienza attesta che noi siamo liberi di fare quel che vogliamo; ma non attesta punto che siamo liberi di volere una cosa piuttosto che un'altra. La nostra coscienza attesta che, se vogliamo, possiamo; ma non attesta che possiamo volere, indifferentemente, una cosa piuttosto che un'altra». B. Alimena, *Principi di diritto penale*, Napoli 1910, p. 161.

<sup>84</sup> L'uomo, dunque, agisce secondo la propria coscienza, e, praticamente, si sente e si riconosce libero. In conclusione, non solo non si può parlare di «libero arbitrio», ma, forse, non è nemmeno esatto parlare di «negazione del libero arbitrio». Quest' espressione, - infelice, come è infelice l'altra, contro cui è sorta -, fa nascere, nella nostra mente, piuttosto che l'idea della causalità, l'idea di qualche cosa, che da noi si compie contro il nostro volere. Invece, non è così: la causalità forma lentamente il nostro io, e, quando la nostra volizione si forma, si forma d'accordo con il nostro io - ossia liberamente - ; ma si forma secondo un io, che è formato dalla causalità. Quando il nostro io vuole, si ha la coscienza del volere, e si ha la coscienza del perchè si vuole, ma non si ha anche la coscienza (come di tanti enti separati, estranei, esterni, nemici) dei diversi strati di cui l'io si compone e dei diversi momenti e delle diverse forze che, interponendosi, son concorsi a formarlo. E una coscienza così fatta non può aversi; e se fosse possibile averla e si avesse, il fenomeno non sarebbe diverso, perchè la volizione è sempre l'opera di tutto il nostro essere e non d'una parte di esso, che si

The theory of responsibility, for the Calabrian criminalist, depends on the function of criminal law that defends society through the evil of punishment, which therefore operates on two levels, an individual level which concerns the offender, and a social level which concerns all probable offenders, thus realising a means of prevention.

From this theory derives the affirmation of social determinism mediated, however, by illusory flashes of free will that would illuminate the conscience of the individual agent, who engages in conduct aware of the concrete risk of suffering an evil.

Alfredo Pozzolini also reflects on the subject of free will and criminal liability, taking up many of Ferri's theses. He states that he is a supporter of «social responsibility», since social factors are the only real causes of delinquency, however, he specifies that it is necessary to take into account the psychological aspect that characterises the criminal's actions.

Lombroso and Ferri neglect the subject of responsibility and morality, and thus end up operating a «negation of criminal law» to the advantage of the «criminal clinic»<sup>85</sup>, which would lead to no longer being able to distinguish, on the level of criminal responsibility, a criminal from a mad or alienated criminal. So that within the concept of social responsibility one can certainly individualise a moral responsibility of the individual, who is not affected by a «mental aberration».

The jurist states that however much one may reflect on society as responsible for crime, and therefore however useful it may be to reflect on the causes of crime, one must nevertheless remain anchored in social reality. In other words, criminal law must take into account its time in order to be effective, and therefore reason about the moral responsibility of the healthy offender in order to effectively combat and punish the criminal.

The Pisan jurist studying Ferri's notion of social responsibility asserts that it belongs to an ideal world, a theory far removed from reality, in which indeed one can think of «absolute determinism» and on the basis of this one can identify measures, again ideal, for the best social defence. However, in everyday life, the concept of criminal responsibility must necessarily take into account the moral responsibility of the agent.

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sovrapponga all'altra e la costringa. E questo è tanto vero che l'uomo si sente meno libero, e quindi meno responsabile, appunto allora che sulla sua volizione influiscano nuovi elementi sopraggiunti, i quali non si confondono con la coscienza, ma, pur essendo in essa, rimangono separati e distinti». *Ivi*, p. 164-165.

<sup>85</sup> A. Pozzolini, *Recensione a Ferri Prof. Enrico, Sociologia criminale. IV ed*, in «Archivio Giuridico», LXV (1900), p. 367-371: 369

On this point, he more precisely states:

The legal sociologist who has to observe the facts, in order to build the legal system on them, cannot disregard the dominant ideas when they form the basis of social psychology. If, on the one hand, ideal criminal law can therefore disregard the psychological foundations so as not to aim at anything other than the translation into the field of positive laws of the need for social defence, practical criminal law cannot disregard the popular conception of the idea of justice, which is mainly expressed in the concept of moral responsibility and equality before the law<sup>86</sup>.

