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**Neuro-civilization:  
A New Form of Social Enhancement**

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**Neuro-civilization:  
A New Form of Social Enhancement**

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**Abstract**

It's well known that neurosciences are those disciplines characterized by the study of the relations between the structure of the brain (and the nervous system) and the human behaviour. In this paper, I will analyse how the knowledge of the neurological structures tends towards the control of socially undesired behaviours, thus ending up with an authentic 'neuro-civilization'. Furthermore, I will show the role neuroscientists claim for themselves in the Courts of Justice and in cultural debates; moreover, I will analyse the so-called reductive neurolaw, which is the gradual replacement of traditional sources of law with new neuro-scientific standards. Finally, I will present the elaboration of the concept of 'normality' as used in order to eliminate deviance and to directly intervene in the brain, with resulting critical issues for human autonomy and personal freedom. New techniques (on human brain investigation) open opportunities in regard to the capability to understand, and control, the behaviour of persons considered deviant, transforming them into socially accepted ones. As we will see, in order to achieve this result, neuroscientists try to structure a range of scenarios in strategic terms. It may be a risk if a certain idea of neuro-normality imposes itself for current practises, and not for theoretical reasons.

**Keywords:** Neuroscience, Neurocivilization, Social Control, Normality, Reductive Neurolaw; Neuro-deviance, Involuntary Treatments.

## Introduction

As known, neurosciences are those disciplines joined by the study based on the relations between the structure of the brain (and the nervous system) and human behaviour<sup>1</sup>.

Social issues are tackled through the study of the physiological basis of the individuals, considering the interaction between brain and environment in what is defined as neuroethics<sup>2</sup>. At the present, we are beginning to discuss about neurolaw<sup>3</sup>.

In this work, I will try to analyse how the knowledge of the neurological structures tend towards the control of socially undesired behaviours, thus taking the road of an authentic 'neuro-civilization'<sup>4</sup>.

Furthermore, I will show which role neuroscientists intend to find for themselves in the Courts of Justice and in cultural debates; moreover, I will analyse the so-called reductive neurolaw, which is the gradual replacement of traditional sources of law with new neuro-scientific standards. Finally, I will try to present the difficult elaboration of the concept of 'normality' as it is used to eliminate deviance and with the purpose of a direct brain intervention in the brain, with resulting critical issues for human autonomy and personal freedom.

New techniques developed on human brain investigation open a previously inconceivable array of opportunities for regarding the capability to directly know, and control, the behaviour of persons considered as deviant, transforming it into a socially accepted one. As we will see, to attain these results neuroscientists try to structure a range of scenarios in strategic terms.

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<sup>1</sup> «“Neuroscience” refers to the multiple disciplines that carry out scientific research on the nervous system to understand the biological basis for behavior...The term “neuroscience” was introduced in the mid-1960s, signaling the start of an era when these disciplines would work together cooperatively, sharing a common language, common concepts, and a common goal: to understand the structure and function of the normal and abnormal brain. Neuroscience today spans a wide range of research endeavors, from the molecular biology of nerve cells, which contain the genes that command production of the proteins needed for nervous system function, to the biological bases of normal and disordered behavior, emotion, and cognition, including the mental properties of individuals as they interact with each other and with their environments», Committee on Opportunities in Neuroscience for Future Army Applications, Board on Army Science and Technology, Division on Engineering and Physical Sciences, National Research Council of the National Academies, *Opportunities in Neuroscience for Future Army Applications*, The National Academies Press, Washington, D.C., 2009, p. 12. See M.D. Binder- N.Hirokawa-U. Windhorst (eds.), *Encyclopedia of Neuroscience*, Springer, Heidelberg 2009; and the Nobel Prize Eric R. Kandel (ed.), *Principles of Neural Science*, Elsevier, Amsterdam 1981.

<sup>2</sup> Neuroethics is the bioethic area that studies the relations between brain modifications and human behaviour. See A. Roskies, *Neuroethics for the New Millennium*, in ««Neuron» 35 (2002), pp. 21-23;

<sup>3</sup> S. Fuselli, *Diritto Neuroscienze Filosofia. Un itinerario*, FrancoAngeli, Milano 2011.

<sup>4</sup> For in depth analysis, P. Sommaggio, *Neurociviltà*, in «Etica & Politica / Ethics & Politics», XVI (2014), 2, pp. 130-168.

## The New Social Role of Neuroscientist

The first neuro-civilization strategy concerns the neuroscientist's role in the Courts of Justice and in cultural debates.

