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Patricia Church land's Neurophilosophy and Mind-Brain Relationship

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ABSTRACT

The Mind-brain controversy previously known as the Mind-body dichotomy has never ceased to remain prevalent in every age. Is the Mind-brain/mind-body issue same with the soul-brain or spirit-brain problem? Or is the mind the same with the brain? The question of affirming or negating the sameness of the mind, soul or spirit forms the crux of this enigma.Hence, this study aims to find the way out of the bewildering confusion bordering on the Mind-Brain relationship. It labours to give a purview of the path chosen by Patricia Smith Churchland in her work Towards A Unified Science of the Mind-Brain which ushered in a neurobiological paradigm that centred on the mind-brain interaction. The path chosen by her suggests an interdisciplinary approach to questions about how the mind represents, reasons, decides, and perceives. To understand the mind she says, we must first of all understand the brain. Her idea was that, since neuroscience has developed so much and is still developing, it will aid us understand certain problems in philosophy especially that of the Mind-Brain. For her, mental states can be reduced to brain states and the mind is the brain at work. She achieved a feat of a unified theory of the Mind-Brain. Interdisciplinary cooperation is essential for advancing knowledge for the truth lies in the inter-theoretic details. To these assertions, this research work is aimed at unveiling or appraising through an in-depth analysis her unique philo-scientific theory. Furthermore, it will attempt to clear the various misconceptions surrounding Mind-brain relationship.

INTRODUCTION

The vicissitudes of life have always caused ponder and wonder among men. Oftentimes, man is faced with vital questions that puzzle the mind. The question of why, what or how, reveals the interior worries of man. These worries poise man to reflect on his experiences and that of the objective reality – the immensity of the universe, shortness of human life, death, birth, evil and the like. These reflections by man, the philosophers of antiquity called Philosophy. For them, wonder formed the beginning of philosophy. On this same wavelength, John Dewey defined philosophy as "thinking which has become conscious of itself".i Jacque Maritain viewed it as "the science which by the natural light of reason studies the first causes or highest principles all things..."ii For M. Onyeocha, "it is the science which investigates the highest causes of all things in as far as they are knowable by reason".iii Meanwhile, philosophy remains a continuous rational search for meaning, answers and intelligibility. It is never dogmatic. No answer ends philosophical inquiry but it rather turns to be the base for further questions. So, in philosophy questions are more important than answers. There have been litanies of questions in philosophy, questions that have remained problematic all through the different epochs. Popular among them are: the problem of Being, the problem of substance, Essence and Existence, Mind-body dichotomy etc.

Focusing on the Mind-body problem which is central to this discourse, it is pertinent to admit that this problem has really been a controversial issue, right from antiquity till date. It has remained the preoccupation of philosophers. Whether the mind interacts with the body and vice versa, or that what is, is just the mind or the body, have been the dispute. W. Sluckin rightly stated it when he said that to talk about mind tends to imply a distinction between mind and something that is not mind. That something may be matter when the adjective mental is contrasted with material, or body when mental is contrasted with bodily. This distinction has not always been clearly made. When it is made,

as it normally must be, its philosophical implications are nowadays not beyond dispute.iv

Ancient philosophers – like Plato, Aristotle etc addressed this problem but it was well trumpeted or popularized in the modern period. Descartes held a dualistic position in his discourse of the mind-body. In his works Philosophical Writings and The passions of the Soul, he discussed the Mind-body Interactions. First, in his Principles of Philosophy he began by giving a definition of substance. Descartes writes;

We can mean by substance nothing other than a thing existing in such a manner that it has need of no other thing in order to exist. There can indeed be only one substance conceived as needing absolutely no other thing in order to exist; namely, God. We can see that all other substance are able to exist only by means of God's co-operationv

Despite the theological or transcendental characteristics of his definition of substance, he later incorporated other entities into this definition. Descartes did that by saying:

But corporeal substance and mind (that is, created conscious substance) can be brought under this common concept: things that need only the cooperation of God in order to exist. Our first knowledge of a substance cannot come from the mere fact that it is an existent thing; for this in itself has no effect on us. But from any attribute we readily apprehend substance, because of the axiom that a nonentity can have no attributes, properties, or qualities. From perceiving the presence of an attribute we conclude to the necessary presence also of some existing thing or substance to which it may be attributed.vi

Hence, created things can also be called substance. Descartes further classified substance into mental substance and physical substance. Mind and body are separate substances. This position of Descartes is a metaphysical dualism. Since, we humans are made up of a mind and a body, the inquiry then would be; how can they (mind & body) coexist in us? Descartes proposed Interactionism because experience proved otherwise.

