

CHAPTER 1

Panpsychism in history

An overview

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Philosophically speaking, we humans are an arrogant lot. We quite easily see ourselves as different, special, unique, even superior to the rest of nature. We think ourselves more valuable, more intelligent, more powerful than every other creature on this planet. But of course – we are the favorites of God’s creations, after all.

Perhaps the most important way in which we think of ourselves as unique is in our possession of *psyche* – soul, mind, and consciousness. Granted, there is some debate regarding, for example, the so-called higher animals. We like to quibble about the details: ‘animals may be conscious, but surely not self-conscious’; ‘yes, chimps and dolphins can think, but they don’t have a mind’; ‘animals have only pseudo-intelligent instinctual reactions.’ We argue endlessly about the definition of mind and intelligence, with but little to show for all our hard work. Yet even lacking a consensus definition of mind, we frequently do not hesitate to pronounce our species its sole possessor. A few are more generous in their attribution of mind, but even they have a hard time fully admitting more than the ‘higher animals’ into the rarefied circle.

Considering the ‘lower animals’ (one wonders what those might be), very few people grant them anything close to mind or consciousness. Insects, worms, microbes – out of the question. Plants obviously are mindless organisms, we are told – except for those eccentrics who talk to their plants, or photograph their so-called life energy. Then we arrive at the ‘unambiguous’ forms of existence: viruses, rocks, complex molecules, atoms, subatomic particles. Surely nothing mind-like there.

Such intuition runs deep in our modern world. We have centuries of objectivist, materialist science to support the view that matter is inherently lifeless, unfeeling, and psychically inert. We see no signs of such existence. Under our dominant mechanistic worldview we have no reason to postulate it. Occam’s Razor argues against it. Non-human mind has no explanatory value whatsoever. The thesis is unfalsifiable, and hence unwarranted – so science tells us. Furthermore this bias is supported by even older religious dispositions. In all monotheistic Western religions, humans alone possess a divine and immortal soul.

These two metaphysical outlooks – religion and science – were unified by Descartes in the 17th century. He merged the religious and nascent scientific ontologies into a comprehensive worldview of mind and matter, body and soul, with humans located at the privileged center of things. Mind was one thing, matter another, and they were as ontologically distinct as could be. Humans alone were granted mind and soul. Animals and the rest of non-human nature were mindless mechanisms – mere clockwork automatons created by God to serve humanity.

Consequently, those today who might lean toward a more generous view of mind find powerful forces working against them. Religion opposes it. Science opposes it. Analytic philosophy opposes it. ‘Common sense’ opposes it.

And yet. . .not everyone is so easily swayed. Many great thinkers of the past and present have found reason to believe that mind and consciousness are ubiquitous in nature. This view – panpsychism – presents a fundamental challenge to the dominant religious, scientific, and philosophical views of mind. It argues that mind, or some mind-like quality, is present in all parts of the natural world, even in matter itself. At first glance this is a strange and unsettling idea. What can it mean for insects, trees, rocks, and atoms to possess something mind-like? To be sentient? Or perhaps even to be conscious, in some sense? Is this even conceivable? Are the atoms or cells in my body conscious in some way? If so, how do those consciousnesses relate to ‘me’? How can we make sense of such ideas, especially in our modern, rationalist, materialist, objectivist world?

The present work, then, addresses these very questions. The following chapters seek to articulate notions of mind and consciousness under the assumption that panpsychism is a viable and meaningful concept. They move beyond recent efforts to simply defend the concept itself, or to merely show that it is not ‘absurd.’ They are breaking new ground, and creating new visions of mind and the world. As it has in the past, panpsychism is once again reemerging from the shadows to take an important role in current debates on the nature of mind.

Because of the rather unconventional nature of this subject, it will be helpful to situate the following essays in their proper historical context. Hence this chapter presents a brief overview of the phenomenon of panpsychism, from its beginnings to the current day. Such a short survey is necessarily incomplete; other studies can be found in Griffin’s *Unsnarling the World-Knot* (1998), DeQuincey’s *Radical Nature* (2002), and Clarke’s *Panpsychism and the Religious Attitude* (2003). The most thorough review to date is *Panpsychism in the West* (Skrbina 2005).