Through the clamour induced by the discoveries of the so-called Decade of Brain (the Nineties of the past century)<sup>5</sup>, neurosciences began to expose themselves in the social panorama, searching notoriety<sup>6</sup>. In fact, nowadays scientists are leaving the laboratories and starting to occupy more and more space in international debates, suggesting solutions to improve the organization of civil coexistence, or in the Courts of Justice, participating as advisers with a particularly persuasive appeal<sup>7</sup>.

The great interest which major foundations reveal in building situations where neuroscientists and jurists meet and join is a proof of this gradual 'invasion' in social, political and legal debates<sup>8</sup>. The MacArthur Foundation, for example, allocates a relevant amount of funds and resources for in-depth analysis of the relations between law and neurosciences, building a new and considerable social esteem for neuroscientists<sup>9</sup>.

For example, a recent article of the prestigious journal "Nature" reports that the international debate is focused on how neurosciences can provide for an effective and fair administration of Justice<sup>10</sup>.

The authors of this essay assume that, for contemporary society, law is an instrument to regulate citizens' behaviour, and that it has always sought to understand the causes of the behaviours it was ruling through different branches of knowledge, such as psychology, economy and sociology. The authors then assert that at the present moment neurosciences have supplanted all other scientific disciplines and have radically transformed the traditional ways of conceiving the anthropological events on which legal systems are based.

In this way, neuroscientists can become the most qualified experts for all those in-depth technical examinations that take place in Court, replacing all other kinds of consultation.

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<sup>5</sup> The expression "*Decade of Brain*", is in the *Presidential Proclamation* 6158, Office of Federal Register, 12:11 p.m., July 18 1990.

<sup>6</sup> J. T. Cacioppo (ed.), *Foundations in Social Neuroscience*, Massachusetts Institute of Technology Press, Cambridge, 2002; si veda inoltre il più recente D.D. Franks, *Neurosociology. The Nexus Between Neuroscience and Social Psychology*, Springer, Dordrecht 2010.

<sup>7</sup> C. O'Connor, G. Rees, H. Joffe, *Neuroscience in the Public Sphere*, in «Neuron» 74 (2012), pp. 220-226.

<sup>8</sup> The biggest American foundations involved in these matters are The MacArthur Foundation, The Dana Foundation and The Kavli Foundation.

<sup>9</sup> The John D. and Catherine T. MacArthur Foundation finanziato in the in studying Neurosciences and Law: the 'Research Network on Law and Neuroscience' and the 'Law and Neuroscience Project'. M. S. Gazzaniga, *The Law and Neuroscience*, «Neuron», (2008), 60, pp. 412-415.

<sup>10</sup> See O.D. Jones – A.D. Wagner – D.L. Faigman – M.E. Raichle, *Neuroscientists in court*, in «Nature» 14 (2013), pp. 730-736.

## Maximalist Neuro-civilizers

The second neuro-civilization strategy consists in the gradual creation of stereotypes and commonplace ideas able to influence the social and political debates intended to improve society<sup>11</sup>.

The first step is the coordination of the new neuro-scientific achievements with traditional anthropological/moral concepts (for instance, free will and moral conscious action) that constitute the grounds of a legal order<sup>12</sup>. The proposal is very simple: legal orders must be modified according to new neuro-scientific achievements.

Even if many neuroscientists share this assumption, the ways to transform legal orders substantially differ. On the one hand, we have the so-called 'enthusiasts' (or maximalist) neuro-civilizers, for whom the insertion of neurosciences in the field of the juridical thought, will necessarily lead to a revolution of the legal orders<sup>13</sup>.

On the other hand, we find timid (or reformist) neuro-civilizers, who regard as more useful to work gradually, by means of limited but constant slight changes of the existing legal orders, without stressing the society<sup>14</sup>.

For neuro-enthusiasts, free will is only an illusion and consequently law would be a social construction resting on an incorrect basis. Indeed, as they lack any ability of self-determination, men behave as machines determined by nature and thus shouldn't be considered morally responsible. It therefore becomes *necessary* to modify the retributive sanction structure in favour of a sort of special prevention, namely a 'personalised' treatment to prevent new antisocial episodes<sup>15</sup>.