The Tuscan criminalist tackles the issue of liability, one of the most debated and criticised topics in the Positive School, which ends up making the criminal morally irresponsible insofar as he is actually driven by causes beyond his will and dependent on his psychophysical conformation. While looking at the «popular conception» that animates the legal system, a criminal under criminal law must necessarily be considered free in his will, so that what distinguishes a criminal from an honest man is the moral conception.

Pozzolini, as well as Alimena, therefore supports the need to affirm social responsibility in the genesis of delinquency without, however, refuting the importance of the concept of liability in the penal system, a concept that is based on the moral principles expressed by a society in a given historical period. Hence, a subject who does not have a particular mental pathology, if he is capable of understanding and willing, then he must be held responsible for his actions, even if they are generated by social factors that have made him liable, and this because: every individual has the perception that he is free to act and is aware that a given illegal action corresponds to a penalty. So from this awareness derives the obligation to punish. In this way, these jurists resolve the crisis of the concept of criminal responsibility introduced at the end of the 19th century by European anthropological science.

These authors can be included in the social criminal law movement<sup>87</sup>, a group of jurists that give a decisive role to social factors in the generation of crimes; they interweave the social sciences with criminal law in an anti-

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<sup>86</sup> «Il sociologo giurista che deve osservare i fatti, per costruire su di essi il sistema giuridico, non può non tener conto delle idee dominanti allorquando queste formano la base della psicologia sociale. Se da una parte quindi il diritto penale ideale, può prescindere dalle basi psicologiche per non mirare ad altro che alla traduzione nel campo delle leggi positive della necessità della difesa sociale, non si può nel diritto penale pratico prescindere dalla concezione popolare dell'idea di giustizia, la quale si estrinseca principalmente nel concetto della responsabilità morale e della eguaglianza dinanzi alla legge» A. Pozzolini, *Recensione a Seillès Prof. Raymond, L'individualisation de la peine*, in «Archivio Giuridico», LXII (1899), p. 402-406: 402.

<sup>87</sup> P. Schirò, *From Pietro Ellero to Enrico Ferri: the Genesis of Penalistica Sociale*, cit.

individualist and sociological key, proposing, with different theoretical gradations, a resolution to the criminal and social question that afflicts European society.

These authors affirm the need for a socialisation of criminal law and find legal answers to the numerous social problems afflicting society. In other words, they abandon the atavistic and biological Lombrosian determinism in favour of a social determinism, reaffirming the link between society and law, denouncing the inequalities perpetrated by the codes and proposing a series of reforms in order to achieve a fairer and more equitable law and society.

#### 4. *The impact of neuroscience: a return to the past?*

In the light of what has been analysed so far, it is clear that the crisis in the concept of criminal liability in the course of the 19th century has deep roots and that the answer to this crisis resides in determinism; it does not matter whether it is atavistic or whether it stems from social factors, what needs to be recorded is that a part of European criminalistics adopts a perspective that largely disregards the concept of free will<sup>88</sup>. According to these theories, human action is determined by factors external to the individual's consciousness, which may be anthropological, physical, cosmic or social, and so a new concept of criminal law is developed, which must consider measures to protect society from the actions, even if involuntary, of criminals. The assessment of the *social dangerousness*<sup>89</sup> of the individual becomes fundamental. In other words, the focus

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<sup>88</sup> The theses of the Italian school had a certain resonance in Europe and throughout the world, and although they were not able to change criminal law significantly, they had a direct effect on the society of the time; they constituted a certain legal culture, and this because, as we have seen, they were the fruit of their time, a scientific, all-bourgeois justification for crime, which is therefore described as something that does not belong to the typical bourgeois man, but to others, to the inferior race, to the less evolved. On this subject, Michele Pifferi has well pointed out how the theses of the new European criminalistics, while not prevailing over the theses of liberal criminal law, and thus not translating directly into positive laws, nevertheless inspired changes and altered the 19th-century penal system. The author refers in particular to some texts and regulatory proposals: «the Ferri Project of 1921, the Radbruch Project of 1922, the Belgian Social Defence Act of 1930 and the Spanish *Ley de vagos y maleantes* of 1933». See M. Pifferi, *Problemi costituzionali del diritto penale tra riformismo e ascesa del paradigma autoritario (1920-1940)*, in «Quaderni Fiorentini per la storia del pensiero giuridico moderno», XLVIII (2019), p. 309- 353.