1. The ancient world – West and East

Panpsychism was the original – we might say *aboriginal* – conception of mind. As soon as humans conceived of themselves as thinking beings, they recognized such activity mirrored in nature. Forager societies generally lacked any notions of a singular, all-powerful god, but rather saw agency and divinity permeating the natural world.

Foragers seem to have understood that they were animals among animals, creatures of nature, and subject to the same universal cosmic principles as all things. The idea that humans might be fundamentally unique likely never crossed their minds. Such a notion was simply not an element of their worldview. Consequently, minds and spirits abounded. Today this original view is known as animism, a somewhat disparaging term reserved for those ‘too primitive to know better.’

With the advent of agriculture some 10,000 years ago, humans came to worship the sun. Now, for the first time, the myriad gods of nature had to be subordinate to one more-powerful, more vital deity. It was self-evident that we were the only species clever enough to harness the sun’s energy in this particular way; we stood out from the crowd – special, different, *better*. Such were the beginnings of a journey that culminated in monotheism and human exceptionalism.

But the animistic intuitions of past millennia were deeply embedded and not easily dislodged. The ancient Egyptians had both their sun god and the many gods of nature. Early Hindu thinkers likewise saw mind in nature; the cosmic process of *samsara* recycled spirit throughout the world. Native Americans and Australian aborigines too held to such animistic and pantheistic views.

Amidst this general background of animistic thinking, the culture of ancient Greece arose. It began with Homer (ca. 850 BCE) and Hesiod (ca. 750 BCE), but only took flight with the coming of the first true philosophers: Thales (b. 625 BCE), Pythagoras (b. 570 BCE), Parmenides (b. 515 BCE), and other likeminded thinkers. Given the generally animistic milieu into which the pre-Socratics were born, we should not be surprised to find strong elements of panpsychic thinking in their works. And in fact, we do.

Consider this sampling of ideas from the early Greeks:

- Thales believed that magnetic rocks (lodestones) possessed psyche because they had the power to move small bits of metal.¹ It would be unlikely that only humans (and animals) and magnets possessed such a special quality, and consequently Thales, like others of his day, saw ‘gods’ and souls in everything: “Certain thinkers say that psyche is intermingled in the whole universe, and it is perhaps for that reason that Thales came to the opinion that all things are full of gods.” (Aristotle, *De anima*, 411a7)
- For Pythagoras, all is derived from Number, which was “the principle, source, and root of all things.”² And “number,” according to Aetius, “[is] an equivalent for intelligence.” Thus the Pythagorean conclusion that ‘everything is intelligent.’ Cicero wrote, “Pythagoras. . .held that soul is extended through all the nature of things and mingled with them. . .”³

1. See Aristotle, *De anima*, 405a19.

2. According to Theon of Smyrna, as cited in Guthrie (1988:21).

3. Cited in *ibid.*:310, 311.

- Parmenides held to a strong form of monism in which Being was the sole reality. Given the undeniable existence of the human mind, he concluded that ‘thought’ was an essential and inseparable aspect of Being and hence of all that exists: “For it is the same thing to think and to be.”⁴ That which is, *thinks*.
- Heraclitus viewed the underlying principle of the universe as an “ever-living fire” – *pyr aeizoon*. This life energy sustained all things, and thus everything had a spiritual or psychic quality to it: “all things are full of souls and of divine spirits.”⁵
- For Anaxagoras, the fundamental force in the cosmos was Mind (*nous*). Mind had a special involvement with living organisms (humans, animals, plants), but also penetrated into non-living things, making its presence known. Reality itself was thus mind-like and intelligent. Long (1996: 131) comments that “Anaxagoras most forcefully. . . treat[s] intelligent life as basic to reality.” Cleve (1969: 321) argues that, like most other pre-Socratics, “Anaxagoras, too, is a panzoist, i.e. one to whom body and consciousness are still a unity not yet analyzed. In this respect, he is not different from his predecessors. . . The notions of a ‘matter without consciousness’ and a ‘consciousness without body’ do not yet exist for these men.”
- Of all the pre-Socratics, Empedocles most took panpsychism to heart. In his view the universe consisted of four elements – fire, air, earth, and water – organized by two presiding forces: attraction (‘Love’) and repulsion (‘Strife’). The elements were themselves soul-like entities (“Empedocles says that. . . each of [the elements] actually is a soul” – *De anima*, 404b11), and hence everything composed of them was ensouled. His fragment 110 concludes: “for know that all things have wisdom and a portion of thought.”

