

Theory of Brain-Sign: A Scientific Revision of the Consciousness Concept

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Abstract

The history of the phenomenon termed consciousness goes back at least to the Greeks, though in modern times begins with Descartes. It attempts to identify the state in which a mental subject has awareness of the world in various modes: seeing, sensing, feeling; and also, with the ability to think. This mode facilitates consideration of the world, and the subject's place in it. It influences what actions could be taken. In this 'recent' history the role of God (specified or assumed) has been highly influential concerning the state's existence and operation. The problem is that a science of the physical universe demands an account which fits the phenomenon into the physical world without divine influence, as consciousness fails to do. In this article an entirely different approach is adopted, termed the theory of brain-sign. It identifies the role of the brain phenomenon as purely biological, facilitating organisms' ability to communicate with others by neural signing. Signs are biologically ubiquitous and intrinsically physical. The article is in two parts. The first briefly explores the history's influence till the modern day, demonstrating the incongruence of the consciousness supposition. In the decades post Behaviourism — which was a former response to the problem of consciousness — the assumption of mind/consciousness has resumed, leading to the current chaotic status. The second part, therefore, outlines the theory of brain-sign by contrasting it with recent accounts that employ the 'consciousness' concept but which could be recast if brain-sign function had been identified and employed. Once consciousness is discarded, the biological role of brain-sign is obvious, and developments of neural science may identify the physical locality of brain-sign function. That will eliminate the supposition that an Absolute reality exists or causality is entailed, which are the claims of consciousness. Indeed, brain-sign theory changes the nature of being a human being, and other creatures, mirroring the impact of Evolution.

Key Words: Consciousness, self, Brain-sign, causal orientation, biophysical-marker.

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Introduction

Consciousness is a fundamental problem for science because, supposedly, it is a prerequisite for scientific knowledge of the universe. But consciousness has no scientific status. To suppose there is a Science of Consciousness requires its proven relation to the physical universe, specifically brain and body. None such exists. How could there be when the verification of consciousness depends upon what is assumed as consciousness? Qualia (qualitative states of consciousness), deemed problematic in relation to the physical nature of the brain, are a minor topic in the more pervasive obscurity of human biology. Phenomenology, how the mental subject explores its own consciousness, assumes humans are quasi-divine because they have the supra-physical power of self-knowing. But that is undermined by the scientific implausibility of consciousness. Darwin's Evolution Theory in the 19th century brought an end to human supra-physical status. While science functions by experimental testing of theories, most scientists do not suppose humans have access to absolute (supra-physical) truth, which phenomenology presumes. Science identifies states which are currently explanatory in terms of physical properties.

In this article, therefore, consciousness is replaced by the theory of brain-sign. The theory establishes a crucial biological role for the brain phenomenon, viz. physical communication between brains — a fundamental departure from the history and concept of consciousness. But to say the theory can be 'understood' would endorse the error which 'consciousness' invites, for that implies a luminous state in which a mental subject has immediate knowledge guiding her/his activity in the world. The brain-sign paradigm reconceptualizes human existence. As with evolution, the theory demotes the human self-concept. The supposed significance of being human is evidenced by the scope of its knowhow; the ability to organise itself cooperatively thence transforming the world with vast cities and work-performing mechanisms. This knowhow resulted from the scientific exploration of the physical world, including the human brain and body.

However a problem lies in the misinterpretation of these achievements, which is historically evident in the invention of God as an extension of humans themselves — which other creatures, intelligent though they may be, do not possess. (A secret only humans know.) The divine entity is the creator of everything that exists, with consequent authority, and final judgement of human conduct. But this invented being is invisible as, of course, is supposed mental life upon which Psychology depends. It will be helpful, therefore, to explore briefly a selective history, for therein lies the struggle to identify the reality of existence. Part 1 outlines a history of philosophical contributors' concepts, and their interrelation over the centuries. Part 2 is a critical analysis of current

contributors who retain those concepts but, by contrast, outlining brain-sign theory as a wholly physical scientific solution.

Part 1. Historical contributors

The beginning

The world became evident when science began to unpeel it. As Paul Nurse says in his book *What is Life?* 'Darwin's great idea of evolution by natural selection [is] core to thinking about what life is...without invoking a supernatural creator.' (2021, 190).¹ But even today in the non-religious sections of human being, the notion of mind, particularly consciousness as a supra-physical capacity, remains. This centres on the mind's apparent internal representation of the world itself — through sight and hearing and touch — with the associated mystery of how (invisible) mental states could be causal in the physical world. How could seeing the world cause a bodily reaction, as in finding our way? Or a feeling of fear induces a swift withdrawal from some encounter? What goes on when we think about a threatening situation and, after days or years, we are suddenly able to make a decision, announce it out loud, and execute it in an uncertain world? Philosophical history and brain science are dense with these conundrums.

'Recent' history begins, it is said, with Descartes (16th/17th centuries). While a foundational contributor to scientific development, his mind account in the *Meditations* (Descartes, 1968) is cringingly explicit about God's involvement. While he states that 'I think therefore I am', the mental subject, the I, resides in a God-given mind construct. Descartes' certainty does not derive from the science of his physical body but in divinely-installed revelation, God being 'no deceiver'. However, while Descartes is given the power of willing and understanding, his own human errors result from willing far exceeding understanding.² He can 'very easily go astray' (Fourth Meditation, 137). (We too yell 'Why didn't I think of that?!' after some calamitous event.) Whether his divine account was invented to escape ecclesiastical authority or was genuine is undecided. After all he proposes an ontological argument that a God-being exists because He can be conceived (Third Meditation, 131).³

So, in his well-known example, communication of damage to the foot rises up spine-located nerves as a physical event, converts into a mental state (pain) through the pineal gland in the brain, resulting in

¹ In his 1973 (1940) book Freud stated that 'Religion no longer has the same influence on people as it used to... And this is not because its promises have grown less but because people find them less credible [at least in] European Christian civilisation' (34).

² This distinction was in part an escape from the Scholastic notion of all entities behaving towards ends, e.g. physical objects falling to earth to be in their proper place.

³ He says in the fifth Meditation: 'Thus I recognise very clearly that the certainty and truth of all knowledge depends on the sole knowledge of the true God.' (149).

God-supplied, therefore invisible, mental knowledge that will generate appropriate action. Descartes' conceptual move was 'new' in that he made a clear distinction between mind and body. But for further clarity he adds that 'Feelings of hunger, thirst, pain... arise from and depend on the *union*... of the mind and body' (Sixth Meditation, 159, emphasis added).⁴

Subsequent conceptual history, whilst somewhat eschewing explicit divine involvement, does not escape it. Instead of a clear distinction between what has been identified as mind/consciousness and the physical brain's activity — reclassified below as two different realms of operation — there is a tangled history, the assumption being that, because we experience the mind, it must exist.