<sup>89</sup> About this topic: G. Dell'Osso, *Capacità a delinquere e pericolosità sociale*, Milano 1985; A. Calabria, *Digesto delle Discipline Penalistiche*, voce *Pericolosità*, vol. IX, Torino 1995. Finally, for a comprehensive treatment of the topic with international profiles: M. Brown, J. Pratt (ed.),

of the criminal justice system should not be on the crime that has already taken place and its amends, with penalties aimed at re-educating the offender, but on crime prevention by judging the dangerousness of the individual and therefore providing measures to protect society<sup>90</sup>. It must certainly be reiterated that the theses of the positive school, as absorbed by European and overseas criminalistics, penetrated the doctrinal debates more or less widely, renouncing some critical aspects, smoothing out the perhaps too anthropological or medical angles, finding a compromise with liberal criminal law, and showing their *limits* by struggling to establish themselves in positive law<sup>91</sup>. However, these theses became legal culture by fostering the *criminological wave* of the late 19th century, contaminated by *social criminology*, and they influenced certain legal and social aspects of crime fighting, forensic science, psychiatry and criminal psychology. One example is the creation and development of police science<sup>92</sup> and the development of security measures.

The 1930 Italian Criminal Code, inspired on this point by the Positive School<sup>93</sup>, provides a definition of a dangerous person in Article 203<sup>94</sup> and thus connects the punishability of a dangerous person to his concrete capacity to commit a crime<sup>95</sup>; it therefore introduced a free assessment by the judge who is

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*Dangerous offenders: punishment and social order*, London - New York 2000.

<sup>90</sup> See M. Ancel, *Social defence. A modern approach to criminal problems*, New York 1965.

<sup>91</sup> It is precisely the theme of compromise that is at the centre of the aforementioned collection of essays, *The Limits of Criminological Positivism* edited by Pifferi, in which the limits of the theses of the positive school are highlighted; whose theses are forced to adapt to the principles of classical criminal law in order to survive.

<sup>92</sup> See E. Musumeci, *Against the Rising Tide of Crime: Cesare Lombroso and Control of the "Dangerous Classes" in Italy, 1861-1940*, cit.

<sup>93</sup> On the subject the volume: *Scuola positiva e codice Rocco. Atti del convegno nazionale in ricordo di Giuliano Marini: Torino, 21-23 ottobre 2010*. Padova 2011.

<sup>94</sup> Art. 203 c.p.: Agli effetti della legge penale, è socialmente pericolosa la persona, anche se non imputabile o non punibile, la quale ha commesso taluno dei fatti indicati nell'articolo precedente quando è probabile che commetta nuovi fatti preveduti dalla legge come reati. La qualità di persona socialmente pericolosa si desume dalle circostanze indicate nell'articolo 133.

<sup>95</sup> Art. 133 c.p.: Nell'esercizio del potere discrezionale indicato nell'articolo precedente, il giudice deve tener conto della gravità del reato, desunta: 1. dalla natura, dalla specie, dai mezzi, dall'oggetto, dal tempo, dal luogo e da ogni altra modalità dell'azione; 2. dalla gravità del danno o del pericolo cagionato alla persona offesa dal reato; 3. dalla intensità del dolo o dal grado della colpa. Il giudice deve tener conto, altresì, della capacità a delinquere del colpevole, desunta: 1. dai motivi a delinquere e dal carattere del reo; 2. dai precedenti penali e giudiziari e, in genere, dalla condotta e dalla vita del reo, antecedenti al reato; 3. dalla condotta contemporanea o susseguente al reato; 4. dalle condizioni di vita individuale, familiare e

called on to consider the personality of the subject, his moral inclinations, his relations with his family and the social context; all elements that change according to the historical period and the judge's concept of moral culpability. Social dangerousness in Italy has been the subject of criticism and has raised doubts as to its constitutionality<sup>96</sup>. However, during the 20th century, there was a process of *constitutionalisation* of *security measures*, i.e. those measures provided for by the legal system to protect against a person considered socially dangerous<sup>97</sup>.