Such thinking was not limited to Greece. The universalism of panpsychism in the ancient world is attested to by its strong presence in India, China, and Japan, as well as Native American culture. Unlike in the West, panpsychism never receded from these traditions.

Native American panpsychism was linked with a reverential attitude toward nature. Callicott (1982:294) cites J. E. Brown: “All American Indian peoples possessed what has been called a metaphysic of nature; all manifest a reverence for the myriad forms and forces of the natural world specific to their immediate environment.” This deep respect toward nature was driven by the notion that natural objects were, like us, sentient and alive in some very real sense. In his examination of the ideas of the Sioux Indian writer John Lame Deer, Callicott observes:

It would seem that for Lame Deer the “aliveness” of natural entities. . . means that they have a share in the same consciousness that we human beings enjoy. . . . The Indian attitude . . . apparently was based upon the consideration that since human

4. Freeman (1948:42). The original passage: “*to gar auto noein estin te kai einai.*”

5. Diogenes Laertius, *Lives of the Philosophers*, IX: 5–12. Cited in Smith (1934: 13).

beings have a physical body and an associated consciousness. . . , all other bodily things, animals, plants, and, yes, even stones, were also similar in this respect.
(ibid.:301)

The spirits in individual things, humans included, were seen as offshoots or manifestations of a larger Spirit of the cosmos. Lame Deer describes this notion:

Nothing is so small and unimportant but it has a spirit given it by Wakan Tanka. 'Tunkan' is what you might call a stone god, but he is also a part of the Great Spirit. The gods are separate beings, but they are all united in Wakan Tanka. It is hard to understand – something like the Holy Trinity. You can't explain it except by going back to the 'circles within circles' idea, the spirit splitting itself up into stones, trees, tiny insects even, making them all *wakan* by his ever-presence. And in turn all these myriad of things which makes up the universe flowing back to their source, united in one Grandfather Spirit. (in Erdoes 1976: 102–103)

The fact that humans, along with all things in nature, participated in the great Spirit provided Native Americans with a way of embedding themselves in nature at a fundamental, ontological level. Humans, to the Indians, were no grand exception in the cosmic scheme; they were not blessed by the Spirit, alone ensouled among the things of the world. Rather, humans were related, in an almost familial way, with all things – hence the constant reference to natural objects as 'brother' or 'sister' or 'mother.' One respected nature as much as one's closest relatives. Native American panpsychism thus had a very practical consequence: a living, functional reverence toward the Earth and all its inhabitants.

Hinduism developed a strikingly similar view. It too was rooted in an ancient animism, but over time evolved into a dominant trinity of gods: Shiva, Vishnu, and Brahma. Some schools of Hindu further consolidated this scheme, arriving at a monotheism of Brahman. As with the Native American view, the human soul was seen as a splinter of the larger spirit of the universe. And, again refuting human exceptionalism, all objects were likewise understood to participate in the cosmic spirit. These ideas are reflected in the Upanishads, most of which date to the two centuries preceding the classical Athenian period (i.e., to roughly 800–600 BCE):

- Katha Upanishad: "Concealed in the heart of all beings is the Atman, the Spirit, the Self; smaller than the smallest atom, greater than the vast spaces." (Mascaro 1965:59)
- Svetasvatara Upanishad: "There is a Spirit who is hidden in all things, as cream is hidden in milk. . ." (ibid.:87)
- "God [Brahman] made a bond of love between his soul and the soul of all things." (ibid.:95)
- Brihad-Aranyaka Upanishad equates (in an ontological sense) the human spirit with those of the sun, moon, lightning, wind, fire, water, and other natural objects. (ibid.: 127–129)

Original Buddhism seems not to have had much connection to panpsychism, but as it migrated into China and Japan it mixed with indigenous ideas about the sacredness of nature. This raised the question of the possible Buddha-nature of animals, plants, and non-living things. Kinsley writes: “A series of Buddhist masters reflected on the question, and increasingly came to conclusions that tend to break down any important distinctions between the human and the nonhuman worlds.” (1995:91). As such, all things participated in the quest for enlightenment, and could thus be seen as manifestations of the *dharmakaya*, the principle or essence of Buddhahood.