Greene and Cohen are the most representative authors of this radical position<sup>16</sup>. They justify their eager support to the insertion of neuro-scientific

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<sup>11</sup> I will follow Adam Kolber's criteria. Vedi A. Kolber, *Will There Be a Neurolaw Revolution?*, in «Indiana Law Journal» (2014) 89, pp. 807-845; N. A. Vincent, *Neuroscience and Legal Responsibility*, Oxford University Press, Oxford 2013

<sup>12</sup> Martha Farah, *Responsibility and Brain Function*, Centre for Neuroscience & Society, <http://neuroethics.upenn.edu/index.php/penn-neuroethics-briefing/responsibility-a-brain-function>; M. Farah, *Emerging ethical issues in neuroscience*, in «Nature Neuroscience», 5, (2004), pp. 1123-1130.

<sup>13</sup> Farah, Gazzaniga, Steven, Greene e Cohen are enthusiast too. See M. S. Gazzaniga – M. S. Steven, *Free Will in the Twenty-first Century*, in B. Garland (ed.), *Neuroscience and the Law: Brain, Mind and the Scales of Justice*, Dana, New York 2004. Greene & Cohen *infra*.

<sup>14</sup> Nicole Vincent and Stephen Morse are reformists. N. Vincent, *On the Relevance of Neuroscience to Criminal Responsibility*, in «Criminal Law and Philosophy» 4 (2010), pp. 77-98. Morse *infra*.

<sup>15</sup> 'Treating' and not punishing antisocial ones is not a new idea. The Italian 'Scuola Positiva' considered criminal responsibility a question of insanity (or illness). F. Grispigni, *Diritto penale italiano*, Vol. I, Milano 1934. Critics in F. Cavalla, *Pena e Riparazione*, Cedam, Padova 2000, pp. 20-30.

<sup>16</sup> J. Greene- J. Cohen, *For the Law, Neuroscience changes nothing and everything*, in Zeki S.- Goodenough O.R. (eds), *Law and the Brain*, «Philosophical Transactions of the Royal Society of London» Series B, Biological Sciences, 359 (2004), pp. 1775-85, where we found that: «According to neuroscience, no one person is more or less responsible than any other for

technologies into legal orders precisely with the elimination of the free will and, along with it, of the concept of responsibility as outlined in the theories of punishment (in particular in the retributivist one)<sup>17</sup>. As a matter of fact, the authors affirm: “Free will as we ordinarily understand it is an illusion generated by our cognitive architecture. Retributivism notions of criminal responsibility ultimately depend on this illusion, and, if we are lucky, they will give way to consequentialist ones, thus radically transforming our approach to criminal justice. At this time, the law deals firmly but mercifully with individuals whose behaviour is obviously the product of forces that are ultimately beyond their control. Some day, the law may treat all convicted criminals this way. That is humanely”<sup>18</sup>.

So far, though, enthusiast neuro-civilizers haven't yet explicitly elaborated the standards a subject should be treated to, preferring, as we shall see, practical solutions<sup>19</sup>.

### **Reformist Neuro-civilizers**

Let's now contemplate the position of timid neuro-civilizers, else called reformists.

Stephen Morse certainly belongs to the ranks of the 'timids', in other words those who recognise some level of usefulness of the introduction of neuroscience without praising it uncritically. Even if he accepts, and even acknowledges to neurosciences a decisive role, Morse doesn't believe in the capability of the new achievements to revolutionize the legal order. As a matter of fact, the rapid evolution of neurosciences cannot modify the legal systems at a short term, or at least, not in a direct way.

Morse is convinced that to not punish someone, on the exclusive ground that “their brain did it”, is a mistake. In fact, every act of each one of us is somehow produced by the brain and therefore, unless some altered state is underlined, individual responsibility can't be questioned. Thus, compatibility between the point of view of traditional law and the outcomes of neurosciences is attained, that is between a point of view still tied to free will and a more determinist context one<sup>20</sup>.

According to Morse, therefore, Greene and Cohen don't realize that there are cultural/psychological premises implied in traditional law. These common-

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actions. We are all part of a deterministic system that some day, in theory, we will completely understand», p. 1780.

<sup>17</sup> This is also the thesis of M. Pardo – D. Patterson, *Neuroscience, Normativity and Retributivism*, in T. Nadelhoffer (ed.), *The Future of Punishment*, Oxford University Press, Oxford 2013

<sup>18</sup> Greene – Cohen, *For Law*, cit., p. 1784.

<sup>19</sup> Critics in Kolber, *Will There Be a Neurolaw Revolution?*, cit., pp. 817-819.

<sup>20</sup> S.J. Morse, *The Non-Problem of Free Will in Forensic Psychiatry and Psychology*, «Behavioral Sciences & the Law» (2007), pp. 203-220; S. J. Morse, *Compatibilist Criminal Law*, in T. Nadelhoffer (ed.), *The Future of Punishment*, Oxford University Press, Oxford 2013, p. 107. Critics in Kolber, cit..

sense assumptions – the so-called folk psychology – would be the basis of the anthropological model on which law is founded. Amongst them, the most important is definitely free will<sup>21</sup>.