Similar measures based on the assessment of an individual's social dangerousness have been adopted around the world and are all founded on the same principle of social defence against individuals perceived as dangerous<sup>98</sup>. These measures are the result of the idea that there are normal criminals to whom punishment can be applied according to the principles of liberal criminal law; and abnormal criminals, subjects from whom society must be protected<sup>99</sup>. The double-track system adopted by many jurisdictions in an attempt to reconcile risk and fault appears to be widely unconvincing, and it is therefore not surprising that there is constant reflection on the subject<sup>100</sup>.

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sociale del reo.

<sup>96</sup> On the critical aspects of the Italian code's provisions on the subject: G. Ponti, *La abolizione delle presunzioni di pericolosità sociale*, in «Rivista italiana di medicina legale», IX (1987); T. Padovani, *La pericolosità sociale sotto il profilo giuridico*, in F. Ferracuti (ed.), *Trattato di Criminologia, Medicina criminologica e Psichiatria forense*, vol. XIII, Milano 1990, p. 313-319; M. Amisano Tesi, *An ambiguous use of prevention in the Italian penal system*, in «Revista brasileira de estudos políticos», 115 (2017), p. 497-539.

<sup>97</sup> In general see A. Manna (ed.), *Imputabilità e misure di sicurezza: verso un codice penale modello per l'Europa*, Padova 2002.

<sup>98</sup> See J. Barker Waite, *The Prevention of Repeated Crime*, Chicago 1943; J. Floud, *Dangerousness and Criminal Justice*, in «British Journal of Criminology», XXII (1982), p. 213-228; Ph. Conte, *Dangerosité et droit pénal*, in M. Bénézech, C. Kottler, C. de Beaurepaire (ed.), *Les dangerousités : de la criminologie à la psychopathologie, entre justice et psychiatrie*, Montrouge-Surrey, 2004. L. Leturmy, *La dangerousité dans l'évolution du droit pénal*, in «L'information psychiatrique», 88 (2012), p. 417-422.

<sup>99</sup> On the security measures as identified in the Rocco Code and as conceived by the Positive School and European criminal law, I refer to the already cited: P. Marchetti, *De la responsabilité au risque*; M. Pifferi, *Reinventing Punishment*, cit. p. 86-229.

<sup>100</sup> About the extensive bibliography on the subject I will only mention here: P. Nuvolone, *Le misure di prevenzione nel Sistema delle garanzie sostanziali e processuali della libertà del Cittadino*, in *Stato di diritto e misure di sicurezza*, Padova 1962, p. 161; M., Pelissero, *Pericolosità sociale e doppio binario. Vecchi e nuovi modelli di incapacitazione*, Torino 2008; A. Wyvekens, *Le rétention de sûreté en France: une défense sociale en trompe l'oeil*, in «Déviance et Société», XXXIV, 4 (2010), p. 503-525; M. Amisano Tesi, *An ambiguous use of prevention in the Italian penal system*, cit. Historical perspective on preventive measures in Italy between the 19th and 20th centuries: L. Lacchè, *Uno 'sguardo fugace', le misure di prevenzione in Italia tra Ottocento e Novecento*, in «Rivista italiana di

The topic of the imputability crisis, the relationship between dangerousness and guilt, free will and determinism is still relevant in other areas, and the neurosciences deserve a final mention in this regard, which in many ways seem to resurrect some of Cesare Lombroso's theses<sup>101</sup>.

Neuroscience has in fact revived the age-old debate on issues of free will, determinism and criminal responsibility<sup>102</sup>. In recent years, many neuroscientists have intervened on the subject and, thanks to new technologies, have tried to shed light on the nature of human actions and the concept of free will. In particular, studies into the workings of the brain seem in many ways to limit human free will, from Libet's experiments into the mental process that causes a simple movement<sup>103</sup>, neuroscience has in recent years progressively cast more and more doubt on the freedom of all human actions, which are determined by factors external to our consciousness. If Haynes goes so far as to claim that he can «predict what you will do»<sup>104</sup>, the doubts about the punishability of human conduct are obvious<sup>105</sup>: indeed, it is not possible to punish someone who has

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Diritto e Procedura Penale» II (2017), p. 413 e ss.