This seems to have been emphasized by the Buddhist masters of Japan, especially the Zen school. Kinsley comments on the teachings of Kukai: “Buddhahood is attributed to trees and rocks on the basis of a philosophical principle, namely, that the *dharmakaya* of the Buddha pervades all of nature. That many people don’t realize this truth is primarily a problem of human perception.” (ibid.:92). Ryogen argued that the life-process of plants was an indication of their striving for the Buddha-nature. Their efforts at sprouting, growing, reproducing, and finally dying are indicative of “. . .the way in which plants first aspire for the goal, undergo disciplines, reach enlightenment, and enter into extinction (nirvana). We must, therefore, regard these plants as belonging to the classification of sentient beings.” (LaFleur 1989:190). Soen said: “All beings are flowers, blooming, in a blooming universe.” Dogen, in his Zen poetry, wrote: “I came to realize that mind is no other than mountains and rivers and the great wide Earth, the sun and moon and stars.”

This Japanese attitude was rooted in an even older animist tradition, as expressed in the Shinto religion. “Nature in Shinto,” Kinsley writes, “is enchanted, alive with powerful spirits [*kami*] that express themselves through nature or are identical with it.” (p. 91). Not surprisingly, Shinto views nature as sacred in itself, as a physical embodiment of the divine. Shinto is still a living religion in Japan today, though it is practiced by only a small percent of the population.

2. Plato and Aristotle

During the peak of Athenian philosophical development, Plato and Aristotle developed forms of panpsychism that were subtler than their predecessors. For Plato, psyche was an explicitly widespread phenomenon in the cosmos. In addition to humans and other animals he attributes it to the Earth (*Timaeus* 40c), the sun (*Laws* 898d), the stars (*Timaeus* 41e), plants (*Timaeus* 77b), the Form of Being (*Sophist* 249a), and the cosmos as a whole (*Philebus* 30a). In his last work, *Laws*, Plato makes a final declaration on the matter:

Now consider all the stars and the moon and the years and the months and all the seasons. . . A soul or souls. . . have been shown to be the cause of all these phenomena, and whether it is by their living presence in matter. . . or by some other means,

we shall insist that these souls are gods. Can anybody admit all this and still put up with people who deny that “everything is full of gods”? (899b)

Plato thus confirms the famous panpsychist statement issued by Thales some 200 years earlier. Gods, souls, psyche pervade the cosmos; they are the cause of all natural phenomena. These souls are perhaps not as complex or as rational as our own, but they are psyche nonetheless.

Aristotle saw psyche as the form of living things (*De anima*, 413a20); nonliving things were considered devoid of soul. Technically, then, Aristotle was not a panpsychist. But he continued to believe that some soul-like entity was necessary in the universe, and that it must reside in all things. It was needed to account, first of all, for the upward-striving tendency of all natural objects; as he said, “For in all things...nature always strives after the better.” (*On Generation and Corruption*, 336b). In the *Physics* (250b) he described this tendency as “an immortal never-failing property of things that are, a sort of life as it were to all naturally constituted things.” In admitting that everything possesses a ‘sort of life,’ Aristotle tiptoes dangerously close to hylozoism – a form of panpsychism typically considered to characterize his less-sophisticated predecessors.

Heavenly bodies were animate, for Aristotle. His substance-based ontology required a carrier or conduit for this celestial psychic force – which he found in the ether. As a living and divine substance, ether was a self-moving entity that powered the rotation of the heavens. But it acted solely in the celestial sphere. Here on Earth, Aristotle required something else, something “analogous” to the ether that could be the terrestrial carrier of psychic energy.

