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Neurolaw: A Jurisprudential Analysis

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Abstract: The emerging discipline of Neurolaw is strange and diversely combined. Neurolaw tries to cross-fertilise the theories and values of neuroscience and law, towards an objective which is common to both the disciplines, as well as charting new terms to expand frontiers of both the disciplines. Neuroscience and Law are nearing close to serve the new objectives than what these disciplines traditionally set so far. However, the term and concept of "Neurolaw" give a challenging meaning and hence the foundation of Neurolaw in jurisprudence has to be analysed through the prism of jurisprudence. The scope of this work is to analyse the foundational ideas and concepts Neurolaw from the standpoint of jurisprudence. The analysis of the foundational ideas and concepts of Neurolaw, from different schools of jurisprudence, can contribute to the clarity of objectives of Neurolaw as a discipline of study. The analysis from the vintage of different schools of jurisprudence, which is so far absent in various Neurolaw-literatures, leads to a promising conclusion that, the more Neurolaw engages with jurisprudence, the more it can contribute to different schools of jurisprudence and thereby can find own limitations and expansions to stand as a unique discipline to contribute to the knowledge tradition.

Keywords: Neurolaw, Jurisprudence, Neuro-Schools of Law.

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CONFLICT OF INTEREST

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1. INTRODUCTION

Neuroscience and Law are seemingly unrelated disciplines. At a certain period in history law and sociology were two distinctive disciplines. However later on they find a convergence due to the necessity of understanding and development of new theories in each discipline. Expansion of a discipline is evitable. It is by necessity and compulsion of expansion of the subject matter itself diversified branches of knowledge come together. In the evolution of a discipline, it leans towards diversified subjects that are seemingly unrelated. They also find a common ground to fertilise together and grow together, to shape and reshape their future. Such is true for Neuroscience and Law, which, perhaps conveniently termed as Neurolaw. "Nowadays, we are witnessing the increasing scholarly attention to neuroscience achievements in the context of the law" [1]. So, both these disciplines have to go through the throes of exchanges of ideas, linguistic pattern and thoughts of knowledge to mature themselves to serve the purpose of Neurolaw. The necessity is such that the understanding of neuroscience dimension which has implications with the law seems inevitable. Therefore, a jurisprudential analysis of the Neurlaw is not only is necessary but also is impending for law, though Neurolaw has claimed to reach the second generation, so far.

2. ABOUT NEUROSCIENCE

Scientists have made significant improvement in understanding the human brain, its functions, and malfunctions. The scientific study of the nervous system, neuroscience, has made a revolution in medical practices. ―The term *neuroscience* was coined by Francis O. Schmitt in 1962, which is the year proposed by some historians as the birth of contemporary neuroscience‖ [2]. ―Neuroscience is a branch of biology. Neuroscience has traditionally been classed as a subdivision of biology‖ [3]. It is currently an interdisciplinary science that collaborates with other fields. Neuroscience shows an understanding of how the nervous system works. ―Neuroscience is the scientific study of the nervous system‖[4]. ―Neuroscience is the scientific study of the nervous system and the brain‖ [5]. ―Neuroscience examines the structure and function of the human brain and nervous system‖ [6]. ―Neuroscience, also known as Neural Science, is the study of how the nervous system develops, its structure, and what it does. Neuroscientists focus on the brain and its impact on behavior and cognitive

functions. Not only is neuroscience concerned with the normal functioning of the nervous system, but also what happens to the nervous system when people have neurological, psychiatric and neurodevelopmental disorders‖[7].