<sup>101</sup> On the relationship between the Positive School and neuroscience see: P. Marchetti, *L'inconscio in tribunale. Azioni incoscienti e diritto penale. Da Charcot alle neuroscienze*, Milano 2014; and E. Musumeci, *Cesare Lombroso e le neuroscienze: un parricidio mancato* cit. By the same authors the articles: P. Marchetti, *Il cervello a giudizio. Le lontane origini di due recenti sentenze italiane*, in «Psicologia e giustizia», XII, 2, 2012, p. 1-14; and E. Musumeci, *New Natural Born Killers? The Legacy of Lombroso in Neuroscience and Law*, in P. Knepper, P.J. Ystehede (eds.), *The Cesare Lombroso Handbook*, New York-Oxford 2013, p. 130-145.

<sup>102</sup> Cf. S. J. Morse, A. L. Roskies (ed.), *A primer on criminal law and neuroscience: a contribution of the law and neuroscience project*, Oxford 2013; C. Grandi, *Neuroscienze e responsabilità penale. Nuove soluzioni per problemi antichi?*, Torino 2016.

<sup>103</sup> Experiments show that the awareness of wanting to make a movement (such as bending a finger) is subsequent to the actual decision of the brain on the unconscious level to make the movement. Our movements would therefore already have been programmed before our real conscious awareness. On this topic it is easy to read: B. Libet, C.A. Gleason, E.W. Wright, D.K. Pearl, *Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness-Potential): The Unconscious Initiation of Freely Voluntary Act*, in «Brain», 106 (1983), p. 623-642. Over time, the experiment was repeated and refined with more precise instruments. Cf. J.D. Haynes, C.S. Soon, M. Brass, H.J. Heinze, *Unconscious Determinants of Free Decisions in the Human Brain*, in «Nature Neuroscience», XI 5 (2005), p. 543-545.

<sup>104</sup> Haynes argues that on the basis of the data in the possession of scientists, 'brain activity can predict a decision long before it enters consciousness', which leads to disproving 'the naive' psychological conception of free will that any human decision is free and 'not entirely determined by brain activity' which is conditioned by elements external and internal to the brain. Cf. J.D. Haynes, *Posso prevedere quello che farai*, in M. De Caro, A. Lavazza, G. Sartori (ed.) *Siamo davvero liberi? Le neuroscienze e il mistero del libero arbitrio*, Torino 2019, p. 5-19.

<sup>105</sup> On neuroscience and criminal responsibility: I. Merzagora Betsos, *Colpevoli si nasce?*



not committed the act voluntarily but only because of a combination of brain functions and impulses that depend on factors external to his consciousness<sup>106</sup>; this translates into the need to reform criminal law entirely, abandoning the illusion of free will<sup>107</sup> and concentrating on crime prevention by neutralising the subject destined to commit a crime, or reducing to a minimum the external stimuli to the brain that would produce the crime. It seem to have gone back to 1880 and to theories of Cesare Lombroso, considering that the Veronese doctor also maintains that human behaviour depends on the functioning of the brain. Assuming that the neuroscientific theses linking dysfunctions and malformations of the frontal or temporal lobe of the brain to violent or anti-social behaviour are correct, all crimes committed by a person like Phineas Gage are not attributable to him, as he is not responsible for the malfunction of his brain and the effect on his disturbed personality. It is well understood that admitting that every human is nothing more than a *humid robot*, a cluster of automatic mechanisms that are conscious of existence, implies the need to find new means to fight crime and, more generally, to avoid assuming a paradoxical neuroscientific principle of justification, whereby every negative action can be countered with a genuine «it's not me, it's my brain». The solution found by the Positive School lies in overcoming the very concept of responsibility, affirming that each individual is always responsible for the actions he commits to society regardless of whether they are determined by his organism or the spontaneity of his will.

The issue is particularly relevant to law<sup>108</sup>, so that it is possible to identify at least three different areas of law in which neuroscience can contribute: 1. During a criminal trial, by means of neuro-scientific expertise aimed at understanding the reasons that drove a subject to commit a crime and thus his real responsibility; 2. in legislation, making it possible to integrate the results of neuroscience with the norms of a legal system and thus regulate society on the basis of

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*Criminologia, determinismo, neuroscienze*, Milano 2012. And also U. Maoz, G. Yaffe, *What Does Recent Neuroscience Tell Us About Criminal Responsibility?*, in «Journal of Law & BIOSCI», III (2016), p. 120-139.

