

How can neurolaw contribute to lawyers?  
Review of T. Matthias Spranger (editor), *International  
Neurolaw. A comparative analysis*, Springer-Heidelberg-  
Dordrecht-London-New York 2012, pp. 424

I

The reviewed monograph should be of interest not only for criminal and civil law dogmatists but also for law theoreticians and philosophers, ethicists, psychologists and sociologists. Generally, anyone who is interested in problems connected with neuroscience, can be an addressee of this publication.

Nowadays, in the field of jurisprudence, there are two tendencies. The first one consists of directing jurisprudence towards neuroscience when studying human cognitive and decisional processes. A neuro-physical basis is explicitly apparent in studies related to law<sup>1</sup>. The second tendency is based on the conviction that the legal system should deviate from outdated concepts dictating how people ought to behave and focus on understanding how people really behave and what has an impact on their behavior. It is emphasised in the literature that physiology and mind are strongly associated, constituting almost a unity. This kind of approach should contribute to the emerging changes in the law. However, the system resists the challenges of neurobiology, because it is assumed that people “are reasoning in a practical way”<sup>2</sup> (ignoring the fact that specific loss of acting reasonableness does not have to be caused by a lower level of cognitive processes’ capability and can be a result of the loss of contact

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<sup>1</sup> Cf. T. Pietrzykowski, *Intuicja prawnicza: w stronę zewnętrznej integracji teorii prawa*, Warszawa 2012.

<sup>2</sup> Cf. W. Załuski, *Nauki kognitywne a filozofia prawa*, [www.academia.edu/2654028/cognitive\\_science\\_and\\_legal\\_theory](http://www.academia.edu/2654028/cognitive_science_and_legal_theory), access: 15.11.2013.

with one's emotional baggage<sup>3</sup>), in legal assessment they are willing to act on their interest, act reasonably and are able to make decisions, control themselves and think<sup>4</sup>. Obviously, the behavior of people suffering from mental disorders and mental retardation or having psychopathic tendencies, is excluded from this scheme<sup>5</sup>. A multitude of convictions, challenges and fears related to neuroscience can be found in the legal doctrine. The monograph belongs to that current.

## II

The editor of the joint publication is Tade Matthias Spranger, member of the Ethics Committee, School of Medicine, University of Bonn, since 2003. Moreover, he is the leader of the BMBF interdisciplinary group (German Ministry for Science and Education), "Norm-setting in Modern Life Sciences" at the Institute of Science and Ethics (IWE) in Bonn since 2006; a member of the UNESCO expert group "A database of legislation, guidelines and regulations in connection to ethics" since 2007; a member of the Working Group "International Dimensions of Bioethics" in the German UNESCO Committee; a member of the Ethics Committee in The German Society of Nursing Science; a member of the Senate Committee which has dealt with genetic studies (DFG) since 2010. The author works in the Faculty of Law at the University of Bonn. He is an author of more than 270 publications.

## III

The joint work (introduction, 18 chapters, summary) describes neuroscience through the prism of the legal landscape in selected countries (Australia, Austria, Latin America, Canada, Finland, France, Ger-

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<sup>3</sup> P. Krukow, *Modele neurobiologiczne a zagadnienie osobowości*, <http://www.racjonalista.pl/kk.php/s,2263>, access: 23.11.2013.

<sup>4</sup> D. Eagleman, *Neurobiologia ulepszy prawo*, <http://wiadomości.onet.pl/prasa/mozg-podrecznik-uzytownik/ght2f>, access: 5.12.2013.

<sup>5</sup> B. Pastwa-Wojciechowska, *Naruszenie norm prawnych w psychopatii. Analiza kryminologiczno-psychologiczna*, Gdańsk 2005.

many, Greece, Japan, The Netherlands, New Zealand, Great Britain, Switzerland, Turkey, United States). The authors emphasise the fact that no country has succeeded in creating a genuine neurolaw. We consider that this fact can be internationally treated as a gap in the law. Neurolaw sets an international future challenge for legal systems. Certain chapters make the reader aware of the fact that regulations related to neurolaw vary significantly in different countries<sup>6</sup>. Obviously, some similarities are apparent. On the one hand, legal systems are represented by geographically diverse regions, also varying legal cultures. On the other hand, norms established by international organizations are studied in full respect of the question if those fundamental norms can be applied to neurolaw. At international level, UNESCO plays a crucial role in establishing universal standards for studies. Those standards can be treated as an ethical guide by lawyers. At European level, regulations of the Council of Europe are known to show special interest in neurolaw. Members of the Council of Europe treat neurolaw as the research area related to the biological sphere.