2.1 On Cognitive Neuroscience:

"Cognitive neuroscience is the scientific field that is concerned with the study of the biological processes and aspects that underlie cognition, with a specific focus on the neural connections in the brain which are involved in mental processes‖[8]. ―Cognitive neuroscience is an interdisciplinary area of study that has stemmed from neuroscience and psychology‖[9]. Medical Definition of cognitive neuroscience states as ―(*n*) a branch of neuroscience concerned with the biological processes of the nervous system which form the basis of cognitive

functioning‘[10]. ‒It addresses the questions of how cognitive activities are affected or controlled by neural circuits in the brain‖ [11]. ‒Cognitive neuroscience is a branch of both neuroscience and psychology, overlapping with disciplines such as behavioural neuroscience, cognitive psychology, physiological psychology and affective neuroscience. Cognitive neuroscience relies upon theories in cognitive science coupled with evidence from neurobiology, and computational modelling‖ [12]. Cognitive abilities based on brain development are studied and examined under the subfield of developmental cognitive neuroscience.

The importance to study the cognitive neuroscience buttressed by the fact that a large of the theories of criminal law considers the mental faculty of a person crucial for fixing the culpability on him. The theories of criminal laws recognise a human being having a free-will and a person should have a *mens rea* or guilty mind for the commission of the offence. However, so far, it is difficult to peep into the mind of a person, and thus jurisprudence has enriched theories to decipher the intent of the mind from the circumstantial evidence and the objective fact of *actus reus* or culpable action, which further is found placed in various judgements of the courts.

3. UNDERSTANDING NEUROLAW

The term Neurolaw is coined by Sherrod J. Taylor in his scientific paper titled "Neuropsychologists and Neurolawyers" in 1991[13]. More specifically, the Neurolaw is more focused on cognitive neuroscience, a sub-discipline of neuroscience. That is a 'coherent and systematic brain-based approach to mental function‘ [14]. Considering the importance of Brain, which associates with the formulation of reasoning the relationship between Neuroscience and Law, gives scope for the interdisciplinary study of Neurolaw and begs for an inclusive and appropriate approach to the phenomena and events of operation of law. **“**Neurolaw is a field of interdisciplinary study that explores the effects of discoveries in neuroscience on legal rules and standards‖ [15]. It is the intersection of Neuroscience and Law. ‒Drawing from neuroscience, philosophy, social psychology, cognitive neuroscience, and criminology, neurolaw practitioners seek to address not only the descriptive and

predictive issues of how neuroscience is and will be used in the legal system but also the normative issues of how neuroscience should and should not be used‖[16]. Having an idea in the mind as to the boundary of techniques as well as possible progress of legislations in this regards, begged questions to ‒justify the creation of a new interdisciplinary concept: Neurolaw or Law applied to neuroscience‖ [17]. ‒...neurolaw, like all new theoretical approaches to traditional disciplines terminologically identified by a neuro-root(primarily the forerunner ‒neurophilosophy‖), is intended as a project of conceptual reformulation of current legal notions and theories, a reformulation informed precisely by cognitive neuroscience.‖[18].

For an accurate understanding of the legal issues, neuroscientific data might be of significance. Lots of cases with diversified legal contexts bearing relationship with neuro- scientific evidence are increasingly reaching to the court of law. It is believed that Neurolaw would generate a better juridical system. The claims of Neurolaw are threefold. These claims can be sorted into three broad categories: predictive claims that assert how neuroscientific evidence *will be used* or *will influence* the application of criminal law principles in the future; descriptive claims about how

neuroscientific evidence *is being used* in practice; and normative claims which assert how neuroscientific evidence *ought to be used* in practice‖[19].

The central idea about Neurolaw, from the above we can sum up, is that it is application or application potential of neuroscientific findings in legal studies. Neurolaw is to analyse and apply the neuro-scientific results in legal studies. In this context, though the term Neurolaw is used by various authors in their articles and scholarly works, however, there is still scope for an inclusive and critical analysis of the operational definition in the light of jurisprudence.

4. THOUGHTS ON JURISPRUDENCE

–The word comes from the Latin term *juris prudentia*, which means "the study, knowledge, or science of law‖[20]. –This signifies that like any other social study, the law is also studied scientifically or systematically‖[21]. –In modern law jurisprudence is understood as a term that embraces a spectrum of questions about the nature and purpose of law and responses made to them‖[22]. As per, Merriam-Webster Lexicon, "jurisprudence: noun: the science or philosophy of law"[23]. The word jurisprudence is derived from a Latin word jurisprudentia which in its widest sense, means "knowledge of the law"[24].