Hence, law is based on a common-sense psychology that can't be overturned by neuro-scientific outcomes. This is particularly valid for criminal sanction, which “presupposes a “folk-psychological” view of the person and behaviour. This psychological theory explains behaviour in part by mental states such as desires, beliefs, intentions and plans. Biological and other psychological and sociological variables also play a causal role, but folk-psychology considers mental states fundamental to a full causal explanation and understanding of human action. Lawyers, philosophers, and scientists argue about the definitions of mental states and theories of action, but that does not undermine the general claim that mental states are fundamental. Indeed, the arguments and evidence that disputants use to convince others presuppose the psychological view of the person. Brains do not convince each other, people do. Folk-psychology presupposes only that human action will at least be rationalized by mental state explanations or will be responsive to reasons—including incentives—under the right conditions”<sup>22</sup>.

This is why neurosciences will not modify law in a revolutionary way, as the latter is founded on premises tied to common-sense and not to techno-scientific explanations.

In my opinion, the path proposed by Morse, although interesting as limitedly invasive, also constitutes a transforming process of the sphere of law, which is downgraded to instrument of new scientific paradigms of neuro-civilization.

### **Reductive Neurolaw**

The transformation of the society in a neuro-civilized society is in part accomplished through the replacement of traditional law sources with new paradigms. This is what I call the third neuro-civilization scenario, which uses the so-called 'reductive neuro-law' as it attempts to conceptually reduce law to neuro-scientific standards. Thus because the law intended as social control technique, has failed since it is not able to guarantee the maintenance of order in the society<sup>23</sup>.

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<sup>21</sup> S.J. Morse, *Avoiding Irrational NeuroLaw Exuberance: A Plea for Neuromodesty*, «Mercer Law Review» 62(2011), pp. 837- 859. S. J. Morse – A. L. Roskies, *A Primer on Criminal Law and Neuroscience. A contribution of the Law and Neuroscience Project*, supported by the MacArthur Foundation, Oxford University Press, Oxford 2013.

<sup>22</sup> S. J. Morse, *The status of NeuroLaw: a plea for current modesty and future cautious optimism*, in «Journal of Psychiatry & Law» (2011), 39, pp. 595- 626, qui 598-599.

<sup>23</sup> B.Z. Tamanaha, *How an instrumental view of law corrodes the rule of law*, in «DePaul Law Review» (2007) 56, pp. 1-52. «Under a scientific view, law would come instead to be seen as the source of social order – to produce social order is the function or purpose or end of law. In turn, this new perspective, over time, would open up questions about the efficiency and utility of law in carrying out its functions. The subtle but fundamental difference can be put thus: law



Neuro-law is a sum of two elements. The first one tries to establish new legal rules on the basis of the achievements of neurosciences; the second element intervenes (in a sanctioning/therapeutic way) directly on citizens' brain<sup>24</sup>.

David Eagleman embraces this set-out enthusiastically. Starting from the impossibility to consider whether an action is imputable with regard to a certain individual, he proposes instead to consider the “difference” for which we behave in one way than another<sup>25</sup>.

Eagleman states that criminal subjects should be treated as individuals with severe diseases or cognitive deficits, as incompetent persons. The rehabilitative, and not punitive, methods proposed by Eagleman are different from the present ones. They are based on non invasive forms of behaviour modification, such as neuroimaging techniques: a sort of biofeedback that allows individuals to observe their brain images and learn to control better their behaviour<sup>26</sup>.

Nevertheless, reductive neuro-law is based on 'normality' standards that still reveal great confusion: put to the test, these postulates reveal to be mere subjective options (although interesting as scientific hypothesis).

Therefore, the definition of shared normality standards represents one of the most delicate themes of the relationship between neurosciences and law.

### **A New Concept of Normality**

To date, in neurosciences, *normality* cannot be yet considered a shared concept, and the differences between normal and pathological are far from being evaluated in quantitative terms, even provided that this is abstractly possible.

In the neuro-scientific context, there are at least two formulas referring to normality: the statistic model, based on the observation of uniformity of behaviour, and the socio-biological, or evolutionary, model.

The most convincing and widespread critic to statistic normality can be found in the conception of Ian Tattersall, one of the leading experts on the

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is order, versus law maintains order» B.Z. Tamanaha, *Law as a Means to an End*, Cambridge University Press, Cambridge 2006, p. 5.