Thus he arrived at the concept of the pneuma. Pneuma was itself neither mind nor soul, but rather the principle of psychic action. Aristotle describes it as “the faculty of all kinds of soul” and the “principle of soul” (*Generation of Animals*, 736b29). It was in fact a kind of heat-energy that underlay the action of the psyche; he referred to it as *thermoteta psychiken*, a “vital heat” (ibid.). Like the ether in the heavens, pneuma is omnipresent. It accounts for the psyche of living organisms, and the ‘sort of life’ in nonliving things. It holds things together, and allows them to persist. In a little-known but stunning passage, Aristotle informs us:

Animals and plants come into being in earth and in liquid, because there is water in earth, and pneuma in water, and in all pneuma is *thermoteta psychiken* (vital heat), so that in a sense all things are full of soul. (ibid.:762a18)⁶

The last phrase bears repeating: “*all things are full of soul.*” Thus we find a quasi-panpsychism in Aristotle, of the sort that few would have expected.

6. In original, the final phrase reads: “*hoste tropon tina panta psyches einai plere.*”

3. Hellenism

Epicurean physical theory relied heavily on the atomism of Democritus and Leucippus, but it diverged from them when it came to issues of will, mind, and ethics. The early atomists held to a strict determinism, but this was problematic for Epicurus, as his ethical system demanded the existence of free will. He therefore discarded the determinism by introducing a new factor that he called “swerve” (*parenklisis*). The swerve was due to a tiny amount of free will exhibited by all atoms. This allowed them to initiate contact between one another, leading to a cascading action that resulted in the formation of the complex atomic structures found in everyday objects.

The basic statement of this view is found in Lucretius’ *De rerum natura*:

Though atoms fall straight downward through the void by their own weight, yet at uncertain times and at uncertain points, they swerve a bit. . . And if they did not swerve. . .no clashes would occur, no blows befall the atoms; nature would never have made a thing. (Book II, 215–225)

The willful swerving of the atoms is the basis for our own free will: “[Out of the swerve] rises, I say, that *will* torn free from fate, through which we follow wherever pleasure leads, and likewise swerve aside at times and places” (II, 255–260). Human free will cannot arise *ex nihilo* (“since nothing, we see, could be produced from nothing”; 287), and hence must be present in the atoms themselves: “Thus to the atoms we must allow. . .one more cause of movement [namely, that of free will] – the one whence comes this power we own.” (II, 284–286).

Epicurus thus offers a new argument for panpsychism: Humans clearly exhibit will. Will is a fundamental quality of existence, and cannot emerge from non-will. Therefore will is present in the elemental particles of the cosmos, and hence in all things. Variations on this particular argument for panpsychism have proven to be among the more enduring, even through the present day.

The Stoic philosophers – Zeno, Cleanthes, and Chrysippus – adopted many of their predecessors’ fundamental assumptions about the nature of being and mind. They accepted Empedocles’ four elements and his concept of a material cosmos organized by force principles (in this case, the ‘active’ and the ‘passive’); they adopted the Platonic world-soul, and the Aristotelian notion of form and substance.

Drawing as well on Anaximenes and Aristotle, the *pneuma* was given a central role. Envisioned as a unity of fire and air, this *pneuma* was put forth as the creative life energy of the universe. This was most evident in human bodies, in which both warmth (fire) and breath (air) were seen as the essential defining characteristics of life and soul. *Pneuma* was the active principle made tangible, and as such it accounted for all form that was seen in worldly objects. *Pneuma* was the ‘creative fire’ of the cosmos, a *pyr technikon*. It had the status of divinity, and was equated with both god and cosmic reason.

Cicero informs us that the Stoics followed Plato in his attribution of life and mind to the stars: “[T]he cosmos is divine, [and] we should assign the same sort of divinity

to the stars. . . [T]hey too are also said quite correctly to be animals and to perceive and to have intelligence.” (Inwood & Gerson 1997: 133). More generally, Cicero states, “the parts of the cosmos. . .contain the power of sense-perception and reason.” Sandbach sees in the Stoic philosopher Posidonius the idea that “a ‘life-force’ could be recognized everywhere.” (1975: 130). The element of fire is the source of this life energy, because “fire has in it a ‘vital force’” (ibid.: 134). A. A. Long notes that in the Stoic system “mind and matter are two constituents or attributes of one thing, body, and this analysis applies to human beings as it does to everything else.” (1974: 171). All material objects are bodies, and they are in fact “compounds of ‘matter’ and ‘mind’ (God or logos). Mind is not something other than body but a necessary constituent of it, the ‘reason’ in matter”. (ibid.: 174).