An English jurist Sir Thomas Erskine Holland defines, jurisprudence as, " Jurisprudence is the formal science of positive law"'[25]. Keeton defines jurisprudence as "the study and systematic arrangement of the general principles of law"[26]. Dr C. K. Allen defines jurisprudence as –the scientific synthesis of all the essential principles of law‖[27]. Dr M.J. Sethna defines jurisprudence as –a study of fundamental legal principles including their philosophical, historical and sociological bases and analysis of legal concepts‖[28].Jurisprudence is the grammar of law. It is a study of the "fundamental principles of law"[29]. If we consider in the context of present-day, Jurisprudence can

tentatively be suggested that works or thoughts and philosophy of law, writing about the law in its relations to other disciplines, expositions of law. Jurisprudence is the eye to the law. Jurisprudence is the window to the law. Any understanding of the law and legal discipline is incomplete without understanding a robust discipline of thoughts on jurisprudence. Jurisprudence trenches on many disciplines of knowledge. There are various schools of law in jurisprudence like analytical or positive, sociological, historical, philosophical and realist. Each school of law in jurisprudence tries to define law in its domain of understanding and bodies of thoughts and philosophies. Now lets us turn to the meaning of law in various schools law.

5. MEANING OF THE LAW

There are various definitions and meanings of Law. –Various schools of law have defined law from different angles. Some have defined it based on its nature. Some concentrated mainly on its sources. Some defined law in terms of its effect on society, yet others defined it in terms of the end or purpose of law‖[30]. Natural law philosophers hold the content of a perfect law is deduced from the *reason* of a human being. The existence of law cannot be ascribed sans reasonableness of it. The natural law offers help prominently in two vital contemporary problems

viz., the validity of the unjust law and the abuse of liberty. Dr W Friedmann points that, the most important and everlasting theories of natural law have been inspired by the ideal of a universal order governing all men and the inalienable rights of the individuals. For "positivists" or "analysts" who rejected natural law, the law is concerned with what it is not what it ought to be. They propounded positivism. Its founder John Austin defined ―Law is the aggregate of the rules set by men as political superiors or sovereign to men as politically subject‖[31]. In this sense applying the meaning of law in the contemporary political environment is, the law passed by a legislature. In Pure theory of law, Kelsen defines law as the de-psychologised command. Duguit from the sociological school of law considers law as ―essentially and exclusively a social fact. The foundation of law is in the essential requirements of the community of life. ‖ Sir Henry Maine a proponent of the historical school of law says that law is ―the rule whereby the invisible borderline is fixed within which the being and the activity of each individual obtain a secure and free space‖.

After considering different layers of meaning of law in various schools, it is necessary to analyse and explore the domain of Neurolaw through the prism of these schools. The author confines his analysis on Positive, Normative, and Natural, Philosophical and Sociological, Realist schools of law. For the convenience of narration, and to meet the scheme of things, positive and normative schools of law are discussed together.

6. NEUROLAW AND THE POSITIVE SCHOOL OF LAW

Bentham says law as; ―A law may be defined as an assemblage of signs declarative of a violation conceived or adopted by the sovereign in a state, concerning the conduct to be observed in a certain case by a certain person or class of persons, who in the case in question are supposed to be subject to his power: such volition trusting for its accomplishment to the

expectation of certain events which it is intended such declaration should upon occasion be a means of bringing to pass, and the prospect of which it is intended should act as a motive upon those whose conduct is in question.‖ Austin says, ―Law is the command of the sovereign.‖ ―It is the command of the superior to an inferior and force is the sanction behind Law.‖ As per Holland, ―A Law is a general rule of external behaviour enforced by a sovereign political authority.‖