How the mental and bodily states cause and affect each other made him propose the theory of Interactionism. But then, this theory ignited the thoughts of his contemporaries and successors. The mind-body interaction was seen to be problematic; hence Cartesians deemed it necessary to deny it. Majority of them agreed or affirmed his theory of dualism but rejected interactionism. Arnold Geulincx opined Parallelism (that God arranges the two parallel series of mental and physical events to work together like clocks). Nicolas Malebranche in his theory of Occasionalism, claimed that the mental events do not cause physical events and vice versa rather are occasioned by God. Also, Gilbert Ryle never accepted Descartes' official doctrine. Hence, this launches us into his work.

Gilbert Ryle (1900 – 1976) an analytic philosopher is famous for his theory of the ghost in the machine. The work The Concept of Mind which was published in 1949 has remained his best known and most important work. Gilbert Ryle accomplished two tasks through this work. He was seen to have put the final nail in the coffin of Cartesian dualism. In the introduction of his work, Gilbert Ryle stated:

This book offers what may with reservation be described as a theory of mind. But it does not give new information about minds. We possess already a wealth of information about minds, information which is neither derived from, nor upset by, the arguments of philosophers. The philosophical arguments which constitute this book are intended not to increase what we know about minds, but to rectify the logical geography of the knowledge which we already possess.vii

He never engineered another conception of the mind-body but he sought for a reconstruction and rectification of our already upheld conceptions. He made it clear that the mind is not an extra entity enclosed in the body. This is with regard to the theoretical difficulty in accepting the interaction of the mind-body. Furthermore, he rejected the separation of the mind and body as different entities. To say there exist the mind is synonymous with saying that there exist the body. Both of them mean the same thing. Hence, it is right to say there is either the body or the mind. But it is never the case to assert that the both of them exist the same time.

This is because; it suggests the mind to be another reality outside the body. For Ryle, we ascribe intelligence to someone who does something well but a clock that keeps good time and is well drilled is bereaved of intelligence. Ryle ended up giving a physicalist account of this central issue by reducing the human being and the whole intra and extra activities to matter. This landed him to the proposition of

Philosophical Behaviourism. This idea was not welcomed by the mentalists and the idealists.

In line with Gilbert Ryle, Noam Chomsky in his work, Language and Problems of Knowledge criticized Descartes' theory of the body. Cartesians offered a fairly definite conception of body from their contact mechanics which reflects commonsense understanding. The problem of a definite conception of the body is for Chomsky, an enigma in the mind-body dichotomy, which Descartes did not tackle well.

The Cartesian conceptions influenced the general and philosophical worldview of the seventeenth, eighteenth and nineteenth centuries. The bone of contention remained the issue of mind-body dichotomy. Patricia Smith Churchland, a contemporary scientist and philosopher in-line with the status quo, averred a unified theory of the Mind-Brain which she called Neurophilosophy. According to her, Neurophilosophy is all about, stating that, "…the interface between neuroscience and traditional philosophical questions – questions about the nature of knowledge, decision making, consciousness and so far"viii In her ingenuity, she married neuroscience and philosophy in a bid to solve the Mind-brain problem. She holds that Neuroscience has developed to a point where we are beginning to understand the impact of those discoveries in neuroscience on traditional philosophical questions. And neurophilosophy takes as its target how we will re-understand and re-interpret the traditional conception of ourselves in the light of how we come to understand the nature of the brain.ix

She took neurobiological paradigm because understanding the brain is for her, understanding the mind. The crux of this work, therefore, is to unravel and uncover her unique and astounding contribution to the central issue of the Mind-Brain.