<sup>106</sup> According to cognitive neuroscience, our actions and choices are generated by cognitive processes and brain processes that are completely unknown to the individual making them. Even feelings are said to be connected to particular physical processes in the brain, so that every decision is determined by 'internal forces' that are not understood by the individual. M. Minsky, *The society of Mind*, New Yor 1985; D. M. Wegner, *L'illusione della volontà cosciente*, in *Siamo davvero liberi?* cit., p. 21-49.

<sup>107</sup> About the illusion of free will: D. M. Wegner, *The illusion of conscious will*, Cambridge 2002.

<sup>108</sup> In general: B. Garland (ed.), *Neuroscience and the law: brain, mind, and the scales of justice*, New York 2004.

the particular new scientific knowledge<sup>109</sup>; 3. through the provision of neuroscientific instruments aimed at crime control by way of preventive measures or alternative punishments to imprisonment.

Neuroscientists' techniques for studying the brain have been used for decades in criminal proceedings to unearth evidence of the accused's guilt; *Functional Magnetic Resonance Imaging* (fMRI), *Computed Tomography* (CT) are widely used; as well as the widespread use of: *Positron Emission Tomography* (PET), *Magnetoencephalography* (MEG), and *Single-photon Emission Computed Tomography* (SPECT). Through the use of new brain-study techniques, evidence of the subject's guilt can be identified, as is actually the case in India, where a new electroencephalogram technique called *Brain Electrical Oscillations Signature Profiling* (BEOS) can be used to investigate the memory of suspects in order to understand, on the basis of the effect images and questions have on their brain, whether they are guilty or not<sup>110</sup>. Moreover, there are several famous cases in which neuroscientific examinations by means of neuroimaging have led to reduced penalties or even excluded sentences in the case of criminals whose actions were found to be linked to a brain disorder<sup>111</sup>. For example the Italian case of a 40-year-old man accused of murder, who after an initial sentence of 22 years' detention was judged not to be fully responsible because he was «genetically vulnerable»<sup>112</sup>, caused quite a stir. The man, who had already been subjected to psychiatric treatment in the past, is subjected to various neuroscience

<sup>109</sup> See A. Lavazza, F. Corso, *Neurolaw and the mind-brain problem in practice: The case of psychological immaturity and brain immaturity*, in «Theory and Criticism of Social Regulation», XXII (2021), p. 39-59. But also: J.S. Taylor, J.A. Harp and T. Elliott, *Neuropsychologists and neurolawyers*, in «Neuro-psychology» V, 4 (1991), p. 293-305; O.R. Goodenough, M. Tucker, *Neuroscience Basics for Lawyers*, in «Mercer Law Review» 62 (2011), p. 945-958.

<sup>110</sup> This technique led to the murder's conviction of a 24-year-old woman, as it was proved that her brain remembered elements of the murder. Cf. CR. Mukundan et al. *Brain Electrical Oscillations Signature Profiling (BEOS) for Measuring the Process of Remembrance*, in «EC Neurology» 8.6, (2017), p. 217-230.

<sup>111</sup> This is how a 50-year-old man in the USA is convicted of paedophilia-related offences gets a reduced penalty considering that various surgeries had compromised his temporal lobe. The same pathology (Klüver-Bucy syndrome (KBS)) was found in a 37-year-old man who unconsciously alternated between moments of normality and periods of uncontrollable sexual desire, «obscene behaviour», and «inability to recognise significant persons». See: J. Devinsky, O. Sacks, O. Devinsky, *Klüver-Bucy syndrome, hypersexuality, and the law*, in «Neurocase» XVI, 2 (2010), p.140-5; and D. Gabison-Hermann, A. Pelletier, M. Taleb, JH. Bouleau, *Dysfonctionnement des lobes temporaux et tableau psychiatrique atypique : à propos d'un cas*, in «Encephale», 35, 5 (2009), p. 491-495.