Exactly what John Locke (17th Century) says. 'When we see, hear, smell, taste...we know that we do so.... Everyone is to himself that which he calls self' (1997, 302). As an empiricist, rather than idealist, this differs from Descartes because the content of mind results from experience, i.e. input from the world, rather than being predetermined. He states that pain, for example, results from the 'motion [of some cause that] continues to the brain [where the] idea of pain [is] produced in the mind' (142). This is certainly a customary modern assumption, though not as an idea, rather a feeling state or sensation. However, while Locke is certain about the significance of the conscious role, and that mind is immaterial, there is ongoing debate about his precise position in various areas including consciousness — which, given its obscurity, is not surprising.⁵

Locke makes the distinction between primary and secondary qualities: the first, physical nature — solidity, extension, figure and mobility; the second, derivative qualities — colours, sounds, tastes. First published in 1689, this is the origin of what later (4½ centuries on) are termed the qualia of our experience, as opposed to the actuality of the seen object. Inevitably the explanatory process depends upon a mental subject of conscious perception who reports it. Forward then to David Hume (18th century) where we encounter a problem with the entire structure of theorizing. The mental subject does not exist. 'When I enter most intimately into what I call myself, I always stumble on some particular perception... I never catch myself at any time without a perception, and never can observe anything but the perception' (1962, 301-302). Hume was skeptical of mind history and its nonexplanatory assumptions, claiming a scientific experimental approach. However, this was largely exploration of himself, as is here stated.

This leads us to Kant (18th century), awakened from his 'dogmatic slumber' by Hume. Two crucial points. By contrast with Hume, Kant made the subject, the self, necessary (a priori) for the existence of

⁴ From Descartes' theoretical position the union allows both the body to effect the mind and visa versa. But they remain different.

⁵ See Locke on Personal Identity, Stanford Encyclopedia entry 2019, Jessica Gordon-Roth.

consciousness (1933). Consciousness resulted from mind content being evident to the subject (as the inner sense). Yes, the subject could be conscious of itself in the past, but that subject is as any other perceptible content to the subject now conscious (in apperception).

The second is Kant's identification of how knowledge could be identified in conscious states. His aim was to account for Newton's success in developing laws of the universe's operation, e.g. gravitation between bodies. Hume had said in the *Treatise* (1739) that we cannot see causation in our perceptual experience. One object, a billiard ball, appears to collide with another and the other moves as a result. But causality, a physical law, is not apparent in perception: merely the contiguity of two objects colliding. Kant's answer was that what operates on the mind's representations of experience are a priori mental concepts, as space and time, and thence judgements, e.g. cause and effect, thereby identifying perceptual experience as causation.⁶ Kant's general aim was to describe what a mind must be in terms of mental processes which could be individually and collectively identified to make the system work. However, the capability-account of mind in identifying lawfulness appears to return us to Descartes in being 'simply there' by some unidentified but necessary source without explicitly claiming divine intervention.⁷

This device is qualified, for example, by Kant's statement, in the *Critique of Practical Reason*, that 'The achievement of the highest good in the world is the necessary object of a will determinable by moral law... This infinite progress is possible... only under the presupposition of an infinitely enduring existence... called the immortality of the soul.' Which is now (i.e. in Kant's time), qualified by science as well as his view of our 'rational but finite being' (1993, 128-129). In other words, God is a given (a priori), but unconfirmable from our living experience.

An intervening note

Kant's work is a turning point between what is prior and what follows. In considering perception, for example, he identified the transcendent (a priori) method of analysis resulting in mental states used by the subject. He scorned the idea that brain states could be identified which function along with mental states, as Descartes had.

However, before proceeding further, another theoretician in the 17th century must be included: Baruch Spinoza. For Spinoza proposed a dramatic alternative that had influence on many following theorists. Spinoza was Jewish and his view of the universe emerged from that milieu, i.e. not Christian. But he was excommunicated from the

⁶ Aristotle, in *De Anima*, asserted that it is representations that occur.

⁷ Kant's account is, of course, a subject of continued philosophical analysis and debate.

Jewish community for the controversial (atheistic) aspects of his theorising.

His position was that there is no God to be worshiped and feared, who is loving and angry, and who causes events to happen in the world as humans do. Rather the universe is God and requires to be so construed. God exists in two ways, as (physical) extension, and mind. But these are aspects of the one substance, which is all that exists. These aspects are to be understood as different interpretations of that one substance.

Two quotations from the *Ethics*, his most comprehensive text, are relevant (Spinoza, 1963). 'God is not only the effecting cause of the existence of things, but also of their essence'⁸ and 'Will can only be a necessary cause, not a free one.'⁹ The significant points being that the idea of God is not as in Judeo/Christian history; and the freedom of the will — that which we humans may be supposed to have as a result of our mental considerations — is dismissed because what unfolds, including ourselves, is a necessary divine activity over which, as individuals, we have no independent control. We are part of, or an aspect of, the working out of God. God and Nature are the same entity.

Spinoza proposes to solve the problem of physicality and mind (i.e. Descartes' dualism) by altering the conditions under which they (and we) exist. As an explanation of the world we inhabit, therefore, God again takes a primary, and in this case, exclusive role. However, despite using the word, 'Spinoza [does not actually] provide a conclusive definition of what consciousness is, or an explanation of how it originates in nature,' to quote Oberto Marrama (Marrama, 2017).

6

Further developments

So, we now have two possibilities for what consciousness is: 1. What is given us by God in terms of mental capacity, and 2. God actually is us, individually/mentally, which Spinoza states explicitly. 'This idea and knowledge of the human mind is in God and is referred to God in the same manner as the knowledge and idea of the human body.'¹⁰

If one takes the position that 'This is nonsense' deeming it fantastically improbable, the pressing question is: How do we explain ourselves as conscious — our definite present in the world? To say: 'Well it's just me,' or 'I don't believe in God,' does not engage the urgency of the question.

Moving to the 19th Century there are two opposing figures, both influenced by Kant and Spinoza, viz. Hegel and Schopenhauer. Neither identify the nature of consciousness as a biophysical entity.

⁸ Proposition, Section 1, XXV.

⁹ Proposition, Section 1, XXXII.

¹⁰ Proposition, Section 2, XX, *Proof*.

Both are idealists. Consciousness is self-evident, its operation explored without considering its physical ontology and thus scientific plausibility. This is signified by the term *phenomenology*, which is the mental subject's direct acquaintance with, and exploration of, conscious experience. It derives in part from Kant's necessary subject of consciousness,¹¹ the assumption being that science has developed because (unexplained) consciousness enables it as mental knowledge of the world — as currently widely assumed.

For the purpose of what follows, two aspects of Hegel's account (1949) are mentioned. The first is the so-called dialectic process of, e.g. perception of an object, in which consciousness goes through self-correcting sequences until the perceived object is seen absolutely as it is, e.g. distinguished in its uniqueness. This goes beyond Kant's account which explicitly denied the mind could have direct knowledge of the world. The second is Hegel's conceptual broadening of consciousness so that others are 'understood' in terms of their self-conscious mirroring of the self-consciousness of the subject, the latter being necessary for knowledge as self-represented. It is thus crucial in development that we identify others as the same kind of (self-knowing) creature.¹² God, the absolute reality of love and justice, and not a separate entity, is revealed to us in a similar gradual way, in which humans can participate.¹³

7

Schopenhauer, however, was contemptuous of Hegel's benign portrayal. While his writings had little consideration for most of his life, latterly he gained extensive interest and had a major impact on subsequent theorists.