<sup>24</sup> See D.W. Opperbeck, *The problem with neurolaw*, «Saint Louis University Law Journal» (2013) 58, pp. 497-540.

<sup>25</sup> D. Eagleman, *Incognito: the secret lives of the brain*, Pantheon, New York 2011; vedi anche D.M. Eagleman- S. Isgur Flores, *Defining A Neurocompatibility Index for Criminal Justice System: A Framework to Align Social policy with Modern Brain Science*, in S. Muller – S. Zouridis-M. Frishman and L. Kistemaker (eds.), *The Law of the Future and the Future of the Law: vol. II*, Torkel Opsahl Academic EPublisher, The Hague, 2012, pp. 161-171.

<sup>26</sup> «To this end, we have begun leveraging realtime feedback to participants during brain imaging. This technique allows them to see when their brain is craving, and to learn how to control (in this case to lower) that neural activity by strengthening other, long term decision-making mechanism». Eagleman-Isgur Flores, *Defining A Neurocompatibility Index for Criminal Justice System*, cit., p. 165.

origins of man<sup>27</sup>. Tattersall stresses how empirical observations of behaviour regularities suffer the fate of all statistic abstractions. The latter are placed along a bell-curve, namely a standardised data distribution, such as that as for each genius there can be an idiot, with the resulting defeat of any normality definition. These are the author's words: "Yes you can indeed find regularities in human behaviours, every one of them doubtless limited by basic commonalities in the structure of our controlling organs. But all such regularities are in reality statistical abstractions and people are absolutely uniform in none of them. As a result, if any statistical phenomenon could be said to govern the human condition, it would be the "normal distribution" or the bell curve....for every saint, there is a sinner; for every philanthropist, a thief; for every genius, an idiot"<sup>28</sup>.

The second way to consider normality, the 'evolutive' one, is well exemplified by Debra Niehoff's conception. Normality would consist in characteristics favourable to social coexistence<sup>29</sup>. In other words, Niehoff asserts that the brain, as consisted in an interface where perception, memory and experience are translated into action, can suffer from inability to coordinate certain stirrings. Therefore, at the origins of violence, and of that behaviour that appears inappropriate in its environment, there would be incomprehension, a short circuit, between the brain and the environment in which it performs. Thus, in this incomprehension between brain and environment, lies the biological origin of behaviours considered antisocial or, better, not normal, as inappropriate in respect to the evolutionary level of the social context.

Nevertheless, basing neuro-scientific normality on biological-evolutionary foundations leads to a blind alley: we are unable to highlight the reasons why certain behaviours have consisted in a 'bad' adaptation to environment<sup>30</sup>.

In my view, the result is that behaviours which are already traditionally stigmatised by society continue to be considered abnormal; not only on a value-related basis, but with an evolutionary support. An example is a concept such that of typicality, which becomes nothing more than a word to indicate a set of symptoms or of obviousness<sup>31</sup>.

On this particular topic, Hariette Johnson asserts that the word 'typical' should replace the word 'normal', too imbued with subjective evaluations. In this manner, the subjective part of the judgement, the evaluation of certain behaviour, can be reduced as much as possible. In this way, she attempts to free the judgement of typicality from a hypothetical table of good/bad. Eliminating the moral or value-related implication, typical becomes nothing

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<sup>27</sup> I. Tattersall, *Masters of the Planet: The Search for Our Human Origins*, Macmillan, New York 2012, pp. 228-229.

<sup>28</sup> Tattersall, *Masters of the Planet*, cit., pp. 228-229

<sup>29</sup> D. Niehoff, *The Biology of Violence. How understanding the Brain, Behaviour and Environment can Break the Vicious Circle of Agression*, Free Press, New York 1999, pp. 263-267.

<sup>30</sup> P. Becker, *The Coming of a Neurocentric Age? Neurosciences and the new biology of violence: a historian's comment*, in «Medicina & Storia» X (2010), pp. 101-128, p. 124.

<sup>31</sup> H.C. Johnson, *Behavioral Neuroscience for the Human Services. Foundations in Emotion, Mental Health, Addiction, and Alternative Therapies*, Oxford University Press, Oxford 2014.

more than a set of symptoms and obviousness. In a nutshell, I believe that the theoretical in-depth analysis about the notion of normality (and of typicality) has not yet reached a satisfactory level. Single solutions are pursued, without the support of an adequate theory, thus risking liberticidal outcomes.

