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Sunday, January 05, 2014

Christof Koch - Is Consciousness Universal? (on Panpsychism)

Panpsychism is the belief that everything is "enminded." Everything - no matter if it is a "brain, a tree, a rock or an electron." Everything that is physical also possesses interiority. The physical is objective and available to everybody — interiority is phenomenal and available only to the subject.

This is still a marginal perspective, but it has been increasing in popularity over the last decade or two, with David Skrbina's *Panpsychism in the West* (2007) being the best philosophical treatment and B. Alan Wallace's work in Buddhism and physics being the best known spiritual approach to panpsychism (see *Hidden Dimensions: The Unification of Physics and Consciousness*, 2007 - my review at *Wildmind Buddhist Meditation* outlines my issues with his model).

I like Koch - and I like that he seems to be offering an alternative model of panpsychism, even though I remain highly skeptical.

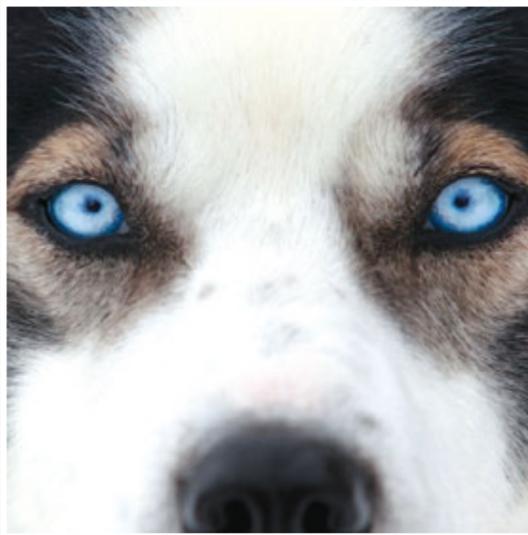
Please note that Koch references several of his previous SA articles with their titles. I have provided links to those articles, but the titles in most cases have been revised as they entered the archives.

Is Consciousness Universal?

Panpsychism, the ancient doctrine that consciousness is universal, offers some lessons in how to think about subjective experience today

By [Christof Koch](#) | [Consciousness Redux](#)

Scientific American | January 1, 2014



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For every inside there is an outside, and for every outside there is an inside; though they are different, they go together.

—Alan Watts, *Man, Nature, and the Nature of Man*, 1991

I grew up in a devout and practicing Roman Catholic family with Purzel, a fearless and high-energy dachshund. He, as with all the other, much larger dogs that subsequently accompanied me through life, showed plenty of affection, curiosity, playfulness, aggression, anger, shame and fear. Yet my church teaches that whereas animals, as God's creatures, ought to be treated well, they do not possess an immortal soul. Only humans do. Even as a child, to me this belief felt intuitively wrong. These gorgeous creatures had feelings, just like I did. Why deny them? Why would God resurrect people but not dogs? This core Christian belief in human exceptionalism did not make any sense to me. Whatever consciousness and mind are and no matter how they relate to the brain and the rest of the body, I felt that the same principle must hold for people and dogs and, by extension, for other animals as well.

It was only later, at university, that I became acquainted with Buddhism and its emphasis on the universal nature of mind. Indeed, when I spent a week with His Holiness the Dalai Lama earlier in 2013 [see "[The Brain of Buddha](#)," *Consciousness Redux*; *Scientific American Mind*, July/August 2013], I noted how often he talked about the need to reduce the suffering of "all living beings" and not just "all people." My readings in philosophy brought me to panpsychism, the view that mind (*psyche*) is found everywhere (*pan*). Panpsychism is one of the oldest of all philosophical doctrines extant and was put forth by the ancient Greeks, in particular Thales of Miletus and Plato. Philosopher Baruch Spinoza and mathematician and universal genius Gottfried Wilhelm Leibniz, who laid down the intellectual foundations for the Age of Enlightenment, argued for panpsychism, as did philosopher Arthur Schopenhauer, father of American psychology William James, and Jesuit paleontologist Teilhard de Chardin. It declined in popularity with the rise of positivism in the 20th century.

As a natural scientist, I find a version of panpsychism modified for the 21st century to be the single most elegant and parsimonious explanation for the universe I find myself in. There are three broad reasons why panpsychism is appealing to the modern mind.

We Are All Nature's Children

The past two centuries of scientific progress have made it difficult to sustain a belief in human exceptionalism.

Consider my Bernese mountain dog, Ruby, when she yelps, whines, gnaws at her paw, limps and then comes to me, seeking aid: I infer that she is in pain because under similar conditions I behave in similar ways (sans gnawing). Physiological measures of pain confirm this inference—injured dogs, just like people, experience an elevated heart rate and blood pressure and release stress hormones into their bloodstream. I'm not saying that a dog's pain is exactly like human pain, but dogs—as well as other animals—not only react to noxious stimuli but also consciously experience pain.

All species—bees, octopuses, ravens, crows, magpies, parrots, tuna, mice, whales, dogs, cats and monkeys—are capable of sophisticated, learned, nonstereotyped behaviors that would be associated with consciousness if a human were to carry out such actions. Precursors of behaviors thought to be unique to people are found in many species. For instance, bees are capable of recognizing specific faces from photographs, can communicate the location and quality of food sources to their sisters via the waggle dance, and can navigate complex mazes with the help of cues they store in short-term memory (for instance, "after arriving at a fork, take the exit marked by the color at the entrance"). Bees can fly several kilometers and return to their hive, a remarkable navigational performance. And a scent blown into the hive can trigger a return to the site where the bees previously encountered this odor. This type of associative memory was famously described by Marcel Proust in *À la Recherche du Temps Perdu*. Other animals can recognize themselves, know when their conspecifics observe them, and can lie and cheat.