These jurists lay down the positive school of law where the law is considered as a command of the sovereign. In today‘s context law passed by the legislature is considered as law. And the sanction is the punishment of law made by the legislature. Though Austin‘s concept of law can be related to criminal law where enforcement is made by punishment, nevertheless, in the context of a positive school of law, it is the enforcement of the law which is made by the legislature that is pivotal. In this context, the term NeuroLaw is not a law, since, there is no such law or Act which is passed by any legislature terming Neurolaw. All that is considered in the context of Neurolaw is the neuro-scientific findings affecting the legal body of rules and regulations. It can be in the enforcement of the Law or the application of the in Court-room or by way of evidentiary weight during the trial of a case. Or it can be helpful in the formulation of a new law, say, considering the latest neuro-scientific developments in the field of juvenile, a law

is legislated for the better protection of the juveniles. Like the recent studies show how the founder of the Centre for Science and Laws believes ―new discoveries in neuroscience to navigate the way we make laws, punish criminals‖[32]. But that shall still be a law or simply a norm, not Neurolaw. So, the term Neurolaw shall be otiose if we see in the context of the Positive School of Law.

The positive school of law is also known as the analytical school of law. As we see the law is the command of the sovereign, means the source of law is not an abstract idea but by a body of agency where sovereign rest, can be related to a legislature, though in the constitutional context it can rest in Constitution, still, the source of law is drawn from written law. What true law is, found from the analysis of the letters of the law, the context of the letters through various well laid down methods of interpretation. While doing interpretation, a law so far may interpret some terminologies of associated with mind or brain, such as intention, knowledge, recklessness, insanity, imbecile etc. which traditionally are considered as a realm of psychology. If the central idea of Neurolaw is to find the association of neurological implication in the law in various facets, in the context of a positive school of law it can be to analyze an unlawful action of a human being which has neurological in origin rather than to his free-will to measure the culpability and the punishment to be meted out to him. It can be a matter of debate if the law can be less coercive to him or he shall claim exception due to the neurological findings. There are various interpretative techniques, from literal where the meaning of the law is found from the statute as a form of language to functional approach, where leaving the letters of the statute, the law is found from the intent of the statute, thereby, giving much broader and liberal scope for interpretation. In this vantage point, neuroscience can be associated with positive law. The process of this interpretation reduces law to an atomic level.

In atomic level law is considered more as a norm. The Positive School of law is reduced to an atomic level by Hans Kelsen, in his concept of Pure theory of law. This refinement of the positive law is called as a norm by Hans Kelsen, which is the law per se and not any natural, social, historical or political. It is simply the law as it is. It is simply the norm as it is. Norm is logical. Since normative science is an extension of positive law; it too adheres to sanctions behind law enforcement, and always retains an order of human behaviour, permitted or authorised, in an ―ought‖ position means if A ‗happens', B ‗ought to happen', if A commits rape, B ought to be punished. Whether in fact, in a given case one A is punished or not that does not negate the ‗ought' proposition. This ―ought‖ is different than the ―ought‖ of the natural school of law. Here the ‗ought' is happening of the norm, whereas the in the natural school of the law, the ―ought' means a law ―ought to‖ conform with the values of natural law. In natural law, ought means or should or should be just or reasonable.

However, even if Kelson says, the norm is devoid of any social, historical or political values, the norm in itself is pregnant with a value or ethics which the law tries to enforce. So, values help in the construction of the norms, whether correct or not. In this context, if at any given point of time, a new law is constructed by the legislature considering the neuroscientific findings, it can be enforced and it can be an ―ought‖. ― neuroscience may help suggest what
norms are effectively applicable for human beings because *Not all kinds of food, clothing, and shelter suit us animals, us members of the species Homo sapiens*. Factual descriptions allow at

least to discriminate which rules may be appropriate and which are not for creatures like us, structured and functioning in a certain way, or in other words, descriptions allow to fabricate a dress that could suit human beings well, that is, neither too tight nor too loose‖[33].

–A *substantive* project in the law to use a terminology suggested in ethics by Nichols is concerned with an investigation preceding the construction of norms and dealing with the attempt to understand whether these folk views describing behavior and defining norms are actually correct. It is reasonable to think that when writing regulations and norms, lawmakers posed themselves such questions. Legal formulations reflect the sensitivity of the drafters of the codes (in legal systems where codes are present) or of regulations, as well as the scientific knowledge of their time and, finally, the socio-cultural environment that inspired it‖[34].