4. Renaissance naturalism and pansensism

The end of Hellenism and Stoic philosophy coincided with the beginnings of the monotheistic religious worldview. Monotheism was fundamentally opposed to such notions as panpsychism, and thus it is perhaps not surprising that we find relatively little articulation of panpsychist ideas for a number of centuries.

One notable exception was Augustine. In his work *City of God* (circa 410 CE) he further developed Aristotle’s ideas on matter. Augustine believed that all natural objects sought their appropriate station in this world in order to preserve and protect themselves:

[E]ven the lifeless bodies, which want not only sensation but seminal life, yet either seek the upper air or sink deep, or are balanced in an intermediate position, so that they may protect their existence in that situation where they can exist in most accordance with their nature. (Book XI, Chapter 27)

This wanting, or desiring, present in all natural things was a manifestation of *love*:

If we were stones, or waves, or wind, or flame, or anything of that kind, we should want, indeed, both sensation and life, yet should possess a kind of attraction towards our own proper position and natural order. For the specific gravity of bodies is, as it were, their love, whether they are carried downwards by their weight, or upwards by their levity. (Book XI, Chapter 28)

The next major leap forward in panpsychist philosophy did not occur until the Italian Renaissance. Five of the most important philosophers of that era – Cardano, Telesio, Patrizi, Bruno, and Campanella – were panpsychists. All shared a disdain for the standard theology, all opposed the dominance of Aristotelianism and scholasticism, and all looked to nature for insights into reality.

Cardano’s ontological system consisted of a nested hierarchy in which each individual thing was seen as (1) a part (of the larger whole, or One), (2) a unity in itself, and (3) a composition of sub-parts – a view that anticipated the relatively recent work

of Koestler, Wilber, and others. The fundamental principle maintaining the unity of each part was *anima*; and the particularly human form of this principle he recognized as 'mind.' As the unifying principle, soul was present in all unities large and small.

Panpsychism followed naturally from this view. In his work *On Subtlety* (1550), Cardano explained the central role of *anima*: "[Material] bodies . . . are generated from matter and form, and are controlled by the *anima*, which in the higher types of beings is mind. . ." (1550/1934:117). As with the Greeks, Cardano saw soul as the causal source of all motion in the world: "[U]niversally there must exist a certain *anima*. . . because a source of motion seems to exist in every body whatsoever. . ." (ibid.:87). In a break from the ancient view, he argued against the designation of fire as an element. To him, fire is heat, the active principle, which acts on the passive to produce form. This is a general ontological principle, and hence, "all permanent bodies, including stones, are always slightly moist and warm and of necessity animate." (Fierz 1983:66).

Bernardino Telesio developed a panpsychist philosophy that had a lasting influence in Western philosophy, primarily through the works of Bruno, Campanella, Bacon, and Hobbes. Like Empedocles, Telesio saw two fundamental and opposing forces in the universe, an expanding and motive principle that he called *heat*, and a contracting principle, *cold*. These forces displayed the notable quality of *perception*. Heat sought to 'stay warm' and cold sought to 'stay cool,' and this tendency Telesio interpreted as a kind of sensation or knowledge. As he wrote, "It is quite evident that nature is propelled by self-interest." (1586/1967:304). And since heat and cold inhered in all things, all things shared in this ability to sense. Thus his position is sometimes referred to as *pansensism*, a particular form of panpsychism.

Francesco Patrizi also sought to undermine the dominant Aristotelian scholasticism, and place greater emphasis on Plato's philosophy. His chief work, *New Philosophy of the Universe* (1591), laid out a complete cosmological system that introduced the term 'panpsychism' into the Western vocabulary. Patrizi created a 9-level hierarchical system of being, with *anima* at the center. As such it permeated all levels, existing simultaneously at the level of a world-soul, a human soul, and soul of inanimate things. He "does not treat the individual souls as [mere] parts of the world soul, but believes, rather, that their relation to their bodies is analogous to that of the world soul to the universe as a whole." (Kristeller 1964:122).