Some people point to language and the associated benefits as being the unique defining feature of consciousness. Conveniently, this viewpoint rules out all but one species, *Homo sapiens* (which has an ineradicable desire to come out on top), as having sentience. Yet there is little reason to deny consciousness to animals, preverbal infants [see "[The Conscious Infant](#)," *Consciousness Redux*; *Scientific American Mind*, September/October 2013] or patients with severe aphasia, all of whom are mute.

None other than Charles Darwin, in the last book he published, in the year preceding his death, set out to learn how far earthworms "acted consciously and how much mental power they displayed." Studying their feeding and sexual behaviors for several decades—Darwin was after all a naturalist with uncanny powers of observation—he concluded that there was no absolute threshold between lower and higher animals, including humans, that assigned higher mental powers to one but not to the other.

The nervous systems of all these creatures are highly complex. Their constitutive proteins, genes, synapses, cells and neuronal circuits are as sophisticated, variegated and specialized as anything seen in the human brain. It is difficult to find anything exceptional

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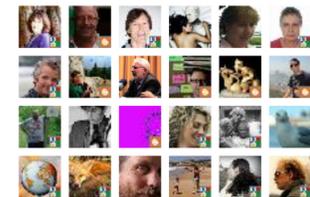
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about the human brain. Even its size is not so special, because elephants, dolphins and whales have bigger brains. Only an expert neuroanatomist, armed with a microscope, can tell a grain-size piece of cortex of a mouse from that of a monkey or a human. Biologists emphasize this structural and behavioral continuity by distinguishing between *nonhuman* and *human* animals. We are all nature's children.

Given the lack of a clear and compelling Rubicon separating simple from complex animals and simple from complex behaviors, the belief that only humans are capable of experiencing anything consciously seems preposterous. A much more reasonable assumption is that until proved otherwise, many, if not all, multicellular organisms experience pain and pleasure and can see and hear the sights and sounds of life. For brains that are smaller and less complex, the creatures' conscious experience is very likely to be less nuanced, less differentiated and more elemental. Even a worm has perhaps the vaguest sense of being alive. Of course, each species has its own unique sensorium, matched to its ecological niche. Not every creature has ears to hear and eyes to see. Yet all are capable of having at least some subjective feelings.

The Austere Appeal of Panpsychism

Taken literally, panpsychism is the belief that everything is "enminded." All of it. Whether it is a brain, a tree, a rock or an electron. Everything that is physical also possesses an interior mental aspect. One is objective—accessible to everybody—and the other phenomenal—accessible only to the subject. That is the sense of the quotation by British-born Buddhist scholar Alan Watts with which I began this essay.

I will defend a narrowed, more nuanced view: namely that any complex system, as defined below, has the basic attributes of mind and has a minimal amount of consciousness in the sense that it feels like *something* to be that system. If the system falls apart, consciousness ceases to be; it doesn't feel like anything to be a broken system. And the more complex the system, the larger the repertoire of conscious states it can experience.

My subjective experience (and yours, too, presumably), the Cartesian "I think, therefore I am," is an undeniable certainty, one strong enough to hold the weight of philosophy. But from whence does this experience come? Materialists invoke something they call emergentism to explain how consciousness can be absent in simple nervous systems and emerge as their complexity increases. Consider the wetness of water, its ability to maintain contact with surfaces. It is a consequence of intermolecular interactions, notably hydrogen bonding among nearby water molecules. One or two molecules of H₂O are not wet, but put gazillions together at the right temperature and pressure, and wetness emerges. Or see how the laws of heredity emerge from the molecular properties of DNA, RNA and proteins. By the same process, mind is supposed to arise out of sufficiently complex brains.

Yet the mental is too radically different for it to arise gradually from the physical. This emergence of subjective feelings from physical stuff appears inconceivable and is at odds with a basic precept of physical thinking, the Ur-conservation law—*ex nihilo nihil fit*. So if there is nothing there in the first place, adding a little bit more won't make something. If a small brain won't be able to feel pain, why should a large brain be able to feel the god-awfulness of a throbbing toothache? Why should adding some neurons give rise to this ineffable feeling? The phenomenal hails from a kingdom other than the physical and is subject to different laws. I see no way for the divide between unconscious and conscious states to be bridged by bigger brains or more complex neurons.

A more principled solution is to assume that consciousness is a basic feature of certain types of so-called complex systems (defined in some universal, mathematical manner). And that complex systems have sensation, whereas simple systems have none. This reasoning is analogous to the arguments made by savants studying electrical charge in the 18th century. Charge is not an emergent property of living things, as originally thought when electricity was discovered in the twitching muscles of frogs. There are no uncharged particles that in the aggregate produce an electrical charge. Elementary particles either have some charge, or they have none. Thus, an electron has one negative charge, a proton has one positive charge and a photon, the carrier of light, has zero charge. As far as chemistry and biology are concerned, charge is an intrinsic property of these particles. Electrical charge does not emerge from noncharged matter. It is the same, goes the logic, with consciousness. Consciousness comes with organized chunks of matter. It is immanent in the organization of the system. It is a property of complex entities and cannot be further reduced to the action of more elementary properties. We have reached the ground floor of reductionism.