In the reviewed joint work we discern two groups of problems which we consider to be the most significant, especially for lawyers and ethicists.

First of all, the issue of free will on the basis of the criminal law system.

According to A. Santosuosso (*Neuroscience and Converging Technologies: From Free Will Approach to Humans*, p. 198), the method of free will is not comprehensive, in theoretical conditions, it cannot be applied in an emerging reality, but there is no method that can be evaluated as more efficient. As far as Santosuosso considers, there is a real need to study, if the currently available neurotechniques are actually used by

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<sup>6</sup> For instance, in the Brazilian legal system, there is no specific legislation related to the neuroscience. In the Brazilian legal system a multiple of diverse solutions, which concern human beings in general, can be found (H. Moraes Prata, M. Arango Sabino de Freitas, *Brazil Imaging: Challenges for the Largest Latin American Country*, p. 67). In contrast to Brazil, a wide range of legal specifications, which can be connected with the neuroscience, is owned by Canada. For the Canadian legal system, non-binding documents, treated as a guide, which are a basis for indicating standards related to neuroscience are characteristic. An important regulatory tool of an ethical nature is a Tri-Council Policy Statement (C. Tode, A. Zarzeczny, T.T. Caulfield, *Research Ethics Challenges in neuroimaging research: A Canadian perspective*, p. 89).

specialists before the courts in various countries. In fact, considering how rulings influence the idea for the law, it can be concerned as a valueless approach. On the other hand, neuroscience and neurotechniques should be perceived as specific spheres of a wide variety of new, similar techniques. This kind of approach may seem to be overambitious, however, arising questions may turn out to be even more challenging (e.g. social, mental, technical, biological boundaries). Common attitudes overlook the reality of global neurobiology and neurotechniques, and as a result, no promising standpoint has been worked out so far. This is the reason why the author does not discuss any controversial consequences of neuroimaging methods (e.g. lie detector, mental retardation, psychopathy). The author intends rather to study the technical applications of neurobiology on the human body, such as the objective measurement of chronic pain, robots and artificial intelligence, and brain-computer interfaces. Conclusive remarks focus on the influence of neuroscience on the law and its way towards understanding essential terms, e.g. *human being*.

The problem of free will was discussed as a significant issue of the “Classical School” and “Modern School” of criminal law, and shaped by Italian and German solutions until the 1990s, in Japan (K. Kai, *Neurolaw in Japan*, pp. 219–220). Previously, it was common not to consider free will in terms of determinism. However, some people consider that free will does not exist as a principle of guilt in terms of indeterminism (“*Nulla poena sine culpa* = no punishment without culpability”). Nowadays, the second option is predominant, but there is also a third option, called “soft determinism” (a theory of relatively free will) which has had a substantial influence on Japanese doctrine. According to K. Kai, these arguments are related to neuroscience. Generally, it is said that determinism accepts interference in the brain as social treatment or public health protection. In the mentioned author’s opinion, neuroscience and neurolaw should not be approached from that point of view, since it may cause fatalism. That is the reason why neuroscience should be harmonized with human rights and patients’ rights by supervising free will.

The described issues are connected with the problem of personal data protection, also raised in the reviewed publication (K. Kai, *Neurolaw in Japan*, p. 220). Recently, the issue of legal protection and use of genetic information is widely discussed. Genetic information is often used, not

only in the field of medicine but also in business. In Japan, specific personal data protection, using a genetic and medical information system, is applied. Moreover, genetic information is not legally and clearly classified. There are only guidelines related to this issue. That is the reason why some principles can be discerned: 1) conscious agreement according to documents; 2) genetic counseling; 3) establishing a commission; 4) strict statement of purpose; 5) interdiction of using classified data; 6) safe risk managing, including data anonymity; 7) a general ban on delivering data to a third party; 8) the withdrawal of the agreement; 9) assuming an opportunity of consultation. According to K. Kai, it is necessary to pass appropriate legislation, providing legal protection of using genetic data. Genetic discrimination in the field of employment, insurance, marriage etc., should be avoided in legislation. Moreover, genetic information has to be protected from abuse, because it belongs not only to certain persons but also to members of their families. The author also emphasizes that genetic data is not the same thing as neurodata, but the mentioned considerations are appropriately applied in the context of neurolaw in Japan. Neuroscience can be directed towards neurolaw by using those regulations.