<sup>112</sup> It is possible read the text of the judgment with comments in: M. G. Ruberto, C. Barbieri (ed.), *Il future tra noi. Aspetti etici, giuridici e medico-legali della neuretica*, Milano 2001.

tests such as the *Moral Perception Evaluation Test*<sup>113</sup> and several *Functional Magnetic Resonance Imaging*; however, the most relevant test was his DNA, which revealed some abnormalities in genes related to violent behaviour. In particular, the man had a polymorphism in the gene for the enzyme monoamine oxidase A (MAO-A), commonly known as the *violence gene*<sup>114</sup>. Genetic abnormalities found in the offender are found to be responsible for the man's violent behaviour, so, for the first time, DNA expertise has led to the assertion of the existence of a kind of criminal gene, a genetic predisposition to crime, which then allows for the remodelling of punishment on basis of the irresponsibility of the individual. In our modern penal systems, admitting that a crime is committed for reasons beyond the agent's control means that the defendant is not criminally liable and must therefore receive a lighter sentence. Again, in another groundbreaking ruling by the Court of Como, a woman was declared semi insane after torturing, killing and burning her sister and trying to kill her parents<sup>115</sup>. Also in this case during the process several neuroscientific tests are carried out, in particular the brain structure of the woman is analysed through voxel based morphometry<sup>116</sup> from which the damage of some parts of the frontal lobes is revealed. In addition, DNA testing shows genetic defects that can expose the individual to violent behaviour. In all these cases, the power of neuroscience is highlighted, which changes the role of the criminal, who goes from being a brutal and free killer to a victim who is a slave to his irresistible organism.

The Italian judgments launched a debate among jurists on the usefulness of neuroscientific examinations, which for some risk limiting the judge's activity

<sup>113</sup> About this exam: R. J. R. Blair, *A cognitive development approach to mortality: investigating the psychopath*, in «Cognition», 57 (1995), p. 1-29.

<sup>114</sup> A great deal has been written about the so-called violence gene or warrior gene and its influence on behaviour, here we refer to: G. Guo, XM. Ou, M. Roettger, JC. Shih, *The VNTR 2 repeat in MAOA and delinquent behavior in adolescence and young adulthood: associations and MAOA promoter activity*, in «European Journal of Human Genetics» XVI, 5 (2008), p. 626–634. R. McDermott, D. Tingley, J. Cowden, G. Frazzetto, D. Johnson, *Monoamine oxidase A gene (MAOA) predicts behavioral aggression following provocation*, in «Proceedings of the National Academy of Sciences» 106, 7 (2009), p. 2118-2123; HM. Dorfman, A. Meyer-Lindenberg, JW. Buckholtz, *Neurobiological mechanisms for impulsive-aggression: the role of MAOA*, in «Current Topics in Behavioral Neurosciences», XVII (2014), p. 297–313; TM. Peters, IL. von Bueren, BP. Geurtz, KL. Coene, N. de Leeuw, HG. Brunner, JJ. Jonsson, MA. Willemsen, RA. Wevers, MM. Verbeek, *Monoamine oxidase A activity in fibroblasts as a functional confirmation of MAOA variants*, in «JIMD Reports» 2020, p. 114-121.

<sup>115</sup> M. T. Collica, *Il riconoscimento del ruolo delle neuroscienze nel giudizio di imputabilità*, in «Diritto penale contemporaneo», 2012, p. 1-26.

<sup>116</sup> J. Ashburner, K. J. Friston, *Voxel based morphometry. The methods*, in «Neuroimage» XI, 6 (2000), p. 805-821.

to a mere certification of DNA tests, while for others the new neuroscientific discoveries lead to a crisis in criminal law<sup>117</sup>; at the same time, however, the neuroscientific results encourage many neuroscientists to be sceptical about the real importance of the *criminal gene* on illegal behaviour, a position which limits the scope of neuroscientific expertise in the trial<sup>118</sup>.

Finally, it is worth mentioning the recent issue of Neurointerventions as crime prevention, a topic that has been debated because of the ethical consequences of such measures<sup>119</sup>, which are supposed to intervene with neuroscientific techniques to neutralise the crime at the very moment when the offender's mind thinks of the delict. An example of this is the development of *predictive brain devices*, which are currently used to recognise brain activity anticipating an epileptic crisis and which simultaneously with an *activation device* automatically administer a drug to block the crisis, could be adapted to recognise brain activity preceding certain violent actions<sup>120</sup>. In another case, the application of pharmacological treatments aimed at inhibiting certain substances responsible for particular deviant actions, as well as drugs aimed at releasing serotonin or other natural multivitamins seem to have a positive effect in the groups of prisoners analysed with a radical lowering of the percentage of recidivism<sup>121</sup>. Neurointerventions also include the various experiments that took place in the 20th century on prisoners who were drugged or subjected to lobotomy to neutralise them<sup>122</sup>. While, it represents an alternative measure to imprisonment: the hypothetical application of Deep Brain Stimulation on the detainee's skull in order to control his brain activity through the release of electronic impulses or