Yet, as traditionally conceived, panpsychism suffers from two major flaws. One is known as the problem of aggregates. Philosopher John Searle of the University of California, Berkeley, expressed it recently: "Consciousness cannot spread over the universe like a thin veneer of jam; there has to be a point where my consciousness ends and yours begins." Indeed, if consciousness is everywhere, why should it not animate the iPhone, the Internet or the United States of America? Furthermore, panpsychism does not explain why a healthy brain is conscious, whereas the same brain, placed inside a blender and reduced to goo, would not be. That is, it does not explain how aggregates combine to produce specific conscious experience.

Integrated Panpsychism

These century-old arguments bring me to the conceptual framework of the integrated information theory (IIT) of psychiatrist and neuroscientist Giulio Tononi of the University of Wisconsin–Madison. It postulates that conscious experience is a fundamental aspect of reality and is identical to a particular type of information—integrated information. Consciousness depends on a physical substrate but is not reducible to it. That is, my experience of seeing an aquamarine blue is inexorably linked to my brain but is different from my brain.

Any system that possesses some nonzero amount of integrated information experiences something. Let me repeat: any system that has even one bit of integrated information has a very minute conscious experience.

IIT makes two principled assumptions. First, conscious states are highly differentiated; they are informationally very rich. You can be conscious of an uncountable number of things. Think of all the frames from all the movies that you have ever seen or that have ever been filmed or that will be filmed! Each frame, each view, is a specific conscious percept.

Second, each such experience is highly integrated. You cannot force yourself to see the world in black and white; its color is an integrated part of your view. Whatever information you are conscious of is wholly and completely presented to your mind; it cannot be subdivided. Underlying this unity of consciousness is a multitude of causal interactions among the relevant parts of your brain. If parts of the brain become fragmented and balkanized, as occurs in deep sleep or in anesthesia, consciousness fades.

To be conscious, then, you need to be a single, integrated entity with a large repertoire of highly differentiated states. Even if the hard disk on my laptop exceeds in capacity my lifetime memories, none of its information is integrated. The family photos on my Mac are not linked to one another. The computer does not know that the boy in those pictures is my son as he matures from a toddler to an awkward teenager and then a graceful adult. To my computer, all information is equally meaningless, just a vast, random tapestry of 0s and 1s. Yet I derive meaning from these images because my memories are heavily cross-linked. And the more interconnected, the more meaningful they become.

These ideas can be precisely expressed in the language of mathematics using notions from information theory such as entropy. Given a particular brain, with its neurons in a particular state—these neurons are firing while those ones are quiet—one can precisely compute the extent to which this network is integrated. From this calculation, the theory derives a single number, Φ ; (pronounced “fi”) [see “A Theory of Consciousness,” *Consciousness Redux*; *Scientific American Mind*, July/August 2009]. Measured in bits, Φ ; denotes the size of the conscious repertoire associated with the network of causally interacting parts being in one particular state. Think of Φ ; as the synergy of the system. The more integrated the system is, the more synergy it has and the more conscious it is. If individual brain regions are too isolated from one another or are interconnected at random, Φ ; will be low. If the organism has many neurons and is richly endowed with synaptic connections, Φ ; will be high. Basically, Φ ; captures the quantity of consciousness. The quality of any one experience—the way in which red feels different from blue and a color is perceived differently from a tone—is conveyed by the informational geometry associated with Φ ;. The theory assigns to any one brain state a shape, a crystal, in a fantastically high-dimensional qualia space. This crystal is the system viewed from within. It is the voice in the head, the light inside the skull. It is everything you will ever know of the world. It is your only reality. It is the quiddity of experience. The dream of the lotus eater, the mindfulness of the meditating monk and the agony of the cancer patient all feel the way they do because of the shape of the distinct crystals in a space of a trillion dimensions—truly a beatific vision. The water of integrated information is turned into the wine of experience.

Integrated information makes very specific predictions about which brain circuits are involved in consciousness and which ones are peripheral players (even though they might contain many more neurons, their anatomical wiring differs). The theory has most recently been used to build a consciousness meter to assess, in a quantitative manner, the extent to which anesthetized subjects or severely brain-injured patients, such as Terri Schiavo, who died in Florida in 2005, are truly not conscious or do have some conscious experiences but are unable to signal their pain and discomfort to their loved ones [see “A Consciousness Meter,” *Consciousness Redux*; *Scientific American Mind*, March/April 2013].

IIT addresses the problem of aggregates by postulating that only “local maxima” of integrated information exist (over elements and spatial and temporal scales): my consciousness, your consciousness, but nothing in between. That is, every person living in the U.S. is, self by self, conscious, but there is no superordinate consciousness of the U.S. population as a whole.

Unlike classical panpsychism, not all physical objects have a Φ ; that is different from zero. Only integrated systems do. A bunch of disconnected neurons in a dish, a heap of sand, a galaxy of stars or a black hole—none of them are integrated. They have no

consciousness. They do not have mental properties.

Last, IIT does not discriminate between squishy brains inside skulls and silicon circuits encased in titanium. Provided that the causal relations among the circuit elements, transistors and other logic gates give rise to integrated information, the system will feel like something. Consider humankind's largest and most complex artifact, the Internet. It consists of billions of computers linked together using optical fibers and copper cables that rapidly instantiate specific connections using ultrafast communication protocols. Each of these processors in turn is made out of a few billion transistors. Taken as a whole, the Internet has perhaps 10¹⁹ transistors, about the number of synapses in the brains of 10,000 people. Thus, its sheer number of components exceeds that of any one human brain. Whether or not the Internet today feels like something to itself is completely speculative. Still, it is certainly conceivable.