However, given the nature of neuroscientific findings, foreseeable, the –ought‖ would be more in the form of procedural law or law of evidence to take cognisance of the neuro- scientific findings rather than, a substantive normative value. In the same example, thus, if a person commits rape with –intention‖, he ought to be punished. Here the prescription of punishment is substantive normative. However, whether the person has substantive –intention or not' that shall ultimately be examined by procedural or evidentiary norms. Here we are not considering whether the person is punished or not. Our examination is only to lead the effect of neuroscientific findings through the use of the procedure.

So far in legal studies, whenever the use of the word in a psychological domain or signifying the motivation of the person is used, eg. intentionally, knowingly, recklessly etc. these are not examined through the measured-scientific way but are found through traditional ways of

understanding the human psyche through seer experience gained by a Judge. It is in the legal studies known as, finding subjective intent of *mens rea* from the objective fact of *actus reus*. Here, a judge considers these words of psychology which are more of folk psychology than scientific psychology. In the passing it to note that the incorporation of principles of *mens rea* in law is to distillate the law of unreasonableness and is a product of Natural School of Law, as well as recognition of dualism of mind and body, discussed later part of this work. If at a given period a judge considers the scientific advancement of neuroscience and incorporate those finding in the given letters of the law, there, the neurolaw would be more in the domain of realist school of law whereby the source of law would be from the judgement of the court of law, and neurolaw, what it means, shall be merged inside the realist school of jurisprudence. The scope of this debate in realist school is presented in another section of this article.

7. NEUROLAW AND THE NATURAL LAW SCHOOL

For the Natural Law School, law emanates from *the reason* of a person and a reasonable law should be followed. At times, the reasonableness of the law is considered also as *morality* or *justice*. A reasonable law is morally correct and just. A reasonable law does justice to the parties. A law is reasonable as it is the order of nature thus nature has dictated it. A law, since is given by nature herself, is reasonable and hence morally just. As noted earlier, natural law serves two vital purposes, i.e. to review the validity of unjust law and the abuse of liberty. Natural Law endowed

humankind with natural and inalienable right to assert from the state. In this context, a neurological behaviour of a person as an integral part of biology can be considered as order of nature. And any law that does not take into cognisance the order of nature or biological entity of a being can be considered as an unjust law, and enforcement of the unjust law shall be an abuse of liberty. And the domain of jurisprudence that explores the validity of law from the context of ethics is philosophical jurisprudence. A person can assert his right in the court of law against the state as a violation of his inalienable right. Here the operation of Neurolaw can be inclusive in the substance of Natural Law. And it shall be immoral as well as unjust not to consider the behaviour of a person which has the roots in neurons. At times a supposedly illegal behaviour shown by a person emanating from neurological compulsion can be taken into consideration by law, otherwise, it shall be immoral and injustice to him. The action can be correlated to the neuron of a person than his free-will, a theory which is often considered a sacrosanct in jurisprudence. The implication of Free-will theory ranges from the simple contractual relationship to misfeasance and a crime. In criminal jurisprudence, this concept is developed by the natural school of law in the shape of Mens Rea or the guilty mind of a person for the commission of an offence. A proscribed action done without free-will negates Mens Rea for the crime. Mens Rea means the morally wrong state of mind for the crime. However, as noted earlier it is difficult to decipher the state of mind of a person. The present state of affair is to find the intent of the mind from the circumstantial evidence and the objective fact of *actus reus* or culpable action, that sans scientific method to gauge the intent of a person. There is no scientific method to gauge the intent of a person, giving a possibility to readily translate into the normative domain. In this grey area of natural law school, a debate can be established with the domain of Neurolaw, as

to find association or dis-association, exploring the possibility as well as drawing the limitation of neuroscience to peep into the mind of the person, through its recent advancements. While feeling the need for the interdisciplinary study of Neuroscience and Law, Arian Petoft and Mahmoud Abbasi, puts –What credit can be given to neuroscience today in full development? Can functional brain imaging have a place in criminal procedures to assess liability and dangerousness, for example? We will consider the limits of the techniques as well as the possible progress of the legislation in this field. These questions justify the creation of a new interdisciplinary concept: Neurolaw or Law applied to neuroscience"[35].