Application of the law in bioethics, according to French regulations, is described in a work by C. Rödiger (*The Obtainment and Use of Neuroscientific Knowledge in France*, p. 140). French bioethical law, known as Huriet's Law (The Law on Bioethics, 2010) and a part of The Public Health Code (The Public Health Code, 2010), establishes legal conditions that concern the protection of people engaged in biomedical research. Initially, Hurriet's Law involved only regulations concerning cloning, genes and transplantation. Changes were made under the influence of the European Union's directive 2001/20/CE to associate legislations, regulations and administrative decisions in member countries, implementing good clinical practice in carrying out clinical trials on medical products used by other people. As a consequence of the expanded knowledge of medical research, French legislators decided to make certain changes in bioethical law. In January 2010, the question about implementation of neurospecific standards in bioethical law was posed for the first time in France.

The issue of free will is also apparent in considerations related to the admissibility of euthanasia which is mentioned in the reviewed publica-

tion (B. Arda, A. Aciduman, *Neuroethics and Neurolaw in Turkey*, 2.1. *Euthanasia from a Neuroethics and Neurolaw Point of View*, p. 292). In order to prevent anxiety about losing autonomy and personal freedom if one becomes, as a consequence of misadventure or terminal illness, a passive object of medical treatment, and also to support doctors in making difficult decisions, a special legal institution has been created in some countries. It is called “living will” (this is the most common term but it is also called e.g. *advanced directives*, *testament biologique*, *Patientenverfügung*, *Lebenstestament*). It consists in establishing conditions that enable every person with full competency to make a statement of will where one demands a certain action or discontinuation from doctors when, in an unknown future, one is found to be in a state precluding making conscious decisions<sup>7</sup>.

Secondly, using neuroscience in the courtroom.

The most interesting considerations relate to the application of neuroscience in criminal proceedings (e.g. lie detector test, polygraph)<sup>8</sup>. Medical and psychological opinions are applied to criminal proceedings in many legal systems. Neuroscientific methods can influence the situation of a defendant, since using them can help to reduce or exclude guilt. To reduce or exclude the defendant’s guilt, appropriate evidence has to be presented before the court. For instance, in the English legal system, a defendant has to be of sound mind when committing a crime.

L. Claydon, P. Catley (*Neuroscientific evidence in the English courts*, p. 309) give examples that indicate certain difficulties connected with the application of neuroscience’s achievements before English courts.

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<sup>7</sup> K. Poklewski-Kozieł, *Lekarz wobec oświadczeń woli pacjenta antycypującego swój stan terminalny (na tle rozwiązań przyjętych w Szwajcarii)*, *Prawo i Medycyna* 2001, No. 9, p. 48. Also M. Nesterowicz, *Prawo medyczne*, Toruń 2000, s. 201 and further, K. Poklewski-Kozieł, *Oświadczenia woli pro futuro pacjenta jako instytucja prawna*, *Państwo i Prawo* 2000, No. 3; idem, *Ani eutanazja, ani pomoc w samobójstwie*, *Rzeczpospolita*, No. 167, 19.07.2000.

<sup>8</sup> Throughout the last decade legal systems in Western Europe have ceased to withstand the use of neuroscience’s achievements within trials. Referring to brain images created by the use of functional Magnetic Resonance Imaging (fMRI) or genetic tests are the domain of the legal services market in the USA. B. Zyzik, *Genetyka behawioralna na sali sądowej*, *Forum Prawnicze* June 2012, p. 30 and further.

We shall refer to one of these. In the *Hill v Baxter* case, neuroscientific knowledge was applied to determine if the defendant's action was voluntary or not during the occurrence. It has to be emphasized that the case occurred in 1957. The case concerns a car accident; the defendant had not stopped a car at a junction. The explanation presented by the defence and accepted by the judges was that the driver had been unconscious at the time of the accident. The defence raised the issue that the defendant's action had been involuntary, challenging the presumption of voluntariness. The plea was rejected as inapplicable to the offence with which he was charged. The magistrates found that the defendant was not "capable of forming any intention as to the manner of his driving". This was found by the appeal court to be irrelevant because the statute placed an absolute prohibition on dangerous driving — therefore the mental state of the defendant was irrelevant. However, the case is interesting, because an EEG test was carried out on the defendant and the neurologist's report was submitted for consideration by the court. The test showed no abnormalities that could explain the defendant's loss of consciousness. The appeal court noted its disapproval of the use of this kind of written medical evidence. However, medical reports now play a far greater role than they did in 1957. Additionally, the role of medical explanations of behavior has become generally accepted by the courts. This raises interesting questions referring to the usefulness of reports when they are produced a considerable time after the offence occurred.