He was keenly interested in the developing sciences, and their applicability for philosophy. He divided the world into two categories, as in the title of his most extensive work, *Will and Representation*. The will is the 'blind urge' which is everywhere and 'remote from all direct knowableness' (1969, 149). As blind, the urge acts without reason or purpose, without any form of intelligence. It is evident in the physical world of suns and planets (gravitational force); in the plant kingdom; 'in the vegetative part of the animal phenomenon...in the maintenance of its interior economy' (150). However, 'Finally, where the will has attained to the highest degree...that complicated, many-sided, flexible being, man...had to be illuminated by a twofold knowledge in order to be able to exist. A higher power of knowledge of perception...had to be added...namely reason as the faculty for forming abstract concepts. With this there came into existence thoughtfulness, surveying the future and past, and, as a consequence thereof, deliberation, care,

¹¹ Hegel's referenced book is titled *Phenomenology of Spirit*, where 'spirit' (*Geist*) and 'mind' are interchangeable.

¹² Nietzsche said of Hegel that: 'He dared to teach that species concepts develop out of each other. With this proposition the minds of Europe were preformed for the last great achievement, Darwinism – for without Hegel there could have been no Darwin' (1974, sec. 357). Since the book is divided in sections, 'sec.' is quoted to address alternative publications.

¹³ See e.g. Robert Wallace online, Hegel's God, *Philosophy Now*.

ability for premeditated consciousness of decisions of one's own will as such' (151). Even so, he says, 'delusive motives, resembling the real ones, [can] slip in ...compel[ling] him to a course of action directly opposed to the way...his will would otherwise manifest itself' (152). Which replicates Descartes' human deviation from God's guidance.

This account finally eliminates divine nature in the world, it seems. God is replaced by blind causality. We live in a godless universe which operates under forces without deliberative meaning. In his account Schopenhauer supposedly demonstrates Kant's weakness, for he had said the mind has no access to the world, the thing-in-itself or what he termed noumena (by contrast with conscious phenomena). But, hey presto, 'Everyone finds himself to be this will, in which the inner nature of the world consists, and he also finds himself to be the knowing subject, whose representation is the whole world' (162).

However, what Schopenhauer supposes as mind expressing a 'higher power of knowledge' and abstract concepts in consciousness, founders because no scientific account for its existence is offered. It may seem obvious the human form expresses its will to survive, e.g. by digestive processes for fuel. But how a wish, thought, feeling or sensation arises from the physical brain has no explanation. Even the term Will forces a person-orientated character.¹⁴ Despite the novelty of his position and its sensitivity to the human condition yearning to escape continual frustration, what Schopenhauer actually creates is another God-like source, Human divinity, widely apparent in today's 'scientific' literature.

Development of Psychology

Psychology, as an experimental discipline, begins with Wilhelm Wundt. He initiated this in a Leipzig laboratory in 1879 for specifically the study of consciousness. 'The exact description of consciousness is the sole aim of experimental psychology' (Titchener, 1921, 164). Psychic processes form a unitary flow of events which can be identified by psychological analysis and abstraction, viz. representing, feeling and willing.

Kant, on the other hand, had given three counterstatements to scientific experimentation.¹⁵

1. Empirical psychology cannot be an exact science because the phenomena it seeks to explain are not mathematically expressible.
2. It is not possible to isolate different thoughts.

¹⁴ As discussed in Bryan Magee's book on Schopenhauer. 'His use of the term 'will' in this third sense [i.e. as the human will] has proved nothing short of an intellectual catastrophe, in that it has precipitated widespread misunderstanding of his philosophy ever since' (1983, 141).

¹⁵ In Kant's *Metaphysical Foundations of Natural Science* (2017). See also Pickren & Rutherford, 2010.

3. Observing one's inner mental process changes the phenomena itself due to the mediation by our introspective act, casting even more doubt on the possibility of a psychological science.

Wundt counterposed thus. 'The question of the relation between psychical and physical objects disappears entirely. They are not different objects at all, but one and the same content of experience, looked at in one case, that of the natural sciences...in the other, that of psychology, in their immediate character and complete relation to the subject.' He titled his research *physiological psychology*.

Wundt's position, which echoes Spinoza and Schopenhauer, he termed hybrid. While psychology was a part of philosophy, it synthesised experimental facts in a scientific manner. He described it as 'an "empirical postulate" necessary to explain the phenomenal "fact" of consciousness of which we are immediately aware.'¹⁶ 'Certain mental processes regularly correspond to certain physical processes or, figuratively expressed, "run parallel to one another".'¹⁷

But this is obviously a fudge — an attempt to save science in the context of mystery. There is no explanation of how mental states can exist for a subject as representations, feeling, etc. It depends upon a scientifically undefined subject with its power of immediate awareness. Representation is an action not a (mental) object, Wundt says. Voluntarism is his proposed term for willed representational action... But how? This is the status of experimental psychology.

'Modern' mind theory stretches back to Descartes, therefore incorporating divinity which, in Kant's version of consciousness, employs a necessary mental subject who acknowledges God as a *regulative idea*.¹⁸ But it is not scientifically adequate to propose consciousness incorporates divinity and in the next moment (a hundred years on) claim that is erroneous but not explain the alternative. God is a theoretical invention and, as such, can allow a mental subject to recognise 'His' activity (as does Descartes). But take God out of the proceedings and the physical operation requires bioscientific likelihood. Nietzsche, in the role of madman, claims 'God is dead.... We have killed him.' (Nietzsche 1974, sec. 125).¹⁹

There are at least two outcomes if Nietzsche is correct. The first is practical: the divine 'he' is an entity which no longer requires our

¹⁶ Quoted from Stanford Encyclopedia entry on William Wundt. Alan Kim.

¹⁷ Quoted from Wikipedia: Wundt: Grundzüge, 1902–1903, Band 3, S. 769.

¹⁸ This is expressed by these words in the *Prolegomena*. 'Reason frees itself by means of the theological idea from fatalism (both as a blind natural necessity in the coherence of nature itself, without a first principle, and as a blind causality of this principle itself) and leads to a concept of cause possessing freedom and hence of a Supreme Intelligence. Thus the transcendental [*a priori*] ideas serve, if not to instruct us positively, at least to destroy the...assertions of materialism, of naturalism, and of fatalism' (1977, 103). His gradual theoretical development in relation to religion, after the *First Critique* and *Prolegomena*, appears to move in the direction of Spinoza and subsequent Hegel. See online: IEP, IK Philosophy of Religion.

¹⁹ But later he says he has 'come too early...My time is not yet.'

attention. Secondly, the powers we assumed for ourselves, resulting from 'his' existence, no longer apply. Our secret is valueless. Consciousness does not exist: we do not see or feel or think. Nietzsche comments: 'Mystical explanations are considered deep. The truth is that they are not even superficial' (1974, sec. 126).

Psychoanalysis

Sigmund Freud inhabits this period. Central was his proposal that the vast majority of mental activity, and thus behavioural causality in humans, happens in the unconscious id. In 1900 (actually 1899) he published *The Interpretation of Dreams* where he explored evidence that in dreams the unconscious mind, in story form, can reveal the subject's attitudes and concerns about themselves and the world over which the ego, in consciousness, has neither access nor control. Interpretation by free association, the 'talking cure', allows the patient to understand themselves more fully. This found a receptive response in that humans are indeed a mystery to themselves, characterised by the phrase, 'Why on earth did I do that?!' Or waking from sleep they feel suddenly different from yesterday with the sense that something can be achieved which seemed impossible. This was evidence of the unconscious, generating the question: 'Was yesterday the real me or today?'