The work of P. Church land (Neurophilosophy - Towards a Unified Science of the Mind-Brain) has a bipartite structure. The first part deals with neuroscience while the other part is philosophically based in a move to project a unified science of the mind-brain.Neuroscience literally is the science of nerve cells or neurons and its role and structure. In the discourse of neuroscience, we cannot relegate the nervous system. All multicellular organisms (both vertebrates and invertebrates) have a nervous system which may be defined as assemblages of cells specialized by their shape and function to act as the major coordinating organ of the body. Nervous tissue underlies the ability to sense the environment, to move and react to stimuli, and to generate and control all behaviour of the organism.

Evolution has come up with an astounding invention – the excitable cells. These cells can pass a tiny electrical effect down its extent. Its orchestration causes our movements. Our brains are massive mounds of these excitable cells, which through the muscles accomplish feats like playing, feeding, reproducing, talking, eating etc. The human brain has crawled out from its common sense conception of things. And now, seeks to understand itself, that is, the brain investigating the brain. But how to go about this becomes the problem. Going via philosophy or neuroscience is the same general investigation.

Man as a moving being has mechanisms for his movements which is dependent on what is going outside. The nervous system accounts for this movement. Neurons are excitable cells, those (neurons) on the sensory periphery are activated by such things as vibration while muscle contraction are caused by the motor periphery. Between these peripheries are neurons that orchestrate the sequence of muscle cell contractions allowing organisms move in response to the outer world (outside the nervous system) by fleeing, feeding etc. P. Chuirchland further sustained that, even though neurons are the basic elements of nervous systems and the evolution's solution to the problem of adaptive movement; how do they work, and what is excitation? How do they produce effects as different as awareness of light and awareness of touch? How are they orchestrated so that the organism can make its way in the world?x

Understanding Church land's Theory Of Neurons

P. Church land here discussed extensively on neurons; its structure and role in the light of contemporary or recent theories. First of all, neuron is a nerve cell. It is the functional unit of the nervous system. Structurally, the neuron is made up of a cell body or soma and one or more long processes: single axon and dendrites.

The cell body contains the nucleus, cytoplasmic organelles with an exceptionally large amount of rough endoplasmic reticulum. The long cell processes is the axon, which is capable of transmitting propagated nerve impulses. There may be none, one or many dendrites composing part of a neuron. It is unipolar neuron, if there is no dendrite; bipolar neuron, with one dendrite

and multipolar neuron, if there are more than one dendrite.xi

By way of introduction into the neuron theories, P. Church land poignantly stated that, "If we are to understand how the mind-brain works, it is essential that we understand as much as possible about the fundamental elements of nervous systems namely, neurons"xii. When the number of neurons, connections between neurons and the time course of neuronal events are limited, there is a grave consequence. The models of perception, memory, learning and sensor motor controls will be highly constrained. The Brain events are seen to be slow compared to computer events. But in perceptual recognition, the brain leaves the computer behind. Neurons though plastic, dynamic and their informational relevant parts grow and shrink, are essential as information-processing units. This special property of the neuron as information-processing unit, constraints theories on the nature of our cognitive abilities. The human brain is the centre of all cognitive activities, which has within it excitable cells – neuron that processes information.

It is worthy to know that neurons and its mode of operation are the same in all nervous systems - worm, spider or man. P. Church land proposed that, "If we want to understand the nature of the information-processing that underlies such functions as thinking and sensorimotor control, our theories must be constrained by how neurons are in fact orchestrated, and we cannot understand that without knowing a good deal about neurons themselves, about their connections to other neurons and how they form these connections."xiii

The nervous systems are information-processing machines and in order to understand how an organism remembers, learns, sees, solve problems, cares for the young and recognises dangers, it is paramount to understand the machine itself both at the level of its basic elements and at the level of its organisation. Hence, on neurons' structure and how they function.