And as noted earlier, the present state of affair is to find the intent of the mind from the circumstantial evidence and from the objective fact of *actus reus* or culpable action that sans scientific method to gauge the intent of a person, is the method to use the folk psychology. Here a judge due to his vast experience of dealing with cases subjectively reaches to a conclusion that the accused has acted intentionally or not. He also uses his experience to learn the conduct of the accused before him in the dock; he observes countenance and demeanour of the accused. And, since science is struggling to establish various shades of mind, the judge applies the objective criteria established by law to reach the intent from actus reus, which ultimately is the subjective mind of the judge. This is acknowledgement tacitly that the statement of law is handed down by the judge, precisely the domain of realist school of law. Here a debate exists from the context of neurolaw as to how far the law should recognise these terminologies of psychology and try to bring meaning to it through perceived or common meaning. Should we adhere to this process of

finding the motivation or intention of a person as it has been so far are found, though a process of procedural law, as because it is producing good and to some extent a predictable results. Contesting the claims of the defenders of this folk psychology, Eugenio Picozza, states in his introduction to the Neurolaw,–.....the fact that such descriptive assumptions produce effective predictions or desired consequences is contingent. If we never question their truth, we will never know why they work. If we never worry about the truth or falsity of the theories about the functioning of the human mind that we use in legal practices, these practices will work or not regardless of our control, and therefore they are unlikely to be easily manageable‖[36]. From these premises, the role of neurolaw can be profound to further the cause of natural law jurisprudence.

8. NEUROLAW AND THE PHILOSOPHICAL SCHOOL OF LAW

Philosophical or ethical school of law is considered as part of the natural school of law. This school aims certain ideals to be achieved by law. Law is meant for this objective. It seeks to investigate the purpose of law and the measure and manner in which that purpose is fulfilled. Here too, law springs from *reason*. However, the objectives of the law are to beautify, flourish and realise the *personality* of the human being. Whenever a question regarding *morality* of action appears, the philosophical jurisprudence serves to throw light on it. The philosophical jurisprudence deals with *ethics*. According to Salmond –Philosophical jurisprudence is the common ground of moral and legal philosophy, of ethics and jurisprudence‖. The perfection of human personality is the ends of the law**.** Salmond, though is considered as a positivist as he believed in legislation as a tool for regulating the behaviour of a subject, however, he is also criticised as throwing the natural law through the window of positive law. He devoted his life for the cause of advancing the philosophy of –pain and pleasure‖ which he believed that nature has placed mankind under the subjugation of these values. For him since, nature has placed the psychology or the frame of mind of a person under the empire of avoidance of pain and seeking pleasure, and these are the touchstone for the moral judgement. For him, the morality of an action is justified from the prism of pleasure and pain value i.e the consequence that is derived from the action. For Salmond, the consequence of the action determines the morality of the action. For a person, morality is based on pleasure and pain and, for the nation-state the morality is based on whether an action serves the greatest happiness of the greatest number of persons. So it is the happiness index that determines if a law is morally correct. While on the other end, Immanuel Kant considered law is an end in itself. For Kant, the morality of the action lies from the means to achieve the end, rather than the end itself. Kant believed, the duty ethics, which a person must do, for the sake of doing the duty itself; which ultimately leads to expansion of the freedom of an individual as it is self-imposed. He laid down the deontological philosophy or duty ethics. This thick debate of morality of an action is now out of the confine of the philosophy or ethics. "These days, biology and neuroscience are addressing the moral sentiments"[37]. "Science can advance ethics by revealing the hidden inner workings of our moral judgments, especially the ones we make intuitively"[38]. The seemingly simple, moral decision or judgement is a complex process of the mind. Started from biologist E.O Wilson, laying down that the all nearly all moral judgement can be deciphered through evolutionary biology, to contemporary psychologist Jonathan Haidt, insisting on the role of