10

Nietzsche again precedes him. 'For what purpose, then, any consciousness at all when it is in the main superfluous?' (*The Gay Science*, sec.354).²⁰

In Freud's early Project for a Scientific Psychology (1895) he tried to express the brain's direct involvement with physical linkage to the mind, but he considered it a failure as science and so was published in English after his death (1954).²¹

His last book, again published after his death (1940), began with these comments. 'We know two kinds of things about what we call our psyche (or mental life): first, its bodily organ and scene of action, the brain (or nervous system) and, on the other hand, our acts of consciousness, which are immediate data and cannot be explained by any sort of description' (1973, 1). Since God's responsibility has gone, no description is possible for what consciousness is. Yet consciousness is an unchallengeable though inscrutable absolute of our existence, which still underpins psychology and general supposition.

But early in the 20th century weariness with the complexity and abstruseness of the consciousness topic led to Behaviourism. The phase lasted until the 1950s, JB Watson (1913) and BF Skinner (1938)

²⁰ As is well known, Freud claimed he had never read Nietzsche.

²¹ See e.g. George Northoff. *Psychoanalysis and the Brain – Why Did Freud Abandon Neuroscience?* Online [10.3389/fpsyg.2012.00071](https://doi.org/10.3389/fpsyg.2012.00071)

being pivotal figures. Both proposed that mental states could be discounted: *behaviour* of the organism could be conditioned, interpreted, and measured as a more reliable method of gaining a science of what behaviour takes place.

A New Direction

However, during this period a profound conceptual change occurred. Phenomenology, as said, is the supposed enquiry and analysis by the subject of the nature of their experience. Franz Brentano (19th/20th centuries) had characterised mental life by the terms Intentionality, or Aboutness. This move hypostatized mentality, proposing a real state which, *per se*, could be studied quasi-scientifically. In seeing an elephant, the seeing is about the elephant and could be taken as such.

Edmund Husserl, a key succeeding figure and influenced by Brentano, is considered the founder of 20th century Phenomenology. After he had moved to Freiburg (1916) an assistant was Martin Heidegger (1919). Heidegger thence moved to Marburg (1923) where he taught, and continued developing his philosophical position, without publishing anything, which included a rejection of Husserl's phenomenology. His aim was more primary: to identify the grounds of being which would clarify experience. He returned to Friburg in 1928 to take up the position that Husserl had vacated.

Although brought up in a Christian milieu, Heidegger's major work, *Being and Time* (1927), discounted religion as significant for philosophy.²² The book is dismissive of Cartesianism and critical of Western philosophy from Plato onwards. Plato had proposed the real world was Ideas, whereas the world itself was a mere shadow of individual things, not the defining concepts.²³ What was required, Heidegger proposed, was the *destruction of the consciousness concept*, being a metaphysical artifice as were Plato's Ideas. Hence his rejection of Husserl's phenomenology for that already entailed a theoretical supposition.²⁴

For Heidegger, humans are unique because they grasp the sense of being in the world, which other creatures cannot. Creatures are therefore poor by comparison.²⁵ For humans the world is immediately present, but not by being conscious. The presence of the world is not objects accessed by an intervening seeing faculty. Thus, the human is termed Dasein, 'being there'.

²² He states 'A Christian philosophy is a round square and a misunderstanding....The original Christian faith philosophy is foolishness.' (1959, 7).

²³ The simile of dwellers in a cave watching shadows on a wall from a fire behind them; then one rising to the world of light and reality, in *The Republic*. (1974, 316).

²⁴ He involved God in his phenomenology. As in the first book of *Ideas*: 'Even God can only acquire cognition of His consciousness and consciousness-content by reflection' (1982, 187).

²⁵ 'The animal has no world nor any environment.' (1959, 45).

'The perceiving of what is known is not the process of returning with one's booty to the cabinet of consciousness after one has gone out and grasped it; even in perceiving, retaining, and preserving, the Dasein which knows remains outside, and it does so as *Dasein*' (1962, 62).

The problem Descartes had created, but was already historically apparent, was the God-givenness of conscious knowledge enabled by seeing, feeling and thought. Since God was the source of the world and humans, 'he' had provided the intervening link of mental engagement with the world, as the formulation goes. But Heidegger says, as an example: 'We have already intimated that this 'I-here' does not mean a certain privileged point — that of an I-Thing — but is to be understood as Being-in in terms of the yonder of the world that is ready-to-hand — the yonder which is the dwelling-place of Dasein as concern' (1962, 155). This construct erases consciousness as mechanism, replacing it with the situated actuality of being in the world, which requires linguistic reconstruction. It is necessary because everyday speech conceals the nature of human existence. We live the error day-by-day.

An aspect of that newly characterised existence is other people: for Heidegger they are immediately present; interaction is a collective way of being. 'By reason of this with-like being-in-the-world, the world is always the one that I share with Others. The world of Dasein is a with-world. Being-in is Being-with Others. Their Being-in-themselves within-the-world is Dasein-with' (155). The language has 'a signification which is primarily existential, not categorical' (156). In other words, when we say we see others, we center explanation of the existence-state on our mental activity (categorically); but that does not describe the nature of how we do exist with others in the world, for they are an intrinsic part of our existence. Seeing is an explanatory construct but existentially a mistake.

So, the ego-centricity of Cartesianism and subsequent accounts, including Kant's, are discarded. The significance of interhuman communication had already been made relevant by Hegel, Wundt and Freud, in the last case with a 'talking cure' which is intrinsically collaborative. But Freud is ambiguous because the ego is fundamental and the superego is a divine-replacing judgement mechanism, though he was an atheist. So, despite identifying the significance of others in human life, each remain within the consciousness construct.

Heidegger's description of existence is minutely detailed and extensive. It had a major influence, particularly on Continental philosophy, though it has become wider, as with the American, Richard Rorty.²⁶ But is it relevant to neuroscience? Does the brain see, taking us with it?

²⁶ Particularly *Philosophy and the Mirror of Nature*, 1980.

Part 2. Analysis

Transition

From the 1950-70s there was a move back from Behaviourism to mind/consciousness, termed the Cognitive Revolution. Early initiators were Noam Chomsky (1959), George Miller (1962) and Ulric Neisser (1967). The motivation was that the study of behaviour was insufficient. Thought, feelings, language, i.e. mental states, 'obviously' offer more specific and diverse data about why particular behaviours occur in the human being, and other creatures. Studying their manifestation could/should be a more effective way to identify cognitive accounts as scientific.

However, although numerous attempts have been made to identify mental life in form and function, so rendering a feasible science in the physical world, the approach has suffered from a fatal condition: no theoretical agreement.

For the reality of the situation is expressed in this quotation from a recent article titled 'Tests for consciousness in humans and beyond'. '*In the absence of a theoretical consensus* concerning the nature of consciousness...' emphasis added (Bayne et al. 2024). Which can be reconstructed as: We have surveyed tests for a property with no scientifically agreed justification or plausibility. There is no consensus because the concept is a mistake, a two millennia Kuhnian muddle.²⁷

Thomas Kuhn said: 'The pre-paradigm period, in particular, is regularly marked by frequent and deep debates over legitimate methods, problems, and standards of solution, though these serve rather to define schools than produce agreement' (1996 (1962), 45-46). What is required is a biophysical concept which is viable.