When I talk and write about panpsychism, I often encounter blank stares of incomprehension. Such a belief violates people's strongly held intuition that sentience is something only humans and a few closely related species possess. Yet our intuition also fails when we are first told as kids that a whale is not a fish but a mammal or that people on the other side of the planet do not fall off because they are upside down. Panpsychism is an elegant explanation for the most basic of all brute facts I encounter every morning on awakening: there is subjective experience. Tononi's theory offers a scientific, constructive, predictive and mathematically precise form of panpsychism for the 21st century. It is a gigantic step in the final resolution of the ancient mind-body problem.

Further Reading

Panpsychism in the West. David Skrbina. MIT Press, 2005.
Consciousness: Confessions of a Romantic Reductionist. Christof Koch. MIT Press, 2012.
Integrated Information Theory of Consciousness: An Updated Account. Giulio Tononi in *Archives Italiennes de Biologie*, Vol. 150, No. 4, pages 293–329; December 2012.

Posted by [William Harryman](#) at 6:39 AM 

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Panpsychism in the news?

Filed under: [Academe](#), [GeoPhilosophy](#) — [Leave a comment](#)

May 24, 2012

No, not really... But the Chronicle of Higher Ed has an interesting piece on leading panpsychist philosopher David Skrbina called [The Unabomber's Pen Pal](#). It turns out that Skrbina has been corresponding with Ted Kaczynski as part of his study of the philosophy of technology.

Clearly, the way for a philosopher to get press these days is not to work on panpsychism, which is among the most challenging and philosophically trenchant (and ecologically relevant) positions to be revived in the recent "return to metaphysics," but to work on — and publish materials by — the Unabomber.

This reminds me of David Ray Griffin, whose ceaseless work on behalf of a Whiteheadian process-relational metaphysics never made it far out of the intellectual playpen where such ideas tend to reside, but once he became a leading proponent of the 9-11 Truth Movement, he suddenly gathered large crowds — and powerful detractors.

(In our — academics' — defense, those ideas have traditionally filtered down from that playpen — when they were good ideas — in something like a "trickle down theory" of ideas. The internet has exploded the ivory tower, an explosion still occurring in slow motion rather like the famous explosion in the desert of Michelangelo Antonioni's [Zabriskie Point](#); see below. But if I didn't believe that ideas had power, I wouldn't be wasting your or my own time.)

There is something about the double lives of philosophers, and the relationship between ideas and action, that Skrbina's case, like so many others', points toward. As did [Zabriskie Point](#)...

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I take refuge in the wakefulness: vast, blissful, and emanating.

I take refuge in the truth: ever-present, open, and changing.

I take refuge in the congregation of all conscious beings.

Through this practice I realize my true nature, and bring benefit to all.

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Panpsychism

In philosophy, **panpsychism** is the view that mind or soul (Greek: ψυχή) is a universal feature of all things, and the primordial feature from which all others are derived. The panpsychist sees him or herself as a mind in a world of minds.

Panpsychism is one of the oldest philosophical theories, and can be ascribed to philosophers like Thales, Plato, Spinoza, Leibniz and William James. Panpsychism can also be seen in eastern philosophies such as Vedanta and Mahayana Buddhism. During the 19th century, Panpsychism was the default theory in philosophy of mind, but it saw a decline during the middle years of the 20th century with the rise of logical positivism. The recent interest in the hard problem of consciousness has once again made panpsychism a mainstream theory.



Illustration of the Neoplatonic concept of the World Soul emanating from The Absolute

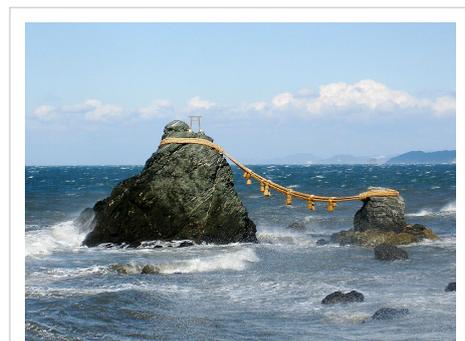
Etymology

The term "panpsychism" has its origins with the Greek term *pan*, meaning "throughout" or "everywhere", and *psyche*, meaning "soul" as the unifying center of the mental life of us humans and other living creatures.^[1] *Psyche* comes from the Greek word ψύχω (psukhō, "I blow") and can mean life, soul, mind, spirit, heart and 'life-breath'. The use of *psyche* is controversial due to it being synonymous with *soul*, a term usually taken to have some sort of supernatural quality; more common terms now found in the literature include mind, mental properties, mental aspect, and experience.

History

Ancient philosophy

Early forms of Panpsychism can be found in pre-modern animistic beliefs in religions such as Shinto, Taoism, Paganism and Shamanism. Panpsychist views are also a staple theme in pre-Socratic Greek philosophy.^[1] According to Aristotle, Thales (c. 624-545 B.C.E.) the first Greek philosopher, posited a theory which held "that everything is full of gods". Thales believed that this was demonstrated by magnets. This has been interpreted as a Panpsychist doctrine. Other Greek thinkers that have been associated with Panpsychism include Anaxagoras (who saw the underlying principle or arche as nous or mind), Anaximenes (who saw the arche as pneuma or spirit) and Heraclitus (who said "The thinking faculty is common to all").^[2]



Two *iwakura* - a rock where a kami or spirit is said to reside in the religion of Shinto.