### **Neuro-deviance Elimination**

The last neuro-civilisation scenario consists in the elimination of deviance in an 'improved' society, a strategy which also tries to supplant traditional social sciences<sup>32</sup>.

As we have seen, one of the most widespread frames in neuroscience is very simple: since human behaviours have a biological basis, and as this basis can be empirically studied and modified, it is possible to highlight and control the physiological matrices of unacceptable behaviours<sup>33</sup>.

Furthermore, with the same ease, it is possible to intervene to modify these behaviours. After all, it is a 'therapeutic' intervention aimed to protect society through the improvement of the health of individuals suffering of adaptation difficulties.

If normality and health share an evolutionary perspective of adaptation to the environment, we can inversely consider what happens in this equalisation in deviant or potentially deviant behaviours.

Disease (as brain abnormality) and social abnormality (as abnormal behaviour inside society) are conceptualized in a single category (the category of mental disorder). If we consider unacceptable behaviours as diseases, law (especially criminal law) does not consist in the most effective instrument to fight this phenomenon anymore and must necessarily make way for other and more effective techniques.

In virtue of neuro-civilization reasons, through these new 'therapies' (surgery, medicines, grafts, etc.) it is possible to obtain a variety of modifications of mental states and of the deep structure of the brain.

In other words, it seems that the path towards a more and more neuro-standardised society is now set<sup>34</sup>.

'Deviance' becomes a simple health problem, or a biological/environmental adaptation one<sup>35</sup>.

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<sup>32</sup> A. Raine – Y. Yang, *Neural foundations to moral reasoning and antisocial behavior*, in «Social Cognitive and Affective Neuroscience» 1 (2006), pp. 203-213.

<sup>33</sup> H. Nagera, *Reflections on Psychoanalysis and Neuroscience: Normality and Pathology in Development, Brain Stimulation, Programming and Maturation*, in «Neuropsychoanalysis» 3 (2001), pp. 179-191.

<sup>34</sup> I. Singh, W.P.Sinnott-Armstrong, J. Savulecu, *Bioprediction, Biomarkers and Bad Behavior. Scientific, Legal and Ethical Challenges*, Oxford University Press, Oxford 2013.

<sup>35</sup> H.J. Markowitsch – W. Seifer, *Tatort Gehirn. Auf der Suche nach dem Ursprung des Verbrechens*, Campus, Frankfurt am Main 2007.

## Involuntary Treatments

The neuro-civilisation strategies considered up to this point seem to be only the social consequences of the development of our knowledge on man and on his brain.

It is now necessary to stress how the neuro-civilisation movement can take a bend dangerous for personal liberty.

As a matter of fact, I believe that the danger of a forced or of a too aggressive neuro-civilisation can result not only in a new conception of punishment, but can have consequences in those clefts of the legal orders where will is an element of secondary importance.

As it is known, there are forms of intervention, in many legal orders, completely regardless of the acceptance of those who undergo them; for example, involuntary healthcare treatments. I believe that, over the next years, this blind spot could represent a picklock to test new forms of normalisation inspired by neuro-civilization<sup>36</sup>.

In 2012, one of the most enthusiast neuro-civilizers tried to open the debate on the use of involuntary treatments precisely for the modification/elimination of antisocial behaviours, as well as for the treatment of diseases and of psychic distress<sup>37</sup>. This scholar, Hank Greely, is one of those who consider it an undelayable necessity to develop the basis of a direct intervention in the neuro-deviant brain, be it in criminals or simply people with psychic distress.

He asserts the daring thesis that neurosciences will provide the ability to modify undesired behaviours, by changing the neurological basis of agent individuals. This reasoning is very simple: if we agree that we are willing to intervene directly on the brain of a subject in case of severe disease or disablement, there isn't any reason to disagree on the treatment on the causes, also 'related to the brain', of socially undesired behaviours.

Greely proposes *safety* and *effectiveness* as standards to evaluate this kind of treatment. He asserts that the traditional forms of direct brain intervention (ad example lobotomy) are unduly simplistic solutions for a very complex problem, since they are neither safe nor effective<sup>38</sup>. Therefore, it is necessary to test new forms of intervention, safe and effective, in order to eradicate socially unaccepted behaviours through behaviour control<sup>39</sup>, provided that the interventions are safe, effective and not improper.

With the purpose of suggesting an experimentation in this direction, Greely examines three types of situations: the fully-voluntary possibility; the semi-voluntary choice between direct intervention and an unappealing

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<sup>36</sup> G. Meynen, *A neurolaw perspective on psychiatric assessments of criminal responsibility: Decision-making, mental disorder, and the brain*, in «International Journal of Law and Psychiatry» (2013) 36, pp. 93-99.