The Revised Concept: The Theory of Brain-Sign

This theory changes the nature of human existence by identifying the biological function of the brain phenomenon misconceived as consciousness. It is founded upon a physical universe. The theory has been outlined in various publications and contrasted with the accounts of other theoreticians. In this version the aim is to 'uncover' the theory of brain-sign by bringing it forward from the dominance, in modern texts, of non-scientific conceptualisation which authors have assumed/retained from the history. This approach is encouraged by the apparent proposal that consciousness can already be a science.

To begin with, the ego/self/subject. We know we have a self because we experience it (ref. John Locke). We are aware of our past from remembered incidents, attitudes and outcomes. We are concerned about the future: what will be and how we will manage it. We know

²⁷ Thomas Kuhn, the author of scientific paradigm change.

others have this kind of self because they are like us. Anthony Grayling says this exactly. 'At some point a completed science of the mind has to include an account of why a sense of selfhood is such a central feature of experience' (2021, 329). But this is not a biophysical description because the brain cannot generate a knowing self (contra Kant & Hegel). So, what could this proposed 'sense' be?

To answer is to ask what function could be justified by the supposed 'self' in brain operation. Nietzsche proposed that 'Consciousness has developed only under the pressure of the need for communication' (1974, sec. 354) and 'Consciousness does not really belong to man's individual existence, but rather his social or herd nature' (ibid.). This is reflected recently by Robin Dunbar who 'defends the idea that spoken language...is our way of engaging in social grooming' (Dunbar, 2017). Neither offers a scientific justification.

While the history has extolled the self's mental powers, the brain-sign state functions in a different way. It is a means of communication by neural states in different heads, i.e. as a purely physical process. Brain-sign has no knowing mental subject. How can this happen?

The answer is straightforward, but problematic for Grayling's self-view. Being purely physical means, the self no longer exists. What was termed ego/self/subject is an identifier in the collective biological activity of multiple brains.

In normal conversation we might say that the dog's wagging tail is a sign its body makes and is recognisable by an external body viewing it. It is a behavioural act. The dog might also feel happy or enthusiastic; but happiness is a mental state and does not function as a tail does.

But scientifically, there is no mental state in which the dog's tail can be viewed by another, nor do dogs feel happy. For that would require the physical brain to produce a mental view or feeling. This is a foundational point. Brain-sign theory re-casts the mentalist explanatory story, placing it wholly in the physical world.

In general, the literature disowns the problem. Its significance is ignored because there has been no alternative scientific account. For example, Nicolas Maveton's book (2023) is entitled *The Voices of Nature — How and Why Animals Communicate*. He writes 'Perceiving sound waves and producing a nerve signal in response...is only the first step toward hearing sound. The nerve signal must then be processed by the brain. We would have to enter the world of neuroscience to explain these neurophysiological mechanisms, which is not the purpose of this book' (109).

But that begs the question: How does sound get heard? What does a brain do to generate hearing? Why not enter the world of neuroscience, because that is where the idea of hearing must be accounted for. However, it is no more likely that hearing exists than

seeing or feeling. Neuroscience, as biology generally, is burdened by psychological concepts which offer no solution. So, neuroscience, as Mavetón proposes, would not supply explanation. As with Heidegger's attack on phenomenology, what is required is a vocabulary that replaces current-speak with applicable terms for neural communication.²⁸

Brain-sign is not centred on a self. No mental subject explores its thoughts or feelings, its future or past. What has been taken for the ego/self/subject of psycho/philosophical and religious history is termed here the *biophysical-marker*. The signifying state, brain-sign, is an essential characteristic of human and other creatures — an overarching means of brain-to-brain communication. We are not mental individuals but part of a biological collective. This is not Heidegger's philosophical account in which others are existentially part of 'us', Dasein-with, because that is not biological; but it underpins his analysis. The biophysical-marker signifies each organism's identification in the physical collective. It does not make decisions or suffer.²⁹

This definition avoids the term, used by some authors (Dennett, 2017, 345), that consciousness is an illusion because what is portrayed is not really real. However, it cannot be an illusion because no I has a deceptive sense of what occurs because no such I exists.

Causal orientation

Neural communication takes place, not between different minds with their visions and ideas, but directly between different brains. People (i.e. each organism) in the same environment (a room, a pavement, a theatre) communicate immediately in the sense that their brains are causally orientated towards that environment. What they do (the body's action) is bounded by the space occupied at that moment which is mutually represented. A human in a room does not know their brain is causally orientated toward the interior of the room. The inside of the room is simply there. 'Appearing inside' is not a mental acquisition: it is how the brain communicates with the other who is also there, if they are. Nietzsche says this precisely. 'Consciousness is really only a net of communication between human beings' (1974, sec. 354). But since he does not identify the biology, his statement is not about brain function. On the other hand, causal orientation could be loosely interpreted as Schopenhauer's notion of will. But he did not identify

²⁸ Heidegger used the term *destruction* in *Being and Time*, but it has generally moved to *deconstruction* with Jacques Derrida. See *On Grammatology*.

²⁹ This developing account is not as Nick Chater's *The Mind is Flat*, for while he proposes that 'our brains are...relentless and compelling improvisors, creating the mind, moment by moment' (2018, 220), he offers no justification for what minds do in any scientific sense, or what consciousness is. 'All conscious thought concerns the meaningful interpretation of sensory information' (141). 'Consciousness is...analogous to the 'read out' of a pocket calculator...' (175). The echo remains.

representation as that 'towards which' neural causality is directed. He retained the knowing mental subject.

However, there is no confusion between the brain as causal orientation and brain-sign function (by contrast with God-dependent Spinoza and Hegel, or Wundt's hybridity) because the sign derives from the brain's causality, and its biological role is functionally different. They are different realms of operation, as previously mentioned. An aim of neuroscience is to locate both in the brain, causality and representation. But this has a complexity not yet addressed.

Of course, 'causal orientation' covers a boundless range of possibilities and complexities for the brain arising from the organism's immediate encounter with the world — or in the past, or of the future. It is the brain's direct engagement for action in the world and is under neural construction from birth. The child's moment-by-moment explorations are the brain's absorption of the world's structure and their relation to it. All is assembled in the act of 'being there', being present in the world.

So, the tree before me is in the locus of my body's immediate existence resulting from the brain's causal response to it. The I does not see it or consider it; the tree is addressed in the brain's active (causal) way, even if then it is actively disregarded. Memory of the tree arises as an equivalent causality. That the biophysical-marker appears to see it renders the situation communicable in relation to any possible immediate other. Our lives are, their intrinsic nature is determined by what the brain selects in its operation towards the world.³⁰

16

Decision and causality

By saying the brain acts without a mind, the structure of the new paradigm is identified. By contrast, in his recent book *Determined, Life Without Free Will* Robert Sapolsky dwells at length on the well-known findings of Benjamin Libet (1983), and subsequent experimentalists.³¹ These indicate that the conscious awareness of making a decision to act is preceded by brain activity which actually generates the action. Brain activity is found in the prefrontal cortex (PFC) 'where executive decisions are made', then the premotor cortex, onto the supplementary motor area (SMA) which passes it, via descent down the spine, to

³⁰ This contradicts Sartre and Existentialism. He proposes (in *Existentialism is a Humanism*, 1946) following Descartes, that 'Before there can be any truth whatever, then, there must be an absolute truth, and there is such a truth which is simple, easily attained and within the reach of everybody; it consists in one's immediate sense of one's self.' He continues: 'Our aim is precisely to establish the human kingdom as a pattern of values in distinction from the material world.' But now, contra Descartes: 'The man who discovers himself directly in the cogito also discovers all others, and discovers them as the condition of his own existence.' Which echoes Heidegger (2007 (1945), 52-53).