Plato argues for Panpsychism in his *Sophist*, in which he writes that all things participate in the form of Being and that it must have a psychic aspect of mind and soul (*psyche*). In the *Philebus* and *Timaeus*, Plato argues for the idea of a world soul or *anima mundi*. According to Plato:

This world is indeed a living being endowed with a soul and intelligence ... a single visible living entity containing all other living entities, which by their nature are all related.^[3]

Stoicism held that the natural world was infused with and driven by a soul-like property called Pneuma, which is "faculty of all kinds of soul", a "vital heat" (thermoteta psychiken), the "principle of soul". The Metaphysics of Stoicism was based on a divine fiery essence called Pneuma. Hellenistic philosophies such as Neoplatonism and Gnosticism also made use of the Platonic idea of the Anima mundi.

Renaissance

After the closing of Plato's Academy by the Emperor Justinian in 529 CE, Neoplatonism declined. Though there were mediaeval Christian thinkers who ventured what might be called panpsychist ideas (such as John Scotus Eriugena), it was not a dominant strain in Christian thought. In the Italian Renaissance, however, Panpsychism enjoyed something of an intellectual revival, in the thought of figures such as Gerolamo Cardano, Bernardino Telesio, Francesco Patrizi, Giordano Bruno, and Tommaso Campanella. Cardano argued for the view that soul or anima was a fundamental part of the world and Patrizi introduced the actual term "panpsychism" into the philosophical vocabulary. According to Giordano Bruno: "There is nothing that does not possess a soul and that has no vital principle." Platonist ideas like the anima mundi also resurfaced in the work of esoteric thinkers like Paracelsus, Robert Fludd and Cornelius Agrippa.



Quelle: Deutsche Fotothek

Illustration of the Cosmic order by Robert Fludd, the World Soul is depicted as a woman.

Modern philosophy

In the 17th century, two rationalists can be said to be panpsychists, Baruch Spinoza and Gottfried Leibniz. In Spinoza's monism, the one single infinite and eternal substance was "God, or Nature" (Deus sive Natura) which has the aspects of mind (thought) and matter (extension). Leibniz' view is that there are an infinite number of absolutely simple mental substances called monads which make up the fundamental structure of the universe. The Idealist philosophy of George Berkeley is also a form of pure panpsychism and technically all idealists can be said to be panpsychists by default.

In the 19th century, Panpsychism was at its zenith. Philosophers like Arthur Schopenhauer, Josiah Royce, William James, Eduard von Hartmann, F.C.S. Schiller, Ernst Haeckel and William Clifford as well as psychologists like Gustav Fechner, Wilhelm Wundt and Rudolf Hermann Lotze all promoted Panpsychist ideas.

Arthur Schopenhauer argued for a two-sided view of reality which was both Will and Representation (Vorstellung). According to Schopenhauer: "All ostensible mind can be attributed to matter, but all matter can likewise be attributed to mind". Josiah Royce, the leading American absolute idealist held that reality was a "world self", a conscious being that comprised everything, though he didn't necessarily attribute mental properties to the smallest constituents of mentalistic "systems". The American Pragmatist philosopher Charles Sanders Peirce espoused a sort of Psycho-physical Monism which the universe as suffused with mind which he associated with spontaneity and freedom. Following Peirce, William James also espoused a form of panpsychism. In his lecture notes, James wrote:

Our only intelligible notion of an object *in itself* is that it should be an object *for itself*, and this lands us in panpsychism and a belief that our physical perceptions are effects on us of 'psychical' realities

In the 20th century, the most significant proponent of the Panpsychist view is arguably Alfred North Whitehead (1861-1947). Whitehead's ontology saw the basic nature of the world as made up of events and the process of their creation and extinction. These elementary events (which he called occasions) are in part mental. According to Whitehead: "we should conceive mental operations as among the factors which make up the constitution of nature." Bertrand Russell's neutral monist views also tended towards panpsychism.

The psychologist Carl Jung, who is known for his idea of the collective unconscious, wrote that "psyche and matter are contained in one and the same world, and moreover are in continuous contact with one another", and that it was probable that "psyche and matter are two different aspects of one and the same thing".^[4]

Contemporary

The panpsychist doctrine has recently been making a comeback in the American philosophy of mind. Prominent defenders include Christian de Quincey, Leopold Stubenberg, David Ray Griffin, and David Skrbina. In the United Kingdom the case for panpsychism has been made by Galen Strawson,^[5] Gregg Rosenberg and Timothy Sprigge. In the philosophy of mind, panpsychism is one possible solution to the so-called hard problem of consciousness.^[6] The doctrine has also been applied in the field of environmental philosophy through the work of Australian philosopher Freya Mathews. David Chalmers has provided a sympathetic account of it in *The Conscious Mind* (1996).

Arguments for panpsychism

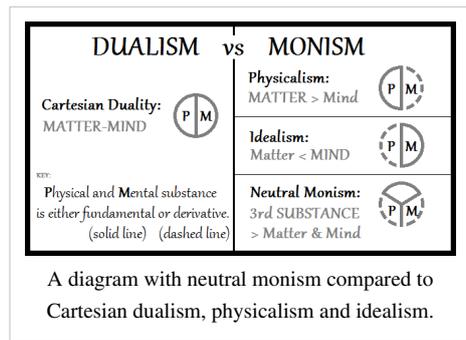
Non-emergentism

The problems found with emergentism are often cited by panpsychists as grounds to reject physicalism. This argument can be traced back to the Ancient Greek philosopher Parmenides, who argued that *ex nihilo nihil fit* - nothing comes from nothing and thus the mental cannot arise from the non-mental. In Thomas Nagel's 1979 article "Panpsychism" he tied panpsychism to the failure of emergentism to deal with metaphysical relation: "there are no truly emergent properties of complex systems. All properties of complex systems that are not relations between it and something else derive from the properties of its constituents and their effects on each other when so combined." Thus Nagel denies that mental properties can arise out of complex relationships between physical matter.