The human brain as P. Church land stated weighs about three pounds and has a volume of about 3 pints. It contains some 1012 neurons or in estimate as many as 1014. When the body is at rest, the nervous system consumes about 20% of the body's oxygen. It accounts for 2% of the body's mass. The central nervous system consists of the brain and spinal cord. The peripheral nervous system consists of nervous structures external to the brain and spinal cord like fibres innervating the muscles and sensory receptors in the skin.xiv

Neurons are the basic nervous element divided into soma (cell body) and processes extending out from the soma. The soma is a vital centre of the cell consisting of nucleus and RNA. It produces protein which is transported through axonal transport to axon. Processes are distinguished into axons and dendrites. But not all neurons have them. Axons are chiefly output apparatus while dendrites receive and integrate signals. In many types of neurons, dendrites are covered with spines that serve as point of contact with other neurons. Neurons have varied sizes, even the largest is small. At birth, the primates' nervous system has all the neurons it will ever have, with an exception of the olfactory system which is induced continuously. Axons, dendrites and spines on dendrites grow in abundance during the first few years of life. Death of neurons at infancy does occur. Synapses on the other hand are the points of communication between neurons, where processes make quasi-permanent junctions with the soma or processes of another neuron, and they appear to be highly specialized. Presumably, signal transmission takes place at synaptic junctions. An axon will synapse on a dendrite or somas of other neurons. It also can synapse on another axon likewise dendrites. But then in function, we see sensory neurons, motor neurons and interneurons.xv Sensory neurons work on physical signals and transform them into electrical signals. Motor neurons work on muscles to produce contraction. And then, interneurons lie in the middle and are mixed of both.

Receptors as P. Church land holds fascinates in tremendous ways. This is due to the fact that it is within the range of stimuli to which receptors are sensitive, that limits the kind of things we sense in the world. She averred further, "Receptors are the interface between the world and the brain"xvi And for her, this forms Kant's theory on epistemology, that our access to the world outside us, is mediated via the mental frameworks that is, the nervous system.

In our visions, we see the world as it is, but then, what we see is what our visual receptors gives us. Our knowledge of the world is merely what our receptors convey to us. Even though there are receptors for the five senses, there are also proprioceptors and kinaesthetic receptors. The detection of change in position of the head

is catered for by the proprioceptors while kinaesthetic receptors detect stretches etc.

Talking about the fundamental or primary function of neurons, P. Churchland portended that they are instruments of communications; they receive, integrate and send signals.xvii There are two fundamental types of connection between neurons as she holds; electrical synapses and chemical synapses. Electrical synapses are of two types : (a) those generating field potentials, in which sending and receiving neurons are so closely positioned that current flow in one induces field changes in its neighbour, and (b) gap junctions, which consist of supremely thin protein tubes connecting the axon of one neuron to the dendrite or axon of another. The tubes are so narrow as to permit the transfer of only very small ions such as Na + or K +, and it is via the transfer of these ions that signals are transmitted from one neuron to the next. Chemical synapses have been most intensively studied in the giant synapse of the squid, and at the synaptic terminal it is Ca + + ions and Ca + + channels that play the crucial role. When a depolarizing wave reaches an end bulb of an axon, it opens voltage -sensitive Ca + + channels. Ca + + rushes into the cell and causes little vesicles containing neurotransmitter substance to fuse with the outer membrane at specialized zones. As the vesicle membrane fuses with the cell membrane, the neurotransmitter substance is released into the extracellular space that separates the axon from the adjacent neuronal process. Some of the neurotransmitter diffuses across the synaptic cleft and binds itself to specialized sites on the receiving cell - the postsynaptic membrane.xviii

Extracellular and intracellular fluids in cell membrane contain ions which are either positively or negatively charged. Organic ions concentrate inside the cell and inorganic ions with chargeable concentration inside and outside the cell. This membrane permeated through donation of ions. Its consequence is that when the cell is at rest, there is voltage across the membrane in a way that inside of the cell membrane is negatively charged with respect to the outside. The membrane is polarized; hence communication of neurons is coordinated by changes in the polarization of the membrane. P. Church land conclusively remarked:

Although the membranes of all body cells are polarized and have the ability to depolarize and repolarize, neurons are special both because their single channel configurations permit them to exploit this capacity in a coordinated and systematic fashion and because they are joined together in a network. The result is that neurons can represent features of the world and can coordinate the occurrence of such features with muscular movement.xix

Function and Structure in Mind-Brain

The core idea of functionalism is the thesis that mental states are defined in terms of their abstract casual roles within the wider information-processing system.xx For example, being in pain is a state characterized by its casual relation to behaviours such as wincing and crying out; to external input such as skin burn, to other internal states such as the desire to make the pain go away, beliefs about the source of the pain and what will bring relief etc.