biology in answering moral judgement. "The neuroscience of morality is in its infancy, with the first brain imaging studies of moral development undertaken only in 2001"[39]. These days, cognitive neuroscience tries to unravel the mystery behind the complex process of the mind which leads to moral judgement and also assigns the part of the brain which is responsible for it. As a branch of neuroscience, neuroethics charts a new journey. It has two dominants traditions of ethics of neuroscience and neuroscience of moral judgements. However, "recent work has sought to draw philosophical and ethical implications from the neuroscience of moral judgment. Such work, concerns *normative moral neuroscience,* a third tradition of neuroethics"[40].

"New technology and neuroscientific techniques have led to novel discoveries about the functional organization of the moral brain and the roles that neurotransmitters play in moral judgment"[41].

However, some authors believe that there are limitations of these new scientific developments and there are still scopes for the philosophy. ‒The complexity of the brain cognitive functions and the performance *limits* of current neuroscience techniques for discovering the secrets of the brain on one hand, and the need for neuro-litigation development with ethical-legal constraints, on the other hand, caused some limits in *law and neuroscience*‖[42]. *"*Biology and Neuroscience are addressing issues related to moral sentiments, but this does not mean that Philosophy has lost its importance in the debate‖ [43]. From this vintage, the role of Neurolaw would be establishing a rich dialogue in the philosophical school of law; and it shall be profitable for both the fields to engage in discussion, deliberate upon and cross-fertilise ideas in the context of ethical jurisprudence.

9. NEUROLAW AND THE SOCIOLOGICAL SCHOOL OF LAW

The term sociology was firstly used by Auguste Comte. He is considered the father of sociological science. He advocated the use of the scientific method in sociology. He believed that as society is like an organism, the scientific method can help progress it. The study of sociological approaches to the law was first undertaken by Rudolf Von lhering. Ihering viewed the origin of the development of law is a constant challenging one ridden with struggle and conflicts to cast an order in the state. Hence, there was no spontaneity in the development of the law. As per Eugen Ehrlich the social facts are the source of the law of a community rather than the letters of the law formally handed down. He said, ‒at present as well as at any other time the centre of gravity of legal development lies not in legislation, nor in juristic science, nor in judicial decision, but in society itself‖.

The sociological branch "examines the actual effects of the law within society and the influence of social phenomena on the substantive and procedural aspects of law"[44]. Sociological School of Law considers law as a social fact. Law is a sociological fact found in society. Duguit considers law as ‒essentially and exclusively a social fact. The foundation of law is in the essential requirements of the community of life. It exists only when the men live together‖. It can be the behaviour of the person in his daily intermingling, assimilation and association in the society. Rosco Pound defines law as ‒a social institution to satisfy social wants‖. The central idea of Neurolaw is to find an association of neurological implication in the law in various

facets. ―There is a truly enormous corpus, growing daily, on many causal pathways by which biological processes influence behaviours in all species, including humans‖[45] A behaviour influenced by a neuron is a physical fact. The exhibition of the behaviour by a person can be considered as a social fact when the behaviour influences other‘s behaviour and thereby creates a phenomenon sufficient for the society to take cognizance of. Sociology and criminology are intertwined. Many sociologists contributed a great deal in the field of criminology. The approach to the criminology by a jurisprudential- ist is made through the window of sociological school of jurisprudence, and so far there is not separate criminological school of jurisprudence. Hence, behaviour influenced by a neuron is very well a probing fact for the criminology as well as sociology. It is an interest to the sociology as well as to the criminology to find a pattern or study the pattern say of a deviant youth stemming from the neurons.