Evolutionary

The most popular empirically based argument for panpsychism stems from Darwinism and is a form of the non-emergence argument. This argument begins with the assumption that evolution is a process that creates complex systems out of pre-existing properties but yet cannot make "entirely novel" properties. William Kingdon Clifford argued that:

[...] we cannot suppose that so enormous a jump from one creature to another should have occurred at any point in the process of evolution as the introduction of a fact entirely different and absolutely separate from the physical fact. It is impossible for anybody to point out the particular place in the line of descent where that event can be supposed to have taken place. The only thing that we can come to, if we accept the doctrine of evolution at all, is that even in the very lowest organism, even in the Amoeba which swims about in our own blood, there is something or other, inconceivably simple to us, which is of the same nature with our own consciousness [...]^[7]



Thomas Nagel

In his book titled *Mortal Questions*, Thomas Nagel defines panpsychism as, "the view that the basic physical constituents of the universe have mental properties,"^[8] effectively claiming the panpsychist thesis to be a type of property dualism. Nagel argues that panpsychism follows from four premises:

- (1) "Material composition", or commitment to materialism.
- (2) "Non-reductionism", or the view that mental properties cannot be reduced to physical properties.
- (3) "Realism" about mental properties.
- (4) "Non-emergence", or the view that "there are no truly emergent properties of complex systems".

Nagel notes that new physical properties are discovered through explanatory inference from known physical properties; following a similar process, mental properties would seem to derive from properties of matter not included under the label of "physical properties", and so they must be additional properties of matter. Also, he argues that, "the demand for an account of how mental states necessarily appear in physical organisms cannot be satisfied by the discovery of uniform correlations between mental states and physical brain states."^[9] Furthermore, Nagel argues mental states are real by appealing to the inexplicability of subjective experience, or qualia, by physical means.

Quantum physics

Philosophers such as Alfred North Whitehead have drawn on the indeterminacy observed by quantum physics to defend panpsychism. They see quantum indeterminacy and informational but non-causal relations between quantum elements as the key to explaining consciousness. Recent work on this approach has been undertaken by William Lycan (1996) and Michael Lockwood (1991).

Intrinsic Nature

These arguments are based on the idea that everything must have an intrinsic nature. They argue that while the objects studied by physics are described in a dispositional way, these dispositions must be based on some non-dispositional intrinsic attributes, which Whitehead called the "mysterious reality in the background, intrinsically unknowable". While we have no way of knowing what these intrinsic attributes are like, we can know the intrinsic nature of conscious experience which possesses irreducible and intrinsic characteristics. Arthur Schopenhauer argued that while the world appears to us as representation, there must be 'an object that grounds' representation, which he called the 'inner essence' (*das innere Wesen*) and 'natural force' (*naturkraft*), which lies outside of what our understanding perceives as natural law.^[10]

Philosophers such as Galen Strawson, Roger Penrose (1989), John Searle(1991), Thomas Nagel (1979, 1986, 1999) and Noam Chomsky (1999) have said that a revolutionary change in physics may be needed to solve the problem of consciousness. Galen Strawson has also called for a revised "realistic physicalism" arguing that "the experiential considered specifically as such—the portion of reality we have to do with when we consider experiences specifically and solely in respect of the experiential character they have for those who have them as they have them—that 'just is' physical".

Arguments against panpsychism

One criticism of panpsychism is the simple lack of evidence that the physical entities have any mental attributes. The more we study the basic units of the physical world, it seems more and more difficult to imagine that they could have mental properties. Thus John Searle states that panpsychism is an "absurd view" and that thermostats lack "enough structure even to be a remote candidate for consciousness" (Searle, 1997, p. 48).

Physicalists also could argue against panpsychism by denying proposition (2) of Nagel's argument. If mental properties are reduced to physical properties of a physical system, then it does not follow that all matter has mental properties: it is in virtue of the structural or functional organization of the physical system that the system can be said to have a mind, not simply that it is made of matter. This is the common Functionalist position. This view allows for certain man-made systems that are properly organized, such as some computers, to be said to have minds. This may cause problems when (4) is taken into account. Also, qualia seem to undermine the reduction of mental properties to brain properties.

Another argument is that it can be demonstrated that the only properties shared by all qualia are that they are not precisely *describable*, and thus are of indeterminate meaning within any philosophy which relies upon precise definition. This has been something of a blow to panpsychism in general, since some of the same problems seem to be present in panpsychism in that it tends to presuppose a definition for mentality without describing it in any real detail. The need to define the terms used within the thesis of panpsychism is recognized by panpsychist David Skrbina,^[11] and he resorts to asserting some sort of hierarchy of mental terms to be used. This is motivation to argue for panexperientialism rather than panpsychism, since only the most fundamental meaning of mind is what is present in all matter, namely, subjective experience. The panpsychist answers both these challenges in the same way: we already know what qualia are through direct, introspective apprehension; and we likewise know what conscious mentality is by virtue of being conscious. For someone like Alfred North Whitehead, third-person description takes second place to the intimate connection between every entity and every other which is, he says, the very fabric of reality. To take a mere *description* as having primary reality is to commit the "fallacy of misplaced concreteness".