Generally, functional kinds are specified with regards their role and not by material or physical structure in which they are instantiated. Example, A mousetrap is a functional kinds but whether it is made of wood or iron etc or even if it differentiate like spring trap or cage trap; are physical kinds. P. Churchland exquisitely stated that;

...mental states and processes are functional kinds. Functionalists have typically sided with physicalism by claiming that our mental states are implemented in neural stuff, not, as the dualist would have it, in spiritual stuff. At one level of description we can talk about the causal and logical relations among perceptions, beliefs, desires, and behaviour, and at the structural level we can talk about spiking frequencies of neurons, patterns of excitations, and so forth. It is because neurons are orchestrated as they are that the system has the functional organization it does, and thus the physical substratum subserves the functional superstratum.xxi

However, they rejected reductionism because types of mental states could have too many material realisations. There cannot be one-to-one relations between functional types and structural types. There can be differences in the structural kinds and sameness in the functional kinds. Even in humans, this at times happen. This is called argument from multiple instantiation which states that functional states are multiply instantiated or realised. Neuroscience as argued focuses on the engineering details rather than on functional scheme, but it will not tell us how the mind works. Meanwhile, when neuroscientists do

address questions as how neurons manage to store information, or how cell assemblies do pattern recognition, or how they manage to effect sensorimotor control, they are addressing questions concerning neurodynamics. On this, P. Churchland asserts, "it is supremely naive to assume that we know what level is functional and what is structural, and that neurons can be ignored as we get on with the functional specification of the mind-brain".xxii

Many advances have been made in a bid to understand the nervous system especially its structure; though, many questions are yet to be answered. To understand how the nervous system function is the focus here. Theorizing about brain functions is often seen as waste of time or even philosophical. Hence, P. Churchland asserts that a neuroscientist randomly plucked out of the crowd at the Society for Neuroscience meetings and asked about the role of theories in this discipline will likely answer with one or all of the following: (a) The time for theories has not yet arrived, since not enough is known about the structural detail, (b) What is available by way of theory is too abstract, it cannot be tested, and it is somehow irrelevant to experimental neuroscience, (c) You cannot get a grant for that sort of monkey-business.xxiii

Despite these, theorists motivate and organise experimental research and good theory open doors to important experimental results. In inductivist strategy, one first gathers all the data before setting about theory. Progress is rarely made by this in science but is made instead by approaching nature with specific questions in mind, where the questions are formed as hypothesis.

Experiments flourish when we have better and right questions to ask. The more coherent the theoretical framework is, the greater the chance of putting to nature the right questions. Experimental researches are not without theoretical assumptions. In line with the central case study, there must be some sense of how the results are significant for the larger picture of how the brain works. P. Churchland affirmatively stated:

This conglomeration of background assumptions, intuitions, and assorted preconceptions, however loose and vague, is the theoretical backdrop against which an experimenter's research makes sense to him. What is wanted, therefore, is not no theory but rather good theory - testable, coherent, richly ramified theory. The dearth of fleshed-out, testable theory is therefore something to be rectified, not patiently endured.xxiv

Theories on their own cannot emerge from data. If we are to explain the movements of neurons, we need a functional story that will explain how the structure works even when the structural details are known, the problem is on how they function. Theories are interpretations of data; they are not merely generalisations over data points.xxv A full collection of data does not imply a useful theory. Example; unless you think that DNA is hereditary, material, you will not think the organisation of nucleotides is relevant to determining the phenotype. P. Churchland supported this by asserting:

Although there is an undercurrent of reticence regarding theory in neuroscience, nonetheless there is a growing recognition of the need for theorizing. If neuroscience is to have a shot at explaining – really explaining - how the brain works, then it cannot be theory -shy. It must construct theories. It must have more than anatomy and pharmacology, more than physiology of individual neurons. It must have more than patterns of connectivity between neurons. What we need are small-scale models of subsystems and, above all, grand-scale theories of whole brain function.xxvi

There is no little person in the brain who sees an inner television screen, hears an inner voice, reads the topographic maps, weighs reasons, decides actions and so forth. There are just neurons and their connections. When one sees, it is because neurons, individually blind and individually stupid neurons, are collectively orchestrated in the appropriate manner.xxvii This is against homuncular conception that understands perceiving, thinking, control and so forth, on the model of the self – a clever self – that does the perceiving, thinking and control. The cleverness of the brain is never explained by the cleverness of a self but by the functioning of the neuronal machine that is the brain.