<sup>117</sup> We seem to be back in the days of Lombroso and the reflections in European public opinion on the impact of criminal anthropology on criminal law. For a complete reconstruction of the criminal anthropological theories of Lombroso and others in relation to the cited sentences see: P. Marchetti, *The mark of Cain. The serch of the criminal-man between medicine and law*, in «Giornale di Storia costituzionale», XXI (2011), p. 11-22;

<sup>118</sup> S. J. Morse, *Genetics and criminal responsibility*, in «Trends in Cognitive Sciences», XV, 9 (2011), p. 378-380. For an accurate reconstruction of the theses for and against neuroscience in law see; E. Musumeci, *Cesare Lombroso e le Neuroscienze*, cit., and the recent issue of the journal *Theory and Criticism of Social Regulation* dedicated to *Law and Neuroscience: New Perspectives*, 22, 1, 2021.

<sup>119</sup> See Jesper Ryberg, *Neurointerventions and crime prevention An ethically inappropriate discussion?* In «Theory and Criticism of Social Regulation» XXII (2021), p.193- 207.

<sup>120</sup> J. Ryberg, *Neurointerventions, Crime, and Punishment*, New York 2020.

<sup>121</sup> Y. Ginsberg, N. Lindfors, *Methylphenidate Treatment of Adult Male Prison In-mates with Attention-Deficit Hyperactivity Disorder: Randomised Double-blind Placebo-Controlled Trial with Open-Label Extension*, in «British Journal of Psychiatry» 200 (2012), p. 68-73.

<sup>122</sup> T. J. Wiegand, *Captive Subjects: Pharmaceutical Testing and Prisoners*, in «Journal of Medical Toxicology», III (2007), p. 37-39.

drugs<sup>123</sup>. In spite of the few lines I have dedicated to neurointerventions, I believe that they are sufficient to give an idea of the appropriateness of such futuristic interventions, which would end up creating the same paradox that Colajanni reproached Lombroso for: identifying and punishing the criminal even before the concrete existence of the crime.

In conclusion, the debate on neuroscience and its application in law is still open, and it seems to me useless here to sift through all the arguments in favour of the use of neuroscience in the criminal justice system<sup>124</sup>, as it is capable of revolutionising criminal law; and those who do not believe in the ability of neuroscience to change certain fundamental philosophical and legal concepts<sup>125</sup>. However, it is clear to me that neuroscience currently lacks the absolute and incontrovertible scientific certainty that makes it possible to rely on its results without any reasonable doubt; moreover, it should be noted that the concrete influence of society on the brain and mental state is still little studied. Nevertheless, the progress of science will lead to greater and more invasive innovations, and probably in the next few decades we will discover the secret of the brain and therefore of human thought, and new instruments will be developed to control and modify brain activity, with new technologies will make it possible to investigate the secret of everyone's consciousness. The proof of the existence of genetic determinism is not so far away.

It is clear that in the face of the challenges awaiting criminal law, adopting a determinist perspective, the theories of the Positive School, no longer seem so distant and erroneous, with the concept of social responsibility returning to draw new concepts of person and guilt; while, the intuitions of social criminal law suggest that interventions should be envisaged on society rather than on the brains of people.

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<sup>123</sup> For more details: S. Fuselli, *Neurocorrection. On the use of neurodevices for criminals*, in «Theory and Criticism of Social Regulation», XXII (2021), p. 209-229.

<sup>124</sup> An example in this case might be the theories of J. Green e di J. Cohen: *For the law, neuroscience change nothing and everything*, in «Philosophical transactions of the royal society of London», 359 (2004), p. 1775-1785.

<sup>125</sup> S. J. Morse, *Moral and legal responsibility and the new Neuroscience*, in J. Illes (ed.) *Neuroethics. Defining the Issues theory, practice, and policy*, Oxford 2006, p. 33-50.