<https://www.marxists.org/reference/archive/sartre/works/exist/sartre.htm> However, only the material world exists.

³¹ This includes Haggard, P. (1999), Haynes, J.-D. (2013) and Fried, I. (2022).

muscles. He endorses these findings, as the title of the book indicates. There is no free will since that term is applied to conscious decisions made by the subject. 'At the moment when we believe that we are consciously and freely choosing to do something, the neurological die has been cast. The sense of conscious intent is an irrelevant afterthought' (Sapolsky, 2023, 23-24).

Brain-sign theory concurs with Sapolsky: consciousness has no causality for the mental subject. But that is because brain-sign derives from the causal orientation. It is not in functional conflict.

Sapolsky does not identify brain-sign function. Instead, he says 'I don't understand what consciousness is, can't define it. I can't understand philosophers' writing about it. Or neuroscientists', for that matter, unless it's "consciousness" in the boring neurological sense, like not experiencing consciousness because you're in a coma' (31).

But in an end note (25, 434) he gives his view of the structural difference within conscious states and their underlying physical/neurobiological base. They (mind and brain) 'can't be separated — they're just two different conceptual entry points to considering the same processes.' Which replays Spinoza, Hegel and Wundt over a span of five centuries. But since, as he says, mental states succeed action determination by the brain by some seconds it is not obvious what biological role he claims for consciousness or indeed why it should exist. It is 'an irrelevant afterthought'.

According to Thomas Huxley in 1874, consciousness was epiphenomenal, ending its causal relevance to experimental psychology just as Wundt was getting it going.

Understanding (1)

A conflict arises because, while consciousness may be dismissed, the practical assumption that its function exists remains in all realms of analysis, including neuroscience. As God understands us so we understand each other because we have the understanding gift. Even animals have it, with relative levels of success. But what is understanding?

From Kant's point of view, it arises because 'What operates on the mind's representations of experience are a priori mental concepts (as space and time) and thence judgements (e.g. cause and effect).' If the conscious mind is not in the brain, and not causal (cf. Huxley), the answer is behaviour (cf. Watson & Skinner). But since all these answers are problematic, we need to move beyond them.

Humans live in a world with others who signify understanding in gesture, language and action. Does signification contain understanding? No. It simply signifies. So, we do not live in a world we (the mental I) understand nor do we understand

each other. We behave according to the physical brain's instruction. But brains do communicate with each other: our supposed understanding is built in as brain-sign. Here is the approach of Sloman and Fernbach.

'Sharing attention is a crucial step on the road to being a full collaborator in a group sharing cognitive labor, in a community of knowledge. Once we share attention, we can do something even more impressive — we can share common ground. We know some things we know others know, and we know they know that we know.... The knowledge is not just distributed; it is shared.... A basic human talent is to share intentions with others so that we accomplish things collaboratively' (2017, 115).

But no scientific definition is offered of knowledge, intention or understanding as physical states in the brain, or how they are shared. And this is important because, as the title of their book says, there is a Knowledge Illusion. The assumption must be that consciousness has an active role, but the book's Index has no such entry. On page 111 they say that 'The driving force of the evolution of human intelligence was the coordination of multiple cognitive systems to pursue complex shared goals...called the social brain hypothesis.' As proposed by Hegel and Nietzsche in the 19th century and founded on consciousness. But while the brain is mentioned, the mechanism is not.

However, in a section of the book titled Thinking about Politics, the authors dwell on the behaviour of humans in war. 'You don't have to know much history to know how societies can become caldrons in an attempt to create a uniform ideology' from the Greeks against Socrates, the Romans against Jesus, to the twentieth century with Stalin and Mao. They continue, 'We do note...that all the leaders of the time made use of a common and quite *conscious* justification for their barbarous acts.... They all suffered from an illusion of understanding, and so did their followers. And the consequences of those illusions were appalling' (emphasis added) 174-175). The word consciousness creeps in as real, actual or absolute 'divine truth' (ref. Hegel). But it does not explain understanding in a scientific sense. It is a juxtaposition of words with emphasis.

What generates the 'sense of understanding' derives from causal orientations in multiple brains and is signified by the brain-sign state which 'we' are. It is reinforced in the moment of commonality. The brain's function is to cause the organism to do what it determines. Since it (the brain) depends on others to survive it co-identifies the relevant world with them. Which is how the term 'con-sciousness' applies. Knowledge/understanding is what we can all have, presumably (though not acknowledged) under divine benevolence. Indeed, a familiar condition is to 'feel' a realness in the company of others that is not there when on our own.

But the complexity of what can be done by humans is so vast brains need to 'agree' the world that is shared. This neural representation cannot be externally displayed like the dog's wagging tail; its complexity is illustrated within the brain by a bioneural state that can have an equivalence in other brains — i.e. brain-sign — as at this moment in reading this text.

Of course, that inner representation cannot be made directly available to others, and since there is no access to the process within each organism because 'we are' it, consciousness became the pseudo (divine) explanation. An explanation of an enduring best guess — or 'intuition'. Brain-sign theory, by contrast, is an *explanatory scientific concept* about brain operation, in principle like electricity (the movement of electrons) or chemistry (the properties and structure of elements), or biology (the cell and neuron). Once the mechanics of brain operation are grasped conceptually — i.e. neurally constructed as causal orientation and thence brain-signed and shared — the vacancy of the consciousness concept becomes obvious.

So, what is understanding? The communicated evocation of what the world is towards which this brain's causal orientation is directed, so overturning Descartes' ontological argument because 'our thoughts and understanding' are produced, not by God, but by our brains.

Human existence never acts consciously. When the body dies 'we' do not lose a life of knowing, seeing and feeling. What drove the body was the neural brain to which 'we' have no access. As brain-sign 'our state' was an automatic bioneural communication with other brains, not only for our species but other creatures as well — our dog or cat. Brain-sign theory offers neuroscience a scientific approach to brain analysis, but also for 'our self-interpretation'.

This account is supported by recent experimentation demonstrating that engagement of the same world by multiple brains generates similar brain states in the participants — as e.g. wave patterns and termed *brain-to-brain coupling or synchrony*. It is explored by, for example, Hasson et al. 2012 (cited in Clapson 2022). It has also been published in *Scientific American* by Lydia Denworth (2023). However, brain-sign theory is not identified as a result.

In the brain-sign context Kant was right — we do not see the actual world, which Aristotle had already established but without scientific explanation. Schopenhauer was wrong. Freud was semi-right in identifying the 'unconscious' role, but he did not generate the science.

Why Phenomenality and Qualia do not exist

Categories-of-the-World & Categories-of-Interaction

Brain-signs have two categorisations, *of-the-world* and *of-interaction*. The first is representation derived from the senses, the second of

internal states. To grasp this conceptually requires undoing the sense that 'my experience' is mine. 'But I am always present. If I die then I am no more.'³² More likely, that I never existed. What is required is a construct that places 'us' in biology's communicative world.