In the quest for theory, P. Churchland asked; "What is available by way of theory? Are there theories that have real explanatory power, that are testable, and make sense of how the molar effects result from the known neuronal structure? Less demandingly, are there theoretical approaches that look as though they will lead to fully fledged theories?"xxviii In response to these inevitable questions she narrated that she began scouting the theoretical landscape with neither a clear conception of

what she was looking for nor much confidence that she should recognize it if she found it. Most generally, she was trying to see if in anywhere, there was a kind of "Galilean combination": the right sort of simplification, unification, and above all, mathematization- not necessarily a fully developed theory, but something whose explanatory beginnings promised the possibility of real theoretical growth.xxix

In getting attuned or acclimatised with the problem of reaching a viable theory of brain function, P. Churchland listed a number of general lessons she encountered. The first was that, there were things that were advertised as theories but were really metaphors in search of a genuine theoretical articulation. Secondly, flowcharts describing projection paths in vertebrate nervous systems were sometimes characterized as theories. Thirdly, sometimes a list of ingredients important for getting a theory were offered as the theory itself, but evidently such a list is not, per se, a theory of what processes intervene between input and output. The fourth one was the need to know what problem one is trying to solve first, and what problem one can leave aside as solvable later.xxx

Investigating the possibility of a new neurocognitive paradigm in reference to the co-evolution functional and structural hypothesis, P. Churchland deemed it necessary to go via tensor network theory within the context of its inception. Hence, the place to start is the cerebellum. Highlighting on this, she said:

For neuroanatomists the cerebellum has been something of a dream of experimental approachability, because it has a limited number of neuron types (five, plus two incoming fibers), each one morphologically distinctive and each one positioned and connected in a characteristic and highly regimented manner.xxxi

The cerebellum is known to coordinate movements as well as moving the whole body. However, what it does in the nervous system is not well understood. But then, not just movement does the cerebellum coordinate because subjects with non-functional cerebellum make movement. The difference is this, that the cerebellum is necessary for well-controlled, well-timed, well-spaced movement. From this particular, P. Churchland moved to the discussion of the higher function. She called it the Global effects and local interaction. She said that in order for an organism to see, its nervous system must be affected by the world external to it. The fundamental fact constraining any hypothesis about how a brain can have visual perception is that the input to the visual system is the two-dimensional array of light falling on the retina. Out of that stimulus array, the brain must concoct an interpretation of what in the external world corresponds to the received pattern of light. And of course, there is no one inside to see the array and identify it as the sort of pattern made by, say, a bird or a pineapple. There are just networks of neurons that interact with each other and that, as a result of the interconnections, yield the global effect that is an interpretation of the 2-D array. Since it cannot be magic, there must be mechanisms. Hence, the problem is to figure out by what principles the brain visually recognizes objects.xxxii

This launches us to the question, how could neuron-like elements in the network N interact to produce global effect E? Contrasted with do the neurons in network N produce global effect E by conforming to algorithm A? The former is a theory-devising question (top-down) whiles the later, a theory-testing question (bottom-up). In response, she asserted: Typically, what determines whether "top-down" is applicable to a strategy is whether or not the strategy cares how the brain performs the processing under study. To call the first question "top-down" is to deprive that label of whatever significance it has, because the "how could" questions of the connectionists are constrained by considerations of neuronal architecture and physiology in a way that classical top-down computer models simply are not. However, this is an issue about what words to use, and perhaps the "top-down - bottom-up" contrast is not very useful anyhow at this point. It might be best simply to see parallel models as theories concerning brain processes intervening between input and output, or theories of how macro effects are produced by microstructure.xxxiii

These discussions on the neuronal phenomena were to explain the macro phenomena. For instance, there are neurobiological mechanisms that subserve visual attention because cells in different areas of the cortex are specialised to respond to distinct dimensions of the physical stimulus. Cells in other areas are responsive to movement, colours, stereoptic disparity, conspecific face and so forth. P. Church land stated it that "our perceptions show no disunity. One sees a unified composite, like a running black dog or a falling yellow ball".xxxiv However, the nervous system does this by

association, that is why at one point we can perceive a yellow ball and in another, a yellow box. A set of cells participate in different occasions.