<sup>37</sup> H.T. Greely, *Direct Brain Interventions to "Treat" Disfavored Human Behaviors: Ethical and Social Issues*, in «Clinical Pharmacology & Therapeutics», 91 (2012), pp. 163-165.

<sup>38</sup> H.T. Greely, *Neuroscience and criminal justice: not responsibility but treatment*, in «University of Kansas Law Review» 56 (2008), pp. 1103-1138.

<sup>39</sup> Greely, *Direct Brain Interventions*, cit., p. 163.

alternative (e.g. jail); and a third completely forced option. Apparently, a very few would have qualms with agreeing with the introduction of an experimentation on a voluntary basis.

Nevertheless, in these cases, the problem of the true character of a voluntary act could emerge: in a final analysis, the decision could come from the individual's family or environment. Greely's reply consists into introducing an "extensive process to ensure that the offender had thought long and hard about it, was competent, and was not acting in hope of early release"<sup>40</sup>.

Secondly, according to Greely, it is necessary to consider the nature of the behaviour that one wants to modify. Let's think about a change of one's shyness or aggressiveness or of one's religiousness, or to those who for various reasons want to become 'someone else'<sup>41</sup>.

As for the possible objection on the harm of human dignity caused by these interventions, Greely replies: "but does a social consensus that a treatment offends human dignity justify forbidding competent adults from doing what they want to themselves, even if such a consensus could reliably be found?"<sup>42</sup>.

In respect to the semi-voluntary choice, according to Greely it is necessary to consider the types of alternatives proposed to the deviant individual. A court cannot offer the alternative between going to jail or voting for a certain party, and neither between jail and torture. Therefore, it is necessary to evaluate the appropriateness of the intervention that is its character of interest in regard to the individual's behaviour. Obviously, the alternative between jail and a safe and effective direct intervention is certainly tempting and, from the author's point of view, represents an appropriate proposal.

As to completely involuntary direct treatments, Greely wonders for which reason they should not be proposed without alternatives (that is, imposed), if they comply with the safe-effective-not improper requirements.

If we can serenely send someone to jail, unsuccessfully attempting to modify their behaviour, there is no reason for the scandal caused by a certainly more effective modification concerning the brain.

The problem involves individual freedom, that is, the 'resistibility' of traditional means that leave residual autonomy to the subject. That autonomy that the new means of direct intervention would not leave. At this regard, Greely asserts the need to identify a space of unattainable 'cognitive liberty'; a sort of privacy level under which one should not go<sup>43</sup>. But, even given this sort of unattainability, it is difficult to assert that direct brain intervention could not become a commonly used practice to modify behaviours that are socially unfavourable or not accepted by the community, or vice versa to ease accepted

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<sup>40</sup> Greely, *Direct Brain Interventions*, p. 164.

<sup>41</sup> Greely, *Direct Brain Interventions*, p. 164

<sup>42</sup> *Ivi.*

<sup>43</sup> «A "resistible" treatment, such as a prison rehabilitation effort, still seems to leave some freedom for choice; the more effective (and irresistible) the treatment, the greater the invasion of liberty. I feel that there *should* be some protected space of cognitive liberty, but, given that all interventions affect the brain, it is hard to see why mandatory brain interventions should be impermissible only if they are direct». Greely, *Direct Brain Interventions*, p. 164.

behaviours. These considerations open an interesting possibility of detailed studies, of which we can trace only a first outline. In effect, the concept of Cognitive Liberty (or Right to Mental Self-Determination), has appeared only very recently in the international debate<sup>44</sup>. Linked to the concept of sovereignty over one's 'cognitive heritage', cognitive liberty would consist in a right similar to the one of inviolability of the brain from the state or from third parties. Nevertheless, it includes the freedom to agree to direct interventions, appropriate to enhance one's cognitive structure<sup>45</sup>.

The problem, at this point, is to find ethical and juridical criteria for direct brain interventions (more or less invasive) without immediate therapeutic purposes<sup>46</sup>. On one hand, there is the problem to understand if and to what extent 'deviant' individuals are to be considered as 'sick' persons, that is, which can the forms of ethically shareable 'therapeutic' intervention by third parties be. On the other hand, it is as much a problem to evaluate the liceity of voluntary interventions of cognitive enhancement.

Both aspects are linked to the delicate relationship between the concept of normality and, consequently, the limits (or the enhancements) of one's cognitive liberty.

### Concluding Remarks

The authors we presented share a neuro-civilisation project, a social enhancement.