As Sapolsky says, the brain does the work. Brain-sign derives from the brain's causality for neural communication. In this change the immediately present world is termed *Categories-of-the-world*. This is what 'we suppose' we see, hear, feel, etc.

So, the redness of something 'seen' as red is not qualia, as various philosophers have proposed, post Locke. While the electromagnetic wave length and redness are a scientific measure and an 'agreed' colour term, they are not realities of mental life. There is no light in the brain. 'Redness' is a neural interpretation of the wave length which the brain generates as a communicative sign between human brains, along with the biophysical-marker. If the brain does not register certain wave lengths, then it cannot communicate: 'we are colour blind'.

In a similar way, the 'pleasure' we seem to gain from music is the play of changing structure and dynamics in areas of the brain from compression-wave vibrations. Schopenhauer expresses this well. 'Therefore, from our standpoint, where the aesthetic effect is the thing we have in mind, we must attribute to music a... profound significance that refers to the innermost being of the world and of our own self. In this regard the numerical ratios into which it can be resolved are related not as the thing signified, but only as the sign. That in some sense music must be related to the world as the depiction to the thing depicted, as the copy to the original' (1969, 256).

Almost exactly so. The impact on the brain generates what has been assumed as hearing but, as Schopenhauer does not say, it enables neural communication in relation to the brain's activation.³³ The 'sense of pleasure' can align our brains with some and, depending on style and vintage of the music, not others. But the 'we' in this process are biophysical-markers. 'Pleasure' is termed a *Category-of-Interaction* which identifies communal states representing the internal activity of the organism.

So, does this say we do not have pleasure? We are certain we do! But this certainty emphasises what has to be 'grasped' in the paradigm change. 'We' are not the subject of our experiences. The 'sense of self' is associated with the 'sense of pleasure'; but the latter is not for us

³² Heidegger's account contradicts the idea of the I being always present because in intense engagement in the world the I disappears. But the 'sense of I' is what is being considered.

³³ His approach to others is in this passage 'The character of each individual man, insofar as it is thoroughly individual and not entirely included in that of the species, can be regarded as a special Idea' (158).

but part of a neural sign in which 'we', the biophysical-marker, are also signified.

The effect of music in the brain has been studied by, for example, Ernest Mas-Herrero, et al. (2021). While this study demonstrates relevant neural activity, which is in itself interesting, it does not explain what supposed mental responses are in physical terms³⁴ (See also Corneliu Toader, 2023).

Similarly, with Sloman and Fernbach's Cartesian account. 'Our bodies produce feelings to make us aware and warn us. When an option is pleasing, we have a positive affective reaction — a good feeling. That's our body telling us that we should pay attention and investigate' (103, & ref. Descartes, and Damasio 1994). But this offers no explanation of 'us' or the neuroscience of feeling.

Which leads to the general question of emotions. Do they exist? Do they influence decisions and actions? Sapolsky states that 'the sense of conscious intent is an irrelevant afterthought' to the act. An emotion would not be influential. This is similar to Schopenhauer, without relation to neural processing. 'The intellect can do nothing more...than clearly examine the nature of the motives from every point of view. It is unable to determine the will itself, for the will is wholly inaccessible to it and...is for it inscrutable and impenetrable' (291). Brain-sign theory reverses this structure — action first, brain-sign after.

Causality is directed forward in time. So, vis à vis emotions, categories-of-interaction are brain-sign's neural commentary on the status of the brain's directedness in relation to current demands and projects. Put otherwise, a 'felt emotion' is the brain's expression of its assessment of the current causal orientation towards an immediate target in the world (including itself). As such it is capable of being shared.

Reality requires a description centred on brain function as brain-signs. Consider a task to be carried out by the brain.

'We can feel' 1. Confident = It can be done now; 2. Uncertain = Perhaps it can be done now; 3. Dismayed = It can't be done now; 4. Catastrophic panic = It can't be done!

Each occurs within a context. Is the task vital to a crucial activity or not? Could there be an alternative solution? Could it be suspended?... Moreover, the context, whatever that is, is built on causal orientations

³⁴ 'We studied both the causal role of this circuitry and its temporal dynamics by combining brain stimulation over the frontal cortex with functional imaging. Behaviorally, we found that excitation and inhibition of fronto-striatal pathways enhanced and disrupted, respectively, *subjective reports of music-induced pleasure and motivation*. These changes were associated with changes in NAcc [nucleus accumbens] activity and NAcc coupling with frontal and auditory cortices, dissociating between pre-experimental versus *experiential components of musical reward*. These results indicate that the engagement of cortico-striatal pathways, and the NAcc in particular, is indispensable to *experience rewarding feeling from music*' (emphases added). Excellent research. However, the *subjective nature* of reports is not explained, e.g. 'experiencing rewarding feeling' 'pleasure' 'motivation'.

towards it. So, what is being interplayed is not a juggling of ideas or anxieties, as Schopenhauer proposes, but brain state 'collisions' of potential causality happening in the pre-signifying brain structure.

Causal orientation has the directedness of potential or actual action. Brain-sign, which derives from it, is the commentary. 'I am confident' or 'I am dismayed'. So 'feeling' is neural communication, a way of relating to others about the significance of the world being addressed. Brain-sign portrays both what the world is and how the individual relates to it in a code which can be neurally 'identified' by another organism through possible or actual replication. This is the development which, in philosophical terms, Heidegger described and which brains, isolated within skulls, can achieve.

However, categories-of-interaction can be particular, as in the example, or more general as with 'mood'. For those suffering such general states as depression, it is claimed that serotonin (a monoamine neurotransmitter) can boost mood, thus improving thought and activity, and life generally. The scientific issue is, however, how a chemical impact can modify a mood (the Cartesian problem).

In their article Michely et al. (2020) propose that 'emotions and moods are considered interacting processes expressed over different timescales.' Their experiments — of subjects given serotonin compared to those on placebo — show that 'serotonin enhances the impact of experimentally induced positive affect on learning of novel, and reconsolidation of previously learned, reward associations.' In other words, insert serotonin and the organism *therefore* performs tasks better and feels better. Additional improvement occurs because rewards are given for success in the tasks, so boosting associated performance. This, they say, solves the problem that 'the precise cognitive [i.e. mental] and computational mechanisms that explain treatment response [to serotonin] remain elusive.'

But both the words *affect* (i.e. emotion) and *reward* — as in the so-called reward system (identified as e.g. hippocampus, amygdala, prefrontal cortex) — retain Cartesian dualism in neuroscience. The authors offer no explanation of what mental states (i.e. affect or feeling reward) are or do physically. So, claiming this is a 'mechanistic account for the unfolding of antidepressant effects over time' is unproven.

However, the article does identify a finding requiring explanation. As a more plausible account, the chemical physicality of serotonin first impacts the causal orientation of the brain from which the 'sense of improved mood' derives and is communicated as brain-sign. The article reports a crucial finding that 'antidepressants do not enhance mood either acutely or directly, but are instead characterised by a delayed clinical onset.' But that sits fine with an evolving commentary on neural directedness in the complexity of the brain. It is a different

realm of operation from causality and new structures take time to build. A similar approach is relevant for dopamine.