Summarily, P. Church land in her work sought to prove the hypothesis that the mind is the brain at work. Hence, she propounded Neurophilosophy in a bid to prove her stand of a unified science of the mind-brain, even though experientially, the split-brain patients affirms her propositions. Church land first of all, went via neuroscience, exposing and exploring all the intricacies within the nervous system. She unvieled the unique advancements made by neuroscience and contended that the brain with the catenation or conglomeration of neurons performs great task that goes a long way in making us who we really are. It the brain that makes us who we are and this brain is made up of excitable cells called neurons that recieve or sends impulses from the outer world via the senses to the brain. It is the receptors that mediate between the world and the brain. This forms Kant's theory on epistemology, that our access to the world outside us, is mediated via the mental frameworks that is, the nervous system. Through our senses, we perceive the world as it is, but then, what we perceive is what our sensory receptors gives us. Our knowledge of the world is merely what our receptors convey to us. Church land asserts that For her, the ancient questions of consciousness, konwledge, morality, self etc boils down to the structure and function of the human brain. Brain states are mental states. The structure and function of the brain at the substratum accounts for what we call mind at the superstructure. A healthy mind is caused by a healthy brain.

Evaluation And Conclusion

Evaluation

One problem has remained prevalent and knotty in this work; the problem of the mind-brain and its relationship (if there is any). The inability to resolve this issue flames from the diverse and different standpoints of philosophers who grapple upon this problem. Recurrent amidst the diverse propositions is dualism. Exponents of this wing hold that the mind and brain are different entities that either causally interacts or only affects the other on a parallel ground. At this point, the relevant question will be; why two instead of one? Why dualism?

The reason why philosophers find Neurophilosophy implausible is according to P. Church land, the fact that we are dualists. She points out that deep down we are all dualists. Dualism is deeply ingrained in our nature. Hence, we find difficult to embrace or accept opposing theories that redefine us. Our conscious selves inhabit the world of ideas; our brains, the world of objects. So deep is this split that we find it hard to accept an intimate relationship between the mind and the brain. So profound is this split that philosophers cling to dualism and on top, proffer theories that prove irreconcilable with their basic claim of two separate substances. Others who oppose dualism either uphold one substance (mind or brain) or unify the two substances (mind and brain) or even see them as one and the same thing.

P. Church land, sceptical of philosophy's a-priori specification of mental categories and dissatisfied with computational psychology's purely top-down approach to their function, researched and studied the brain. The outcome was a unique merger of science and philosophy (Neurophilosophy) that challenged the prevailing methodology of mind. She undertook a revolution towards a unified science of the mind-brain in her Neurophilsophy. The mind is the brain at work, for the structure and function of the brain at the substructure; accounts for what we ascribe as the mind at the superstructure. Church land stated that at this stage in history, the brain and behavioural sciences are monumentally exciting, for we appear to have embarked upon a period when an encompassing scientific understanding of the mind-brain will, in some nontrivial measure, be ours. Theories - of the large-scale, governing -paradigm, unifying -framework kind - are beginning to emerge, and they will evolve and come to structure both the research enterprise and, undoubtedly, our very way of thinking about ourselves. And it would be amazing if the new theories and the new discoveries did not contain surprises of such magnitude as to constitute a revolution in understanding. In its power to overturn the "eternal trueness" of folk knowledge, this revolution will be at least the equal of the Copernican and Darwinian revolutions. It is already evident that some deeply central folk psychological concepts, such as memory, learning, and consciousness, are either fragmenting or will be replaced by more adequate categories.xxxv So, the gain or relevance of Neurophilosophy is according to P. Church land a profound increase in the understanding of ourselves, which in the deepest sense, will contribute to, not diminish, our

humanity. Knowledge about the brain may have reduced many traditional philosophical assertions to historical curiosities, but Churchland believes that opens the way to fresh inquiry.