The sociological school also regards law as a tool of social change and examines the effect of social conditions on law and vice versa. Pound also sees law having a functional approach to bring ―social engineering‖ of competing private, public and social claims or interests. The approach of the law is to harmonise and balance the competing claims. The private claim includes freedom of volition, freedom of conscience and his physical integrity. From the standpoint of political life an individual claims public interest. Social interests are the desires of a person thought in the spear of social life. The interest of the society rests in common security, social morals, social institution and shared or general progress. Social interest in general progress has economic, political and cultural aspects. Cultural progress is inclusive of *free science* and arts, promotion of educations and learning. The assertion of *scientific temper* for the promotion of everyone‘s lives can be a social interest. The avowed objective of the neurolaw so far is to associate the implication development of neurosciences on legal discipline in order to make law accurate and scientific in some areas. However, it cannot also be discounted the thoughts of a neuroscientist who seeks for the recognition of his scientific understanding and temper of an event that so far is claimed by law. It shall be an interest of the society to see how claims of an individual or his political interests are weighed and balanced in the light of latest neuro-scientific developments. The recognition of neuro- scientific data shall able to be a fair appreciation of facts in judicial determination and shall further the cause of the rule of law, basic to the political interest. It is also an interest to observe some of the latest neuro-scientific developments which try to show a bio-marker of deviation in a person which in turn shall help in the political interest of security and maintenance of law and order of the state by way of preventive arrests of the deviant.

10. NEUROLAW AND THE REALIST SCHOOL OF LAW

The concentration of Realist school was more on what happens to law in reality as fact before the court rather than finding the meaning of the law from a logical premise of positive law or esoteric ideologies of natural law. The school observed more on the happening in the court of law. The proponents of this school concentrate more on the decisions given by the judge and the human factors understood from ascertainable facts, like, his personality, psychology, education, learning, social environment, brought up, economic conditions, political thoughts, business interests etc. Justice Home says ―the prophecies of what the courts will *do in fact* and nothing

more pretentious are what I mean by the law‖. Homes considered the importance of the experience of life without divorcing the logical conclusion of law. Homes acknowledged the *scientific valuation* pregnant in law**.** For Dewey, the choice between different values can be *verified scientifically*. Homes put the lawyer in the centre stage of law. Jerome Frank, emphasises on the duty of a judge and a lawyer in every case to do some _constructive‖ not to simply follow the precedents. For him, if a judge is giving a judgement, he must take care of the *changed social conditions* and not to blindly follow the precedents. For, Frank, the certainty of law is a myth. The principal features of Realist approach as per Llewellyn are, a desire to *improve* the law and vital interest in the ends of the law; consideration of the dissimilar situation in practise to that of the law of logic; objective evaluation of law through its repercussions; the law is a means to the social ends and every part of the law has to be constantly examined for its purpose; and dynamic conception of law and the law crafted by the judiciary. If we take the Homes approach to the law, the Neurolaw would weigh the normative law in scientific valuation but, ultimately it shall be effective, if at all the judge in fact applies it. And in the hand of Frank, a lawyer may seek to redress an issue not simply applying the law to facts rather, finding *constructive* scope in the letters of law the neuro-scientific advancements, which at present lawyers are doing. And in this changed social conditions, the understanding of the motivation, an example of an accused, are attempted from diversified disciplines including the neurosciences. The application of neuroscientific advancements is finding the possibilities to *improve* the law and evaluation of law from the standpoint of effect, which shall be unscientific if not applied. If Neurolaw is to find to scope, from the realist evaluation, it would simply be by the application of neuroscientific advancements in courts of law and reflected in the judgements by a judge to elucidate a legal issue or reaching to a conclusion on a legal issue, and not Neurolaw as such.

11. CONCLUSIONS

The process of interaction of neurolaw in jurisprudence is diversified. While it is diffused in the positive law in the interpretative skilled, in the normative domain it has the possibility of incorporation. It can further the cause of natural law to distillate the positive law, and in the philosophical debate, it can shade lights on morals and ethics. Social engineering can borrow thoughts from neurolaw, and a judge can be realistic recognising its development and importance. The more neurolaw engages with jurisprudence, the more it shall sharpen its cause and scope.

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CONFLICT OF INTEREST

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