In Australia, neurotechniques are used during proceedings with varying results. So far, there has been no case that would indicate a positive implementation of neurotechniques as evidence in civil or criminal proceedings. The basic task for Australian courts is to investigate the admissibility of such evidence in criminal proceedings (e.g. lie detector). In Australia, neuroscientific evidence has to fulfil certain criteria. One of them is the criteria of relevance. The court can decline to approve evidence if it is risky or based on dishonesty (L. Houston, A. Vierboom, *Neuroscience and Law: Australia*, p. 11).

Application of neuroscientific evidence happens in many cases in the American legal system. Neuroscience there plays a determinative role in estimating future risk. Certain areas, where neuroscience plays a deci-

sive role, especially in criminal proceedings, have been indicated in the USA (O.D. Jones, F.X. Shen, *Law and Neuroscience in the United States*, p. 364): juvenile brain, addiction, trauma, responsibility, psychopathy.

In the American legal system, cases connected with brain damage, and regarding compensation demands, are common (e.g. brain damage among American football players). Also civil proceedings, related to PTSD, are “fashionable”. Scientists are beginning to better understand neuronal correlations between PTSD and brain functioning disorders. Neuroscience can change the course and results of proceedings based on PTSD. It should be emphasised that, in the reviewed monography, there is a distinction between “mental harm” and “bodily harm”. A court in Michigan, in one of its judgements, concluded that the evidence brought by neuroscience improved the statement that PTSD is actually “bodily harm”. As the brain is a part of the human body, harm or loss caused by PTSD is “bodily harm”.

Also in Austria (M.J. Hilf, K. Stoger, *Country Report: Austria*, p. 43) it is emphasised that neuroscience can, and as far as we are concerned it should, protect incapacitated, elderly and chronically ill people (Brain/Neuronal Computer Interaction, BNCI).

IV All considerations, concluded in the diverse chapters of the reviewed publication, are interconnected with ethical and legal matters (responsibility, evidential value). In our opinion, few considerations related to the issue of responsibility constitute a drawback of the reviewed publication and it is immeasurably interesting for lawyers, who not only specialise in criminal law. The brain is perceived by the law in an easy way. According to the law, the brain is treated as a tool for practical reasoning which operates freely in a normal brain, resulting in actions and behavior. Personal responsibility is a product of a normally functioning brain, equipped with such tools. However, as a consequence of lesions, such as neurotransmitting disorders, the brain does not function normally, which reduces its efficiency, resulting in limitation of responsibility. It can be treated as a basis for exculpating the perpetrator. As far as criminal law is concerned, the issue of intention to commit a crime is also significant. Obviously, there are varying opinions about responsibility and its location in the human brain. There are also opinions that responsibility is not located in the brain at all. According to this point of view, the source



of the responsibility are the interactions between people, social contact. Responsibility appears to be a reflection of the rule, which arises from the interaction of two or more subjects in a social context, and also from a common hope that people are willing to respect certain principles<sup>9</sup>. Unfortunately, the author's opinion on the mentioned matter it is not explicitly expressed in the reviewed work. Obviously, the fact that the book was written by many authors, derived from various legal cultures and systems, significantly influences this situation.

To sum up, despite indicating drawbacks, we recommend this publication to the reader. It is worth emphasising that there are no studies about this subject in Poland. We recommend the book since we are convinced that attentive reading of the joint work, edited by T.M. Spranger, enables a better understanding of the problems related to neuroscience, especially with regard to the concept of free will and ethical rules and values, such as dignity, personal integrity, protection of human rights, focusing on the rights of people suffering from various mental disorders.

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<sup>9</sup> M.S. Gazzaniga, *Kto tu rządzi — ja czy mój mózg? Neuronauka a istnienie wolnej woli*, Sopot 2013, pp. 163–165.