One response is to separate the phenomenal, non-cognitive aspects of consciousness—particularly qualia, the essence of the hard problem of consciousness—from cognition. Thus panpsychism is transformed into panexperientialism. However, this strategy of division generates problems of its own: what is going on causally in the head of someone who is thinking—cognitively of course—about their qualia?

In relation to other metaphysical positions

Panpsychism can be understood as related to a number of other metaphysical positions.

Idealism

Panpsychism agrees with idealism that in a sense everything is mental, but whereas idealism treats most things as *mental content* or ideas, panpsychism treats them as *mind-like*, in some sense, and as having their own reality. Also, in contrast to many forms of idealism, it holds that there is for all minds, there is a single, external, spatio-temporal world:-

In contrast to "idealism", as this term is often used, panpsychism is not a doctrine of the unreality of the spatio-temporal world perceived through the senses, or its reduction to mere "ideas" in the human or divine mind. The constituents of this world are, for panpsychists, just as real as human minds or as any mind. Indeed, they are minds, though, in large part, of an extremely low, subhuman order. Thus panpsychism is panpsychical realism; realistic both in the sense of admitting the reality of nature, and in the sense of avoiding an exaggerated view of the qualities of its ordinary constituents. "Souls" may be very humble sorts of entities—for example, the soul of a frog—and panpsychists usually suppose that multitudes of units of nature are on a much lower level of psychic life even than that.^[12]

Dualism

Panpsychists and dualists agree that mental properties cannot be reduced to physical properties. The difference is that dualists consider mental and physical properties to be *qualitatively* different, to belong to different categories with virtually nothing in common (for instance, Descartes' characterisation of matter and mind as "extension" and "thought"), whereas panpsychists view physical properties as lesser *quantities* of mental properties. For instance, a panpsychist would interpret the ability of a stone to move under an impact to be a highly diminished form of sensitivity, with no element of volition. This distinction also separates dual aspect theory from panpsychism: although dual aspect theorists can agree with panpsychists that everything has some mental properties, they also hold that everything has some physical properties, whereas panpsychists hold that physical properties *are* (lessened) mental properties.

Neutral monism

There are also varieties of monism that don't presuppose (like materialism and idealism do) that mind and matter are fundamentally separable. An example is neutral monism first introduced by Spinoza and later propounded by William James. Panpsychism is compatible with this view.

Physicalism and materialism

Reductive physicalism, a form of monism, is incompatible with panpsychism. Materialism, if held to be distinct from physicalism, is compatible with panpsychism insofar as mental properties are attributed to physical matter, which is the only basic substance.

Holism

Panpsychism is related to the more holistic view that the whole Universe is an organism that possesses a mind (cosmic consciousness). It is claimed to be distinct from animism or hylozoism, which hold that all things have a soul or are alive, respectively. Gustav Theodor Fechner claimed in "Nanna" and "Zend-Avesta" that the Earth is a living organism whose parts are the people, the animals and the plants. Panpsychism, as a view that the universe has "universal consciousness", is shared by some forms of religious thought such as theosophy, pantheism, cosmotheism, non-dualism, new age thought and panentheism. The hundredth monkey effect exemplifies the threshold for this applied cosmic consciousness. The Tiantai Buddhist view is that "when one attains it, all attain it".^[13]

Hylopathism

Hylopathism argues for a similarly universal attribution of sentience to matter. Few writers would advocate a hylopathic materialism, although the idea is not new; it has been formulated as "whatever underlies consciousness in a material sense, i.e., whatever it is about the brain that gives rise to consciousness, must necessarily be present to some degree in any other material thing". A compound state of mind does not consist of compounded psychic atoms. The concept of awareness "being in itself" allows for the idea of self-aware matter. Attempts have been made to conceptualize this primitive level of existence prior to associative learning and memory. In the way that the collection of self-aware matter constitutes a cognitive being, the collection of cognitive beings as a conglomerate entity, reflects panpsychism. Consciousness was not "nascent" but emergent due to a lack of abandon during the evolution of material awareness.^[14] Similar ideas have been attributed to philosopher David Chalmers.

Chalmers assumes that consciousness is a fundamental feature of the Universe, the First Datum in the study of the mind. In the practice of nonreductionism this feature may not be attributable to any base monad but instead radically emergent on the level of physical complexity at which it demonstrates itself. Complex elegance is the further development of awareness that is self-aware. This we can call "post-intelligence" where "intelligence" is simple processing. The element of superiority might be that the post-intelligence is proto-experiential. These phenomenal properties are called "the internal aspects of information".^[15]

Emergentism

No form of panpsychism attributes full, human-style consciousness to the fundamental constituents of the universe, therefore all versions need a certain amount of emergence—that is, *weak emergence*, in which more sophisticated versions of basic properties emerge at a higher level. No version of panpsychism requires *strong emergence*, in which high-level properties do not have any low-level precursors or basis, and instead emerge "from nothing". Indeed, avoidance of strong emergentism is one of the motivations for panpsychism.

Panexperientialism

Panexperientialism or **panprotopsychism** are related concepts. Alfred North Whitehead incorporated a scientific worldview into the development of his philosophical system similar to Einstein's Theory of Relativity. His ideas were a significant development of the idea of panpsychism, also known as panexperientialism, due to Whitehead's emphasis on experience, though the term itself was first applied to Whitehead's philosophy by David Ray Griffin many years later. Process philosophy suggests that fundamental elements of the universe are occasions of experience, which can be collected into groups creating something as complex as a human being. This experience is not consciousness; there is no mind-body duality under this system as mind is seen as a very developed kind of experience. Whitehead was not a subjective idealist and, while his philosophy resembles the concept of monads first proposed by Leibniz, Whitehead's occasions of experience are interrelated with every other occasion of experience that has ever occurred. He embraced pantheism with God encompassing all occasions of experience, transcending them. Whitehead believed that the occasions of experience are the smallest element in the universe—even smaller than subatomic particles.