CONCLUSION

Despite the shortcomings and limitations of P. Churchland's Neurophilosophy, her theory is one of those unique and novel contributions that proffer an elixir to the aged problem of the mind-brain. Experience has really given credence to her theory. One amongst many is the indubitable proof from the split-brain patient, whom under serious seizures underwent some surgical operations in which the right and the left hemispheres were separated, and the cortex was cut at the surface level so as to control the seizures. The resultant effect was so remarkable and novel in that the human consciousness was split or divided. From this, one can infer then that there is really a deep connection between the brain and the mind. And this connection or relationship, have been unearthed by Neurophilosophy. Another account is that of a moral deviant, who unknown to his family and sundry, had brain tumour. When the tumour was discovered and removed, his moral problem vanished. These instances point to the veracity of Church land's theory. Experience has proven neurophilosophy plausible.

Also, neuroscientific discoveries, has redefined our conception of consciousness, self, knowledge etc. Little wonder, Churchland in her Neurophilosophy sought for how we will re-understand, re-think and re-interpret the traditional conception of ourselves in the light of how we come to understand the nature of the brain. The structure and function of the brain really caters for what we call mind. The human brain is not even common as some materialist see it. Brain-damaged patients provide some of the strongest evidence for how our brain makes us who we are. Injuries to various parts of the frontal lobe can leave some people unable to talk or can alter personality, yielding impulsive or antisocial behaviours, and lesions to the medial temporal lobe can erase our memories or prevent new ones from forming.xxxvi Another example is the Alzheimer disease – a brain disease – which can cause the lost of the sense of self. When the brain is shattered the mind is disorganised. A healthy brain accounts for a healthy mind. Hence, the mind is the brain at work or in action.

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[i] JOHN. DEWEY, *Democracy and Education,* New York: Macmillan,1916, p. 381
[ii] JACQUE. MARITAIN, An *Introduction to Philosophy,* New York: Sheed and Ward, Inc., 1965, p. 102
[iii] MARCEL. ONYEOCHA, *Introfil: A first Encounter With Philosophy,* The Council for Research in Values and Philosophy, Washington D.C, 1995, p. 8
[iv] WLADYSLAW. SLUCKIN, *Minds and Machines,* A pelican book, Great Britain: The Whitefriars Press Ltd, 1960, p. 219
[v] RENE. DESCARTES, *Philosophical Writings,* E. Anscombe & P. T. Geach (transl. and ed.), Hong Kong: The Open University Press, 1976, p. 192
[vi] RENE. DESCARTES, *Philosophical Writings,* p. 192
[vii] GILBERT. RYLE, *The Concept of Mind,* New York : Routledge, 2009, p. Iix
[viii] PATRICIA. CHURCHLAND, *Decision, Responsibility And The Brain,* 12th Annual Swartz Foundation On Mind-Brain Lecture, Monday, March 10, 2008 at 4:30pm.
[ix] PATRICIA. CHURCHLAND, *Decision, Responsibility And The Brain.*
[x] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* Cambridge, Massachusetts:The MIT Press, 1986. p. 14
[xi] MCGRAW-HILL, *Encyclopedia of Science and Technology,* 6th Edition, McGraw-Hill Inc., USA, 1987, pp. 631-632

[xii] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 35
[xiii] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 36
[xiv] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* pp. 37-38
[xv] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 40
[xvi] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 43
[xvii] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 48
[xviii] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* pp. 62-64
[xix]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* pp. 76-77
[xx]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 351
[xxi]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 352
[xxii]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 361
[xxiii]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* pp. 403-404
[xxiv]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 405
[xxv]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 406
[xxvi]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 406
[xxvii]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 406
[xxviii]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 407
[xxix]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 407
[xxx]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 407-409
[xxxi]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 412
[xxxii]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* pp. 461-462
[xxxiii]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 462
[xxxiv]PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 474
[xxxv] PATRICIA. CHURCHLAND, *Neurophilosophy Towards a unified science of the Mind-Brain,* p. 481
[xxxvi] Cf. https://www.scientificamerican.com/article/mind-reviews-touching-nerve. Accessed 23/04/2018 by 8:13 pm.