Theoretical explanation is, in itself, the brain generating stories about the world, including the organism. Mind, consciousness and affect are such stories, both fictional and deriving from prior mythological constructs. Brain-sign theory is a neural story. But it is plausible (as Kuhn might say) for it coincides with other physical-science structures of causality, as built within the brain, and is somewhat akin to Schopenhauer's blind will. The brain is causality and representation; but brain-sign is not an experiencing-understanding-influenceable self, as Schopenhauer identified it.

Belief

Since there are no minds there are no causal beliefs.

Language & Understanding (2)

Language is the great prize of human being. Without it there would be no vast cities and work-performing mechanisms; no theatre or film, music and art, law and medicine, aircraft and spacecraft. No science.

But it seems mysterious. We assume it entails meaning in our communication with others. But, as a physical property, how does meaning *work*? Here are two 20th Century philosophers.

Ludwig Wittgenstein says, in the *Philosophical Investigations*: 'Thought does not strike us as mysterious while we are thinking, but only when we say to ourselves: ... "How was that possible?" How was it possible for thought to deal with the very object *itself*? We feel as if by means of it we had caught reality in our net' (1968 (1953)), sec. 428). Followed by: 'Every sign [in the world] by itself seems dead. What gives it life? — In use it is alive. Is life breathed into it there? —Or is the use its life?' (sec. 432).

So, how to ally the physical world and what happens in our head which appears not physical and yet at our command? As he said previously: 'The feeling of an unbridgeable gulf between consciousness and brain-process: how does it come about that this does not come into consideration of our ordinary life?' (sec. 412).

But 'ordinary life' is biological. Wittgenstein is imprisoned in history. Therefore...'this idea of difference in kind [mind and brain] is accompanied by slight giddiness, —which occurs when we are performing a piece of logical slight-of-hand.'³⁵

His attempt to progress is by language games: the different ways language is used depends on agreement between people about how the

³⁵ Sartre termed the response to such existential 'thoughts' as *Nausea* (1965 (1938)).

game is played. Ordering, explaining, persuading, and so on. This acknowledges Ferdinand de Saussure's conclusion that words, as signs, are arbitrary — i.e. there is no inherent meaning. Function depends upon collective use. But what use? For although a word can seem immediately relevant in our momentary understanding of the world — catching reality in our net — biologically, words and sentences, are 'merely' a mechanism enabling similarly programmed others to interact with us as organisms — i.e. as causal orientation.

Somewhat earlier Heidegger had more accurately mapped the situation in his terms. 'Discourse is existentially language, because that entity whose disclosedness it articulates according to significations has, as its kind of Being, Being-in-the-world' (1962, 203). Discourse is by signs. 'Communication is never anything like a conveying of experiences, such as opinions or wishes, from the interior of one subject into the interior of another [i.e. not as consciousness]. Dasein-with is already essentially manifest in a co-state-of-mind and a co-understanding. In discourse, Being-with becomes 'explicitly' shared; that is to say, it is already, but it is unshared as something that has not been taken hold of and appropriated' (205).

Thus, without specifically addressing the biology, Heidegger saves the brain phenomenon from history and its introspection. In this it anticipates current scientific investigation of neural synchrony (as above). But the underlying question is: What status has a human being? What status has language? Heidegger linked them fundamentally. 'Being comes to language. Language is the house of Being. In its home man dwells' (1978, 193). As with Wittgenstein, this account is not biological.

What we appear to see results from the impact of electromagnetic radiation on the eyes. It is an expression of the brain's causal orientation towards the world developed from prior relations to the world as a guide to what the world is now. As brain-sign it is communication with others which aids collective activity. So 'reading' determines the causal orientation of the reader which results in brain-signs of what has been supposed as language understood. This non-understanding is not causal; it is physically shared. Thus, in English, the word 'chair' is communicable because the range of its possibilities or situations is neurally built as causal orientation and shared in the brains of English speakers as brain-signs. So too for behaviour, as with 'kindness'.

Similarly, what we appear to 'hear as speech' is not the driver of the brain's reactions because its brain-sign status is signification of the compression wave impact on the brain. The immediate neural impact directs the causal orientation of the brain's response of what has been

termed ordering, explaining, persuading or, indeed, opinions and wishes.... Of course, this is all bounded by brain development.³⁶

The conclusion is that no mental subject knows anything (in the divine sense) because the brain's causal structure generates the status of the brain in relation to the world. Even if, hypothetically, humans could identify what neural states were correlates of brain-sign they would not know this because in such identification the brain will still be operating as causal orientation, and what it projects as the world is a communal sharing, not the thing itself. If, inconceivably, every neural correlate could be activated experimentally to generate the brain phenomenon, that would not render knowledge of the world because causal orientation, not brain-sign, is the activated relation to the world. As Sapolsky infers, brain-sign has no independent causality (contra consciousness). It is part of the brain's collective causal operation.

Summary

The mission, to identify how the brain generates consciousness, is futile because consciousness is scientifically invalid. But it might then be asked: 'What grounds are there for the truth of brain-sign theory if *nothing* is known?' And this fits exactly into the scientific approach, as discussed at the beginning. It is how the world 'seems' to human organisms, being the neural brain's construction of science in a form which humans can share as brain-sign.

25

A Brief Appendix

The question may be asked: How and where does the brain generate brain-sign? It might be thought this is a similar question to: How and where does the brain generate consciousness? Not so.

For the search in the brain for consciousness aims to identify how and where the human subject sees and feels and thinks as well as their causal properties. But that indicates 'causal overdetermination'. Is the physical brain causal or are the supposed mental states? And if the latter, how? Brain-sign avoids this problem, for signs are intrinsically physical and they communicate about the causation. The brain generates the location and conditions of the brain's causal orientation to the world as brain-sign — 'memory', 'situations', 'aims' — which can be shared with (associated by) other brains. This sharing occurs because the foundation of human action is within community whether others are present or not.

³⁶ In his book *A Brief History of Intelligence* Max Bennett 'explains' human use of language. 'We know that the breakthrough that makes the human brain different is that of language. It is powerful because it allows us to learn from other people's imaginations and allows ideas to accumulate across generations'. (2023, 321) Unfortunately he does not explain *imaginings* or *ideas*, which are intrinsically dependent on unexplained consciousness.

As science, it will require analysis to determine where and by what neural structures are causal orientation and brain-sign. What is additionally required is identification of the biophysical-marker in brain-sign, with its graduated 'apparentness' depending on content. The result is that what was once sought, consciousness, now requires two successive locations of neural activity depending on the condition and operation of the organism. Indeed, if this analysis is achieved it may clarify neural investigation in general by identifying those states as successive. This will be a complex analysis, not least because different brain-sign content may apply to what is taken to be the same causal event.

A likely difficulty, also, is expressed by Matthew Cobb (2020, 371). 'The brain is not a single thing.... Our current comprehension of how it all works is extremely partial.... The nature of the brain — simultaneously integrated and composite — may mean that our future understanding will inevitably be fragmented and composed of different explanations for different parts.' In his closing words he hypothesises more than ten investigative directions research might take. So hypothesising states at the philosophical level of description demands much further neural analysis. That is the challenge.

Cobb mentions György Buzsáki (author of *The Brain from Inside Out*) who says 'the brain does not represent information: it constructs it' (2020, 373). In a personal communication Buzsáki (2020) wrote these words. 'If you can avoid referring to consciousness in describing cognitive phenomena, it would be a major step forward. Brain-sign approach may be one of them.'

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