Panpsychism in eastern philosophy

According to Graham Parkes: "Most of traditional Chinese, Japanese and Korean philosophy would qualify as panpsychist in nature. For the philosophical schools best known in the west - Chinese Daoism and Neo-confucianism and Japanese Buddhism - the world is a dynamic force field of energies known as *qi* or *bussho* (Buddha nature) and classifiable in western terms as *psychophysical*." ^[1]

East Asian Buddhism

According to D. S. Clarke, panpsychist and panexperientialist aspects can be found in the Huayan and Tiantai (Jpn. Tendai) Buddhist doctrines of Buddha nature, which was often attributed to inanimate objects such as lotus flowers and mountains.^[16] Tiantai patriarch Zhanran argued that "even non-sentient beings have Buddha nature."

Who, then, is "animate" and who "inanimate"? Within the assembly of the Lotus, all are present without division. In the case of grass, trees and the soil...whether they merely lift their feet or energetically traverse the long path, they will all reach Nirvana.

The Tiantai school was transmitted to Japan by Saicho, who spoke of the "buddha-nature of trees and rocks".

According to the 9th century Shingon Buddhist thinker Kukai, the Dharmakaya is nothing other than the physical universe and natural objects like rocks and stones are included as part of the supreme embodiment of the Buddha.



In the Japanese art of the rock garden, the artist must be aware of the rocks' "ishigokoro" ('heart,' or 'mind')

The Soto Zen master Dogen also argued for the universality of Buddha nature. According to Dogen, "fences, walls, tiles, and pebbles" are also "mind" (心, *shin*). Dogen also argued that "insentient beings expound the teachings" and that the words of the eternal Buddha "are engraved on trees and on rocks . . . in fields and in villages". This is the message of his "Mountains and Waters Sutra" (Sansui kyô).

Dzogchen

According to a common misunderstanding, in the Buddhist Dzogchen tradition ^[citation needed], particularly Dzogchen Semde or "mind series" the principal text of which is the Kulayarāja Tantra, there is nothing which is non-sentient, i.e. everything is sentient.. Moreover, two of the English scholars that opened the discourse of the Bardo literature of the Nyingma Dzogchen tradition, Evans-Wentz & Jung (1954, 2000: p. 10) specifically with their partial translation and commentary of the *Bardo Thodol* into the English language write of the "One Mind" (Tibetan: sems nyid gcig; Sanskrit: *ekacittatva; *ekacittata; where * denotes a possible Sanskrit back-formation) thus:

The One Mind, as Reality, is the Heart which pulsates for ever, sending forth purified the blood-streams of existence, and taking them back again; the Great Breath, the Inscrutable Brahman, the Eternally Unveiled Mystery of the Mysteries of Antiquity, the Goal of all Pilgrimages, the End of all Existence.^[17]

It should be borne in mind, that Evans-Wentz never studied the Tibetan language and that the lama who did the main translation work for him was of the Gelukpa Sect and is not known to have actually studied or practiced Dzogchen.

According to the translation with commentary, "Self-Liberation Through Seeing with Naked Awareness", by John Myrdhin Reynolds, the phrase, "It is the single nature of mind which encompasses all of Samsara and Nirvana," occurs only once in the text and it refers not to "some sort of Neo-Platonic hypostasis, a universal *Nous*, of which all individual minds are but fragments or appendages", but to the teaching that, "whether one finds oneself in the state of Samsara or in the state of Nirvana, it is the nature of the mind which reflects with awareness all experiences, no matter what may be their nature." This can be found in Appendix I, on pages 80–81. Reynolds elucidates further with the analogy of a mirror. To say that a single mirror can reflect ugliness or beauty, does not constitute an allegation that all ugliness and beauty is one single mirror.

Notes

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- [3] Plato, *Timaeus*, 29/30; 4th century BCE
- [4] Orig. source unknown, cited in Danah Zohar & Ian Marshall, *SQ: Connecting with our Spiritual Intelligence*, Bloomsbury, 2000, p. 81.
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- [12] Hartshorne, C. "Pantheism" (<http://www.anthoniflood.com/hartshornepanpsychism.htm>)
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(accessed: Sunday March 7, 2010)

Further reading

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- Skrbina, David (2005). *Panpsychism in the West*. The MIT Press. ISBN 978-0-262-69351-6.
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- Eells, Peter (2011). *Panpsychism: The Philosophy of the Sensuous Cosmos*. O Books. ISBN 1-84694-505-4.

External links

- Online papers on panpsychism (<http://consc.net/online1.html#panpsychism>), by various authors, compiled by David Chalmers
 - Internet Encyclopedia of Philosophy - Panpsychism (<http://iep.utm.edu/p/panpsych.htm>)
 - Stanford Encyclopedia of Philosophy - Panpsychism (<http://plato.stanford.edu/entries/panpsychism>)
 - conscioussentences.com - Philosophical Deadends - Panpsychism (<http://www.conscioussentences.com/deadends.htm#panpsychism>)
 - panpsychism.net (<http://www.panpsychism.net>) Panpsychism and Pantheism (a good introduction by Ken Van Cleve)
 - The Center for Process Studies (Whitehead and Panexperientialism) (<http://www.processthought.info>)
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