Neuro-civilisation promises a harmonious future for an 'improved' society through the stigmatisation of unacceptable or, better, non-normal behaviours.

As I have showed, the premise of the neuro-civilisation movement is the existence of the so-called mark of Cain (and its traceability) which, was once located and eliminated, would allow the containment of undesired, non-normal, behaviours.

Even if this can appear as a laudable thesis, maybe a little naïve under many aspects, so far there seems to be little agreement on the concept of normality on the level of the most advanced neuro-scientific research.

This is the point: neurosciences allow solving social problems through direct and modifying interventions, where traditional humanities have failed<sup>47</sup>. Nevertheless they are still not able (or not willing) to provide a common social

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<sup>44</sup> J.C. Bublitz, *My mind is Mine!? Cognitive Liberty as a Legal concept*, in E. Hildt – A. Francke (eds.), *Cognitive Enhancement*, Springer, pp. 233-264.

<sup>45</sup> Wrye Sententia and Richard Glen Boire are the founders of the Centre for Cognitive Liberty and Ethics (CCLE). W. Sententia, *Neuroethical Considerations: Cognitive Liberty and Converging Technologies*, in «Annals of the New York Academy of Sciences» (2004) 1013, p. 223.

<sup>46</sup> J.C. Bublitz – R. Merkel, *Crime Against Mind: on Mental Manipulations Harms and Human Right to Mental Self-Determination*, in «Criminal Law and Philosophy» (2014), 8, pp. 51-77.

<sup>47</sup> W. Bowart, *Operation Mind Control*, W. Collins Sons & co. Ltd., Glasgow 1978; about brain washing, see K. Taylor, *Brainwashing. The science of thought control*, Oxford university Press, Oxford 2004.

model to aspire to in order to define the criteria of normal/abnormal behaviours. They generally recall only an indefinite undesirableness which, however, leaves space to questionable, if not risky, practical solutions.

As I have showed, neuro-civilisation strategies propose neuroscientists leave the laboratories and participate to the debates about the future of society (and of law), with the purpose of providing an apparently 'neutral' point of view, aiming nevertheless to a big transformation. This transformation can be traumatic (revolutionary-maximalist) as maximalist neuro-enthusiasts assert, or can be diluted over time and less invasive, as neurotepid-reformists assert. According to the latter, technologies and neuro-scientific studies will simply generate a progressive improvement of the society.

In this new context, neuro-law will continue to be considered a control technique, reduced to an instrument for social evolution, in light of scientific standards and not of ethical values.

Two key concepts of this neuro-civilisation movement are those of neuro-scientific normality, namely the identification of standards for the classification of a subject as 'normal', and that of neuro-deviance, that is the other side of the coin: the non-normality that justifies interventions aiming to the neurological reconfiguration to eliminate the mark of Cain.

Therefore, the infirmity state is identified with that of social dangerousness and equalled in the same concept of 'mental disorder'. Behaviours cannot find refuge in a neuro-civilised society because evident symptoms of neuronal barbarity<sup>48</sup>.

The concept that better defines neuro-deviance is a disorder, the word that associates psychiatric distress and socially undesired behaviours. Hence, the question of social order will pass more and more through a subject's internal bio-order, that is the brain's order.

A question arises, of which difference is there from the will to modify antisocial behaviours that has historically characterized legal systems.

I believe that at least two things change. Firstly, is that the new techniques will intervene directly in the brain, thus creating issues about the individual's sphere of personal liberty, intended as individual identity. Involuntary and irreversible modifications can constitute a violent transformation of the offender's personal individuality.

Secondly, the models of behaviour, to intervene with respect to, have not been defined yet. And this results in a very high risk, since each neuroscientist considers their subjective option of 'normality' (or neuro-civilization) as an indisputable element.

In other words, to avoid irrational or self-referential drifts, it is essential to make a theoretical in-depth analysis on the concept of normality, and on the referring standards.

Therefore, it is not about saying yes or no to neuro-civilisation, but about identifying the fields in which it would be accomplished without the due

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<sup>48</sup> S.J. Morse, *Mental Disorder and Criminal Law*, «The Journal of Criminal Law & Criminology», (2011), 101, pp. 885-968.

respect for freedom, or in which it would be forced through direct brain intervention in order to eliminate neuro-deviance.

We must not forget that the figure of the deviant has an important role. It represents the critical opposition to social order that forces society to reflect about itself. This was the task of that famous deviant called Socrates. Even in a neuro-civilised society, I believe, it is necessary to find a place for this actor.

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