Like other Renaissance naturalists, Giordano Bruno endorsed the idea of God as a world-soul, and then articulated a general concept of the soul as dwelling in all things; this, he felt, was required to maintain a consistent ontology. He was very explicit about his panpsychist views, and even acknowledged their unconventionality. Responding to the obvious claim – "Common sense tells us that not everything is alive" – Bruno replies, "But who could reasonably refute it?" (1584/1998:42). His argument proceeds on the assumption that the same principles must apply throughout the cosmos. The Earth held no privileged position in the universe (such as being at the center), and humans held no privilege with respect to possessing a soul. He took the world-soul and the human soul as given, and concluded that all things, all parts of the cosmic

whole, must be animated: “[N]ot only the form of the universe, but also all the forms of natural things are souls.” Elaborating, he adds, “there is nothing that does not possess a soul and that has no vital principle” (ibid.: 43).

Initiating a distinction that would become influential for Leibniz and the process philosophers, Bruno argued that ordinary nonliving objects – shoes, tables, chairs – are not animate as wholes, but rather that they contain vital elements within themselves:

I say, then, that the table is not animated as a table, nor are the clothes as clothes...but that, as natural things and composites, they have within them matter and form [i.e. soul]. All things, no matter how small and miniscule, have in them part of that spiritual substance... [F]or in all things there is spirit, and there is not the least corpuscle that does not contain within itself some portion that may animate it. (ibid.: 44)

Tommaso Campanella’s philosophical system centers on his doctrine of the “three primalities”: *power*, *wisdom* (or knowledge, or sense), and *love* (or will). Deriving from God himself, these qualities reside in all created things; the latter two are key to Campanella’s panpsychist outlook. Wisdom is manifest as knowledge, which is first and foremost a knowledge of oneself. Each thing knows of its own existence, and its own persistence over time: “All things have the sensation of their own being and of their conservation. They exist, are conserved, operate, and act because they know.” (1638/1969: 156).

Knowing of their own existence, things naturally love it. Drawing from Augustine, Campanella argued that all things express a manifest desire to persist – a love of self. They can only do so by perceiving the world around them and then reacting accordingly. Hence the subtitle of Campanella’s central work *De sensu rerum*:

A remarkable tract of occult philosophy in which the world is shown to be a living and truly conscious image of God, and all its parts and particles thereof to be endowed with sense perception, some more clearly, some more obscurely, to the extent required for the preservation of themselves and of the whole in which they share sensation. (1620/1969: 156)

Not content to rest on such ‘first principles’ declarations, he resurrected the Epicurean argument that *like comes from like*, i.e. that emergence of mind is impossible:

Now, if the animals are sentient...and sense does not come from nothing, the elements whereby they and everything else are brought into being must be said to be sentient, because what the result has the cause must have. Therefore the heavens are sentient, and so [too] the earth... (1620, in Dooley 1995: 39)

5. Developments in continental philosophy – Spinoza and Leibniz

The two great panpsychists of the 17th century were Spinoza and Leibniz. Spinoza created a radical monism in which the one real substance was that which he identified

as “God or Nature.” Recognizing mental and physical phenomenon as fundamental aspects of reality, he declared that these two attributes – thought and extension – are the only knowable of infinitely many attributes of the one God/Nature. Particular objects, and particular thoughts and mental states, were thus seen as ‘modes’ of the corresponding attribute.

Since every object is a part of God/Nature, every object must embody all its attributes – and in particular, the attributes of extension and thought. Each real thing must exist both as a ‘mode of extension’ (as a physical body) and as a ‘mode of thought’ (which Spinoza called an “idea”). Thus every object both has (or is) a body and also has (or is) a corresponding idea.

Obviously this applies to the human being. Our physical body is our mode of extension, and our ‘idea’ or mode of thought is nothing other than our *mind*. Furthermore the human being has no special ontological status; we are objects in the world not fundamentally different from every other object. But this leads to a striking conclusion: If all things have ‘ideas,’ and if an idea corresponds to a mind, then all things have minds:

For the things we have shown so far are completely general and do not pertain more to man than to other individuals, all of which, though in different degrees, are nevertheless animate. . . . [W]hatever we have asserted of the idea [i.e. mind] of the human body must necessarily also be asserted of the idea of everything else.

(Ethics, II Prop 13, Scholium)

The greater the complexity of interaction with the world that a given object has, the greater the complexity of the corresponding mind. Humans have richer interaction with the world and hence a more articulated mind, but no object is so simple that it is completely mindless.

Leibniz’s pansychism rested upon his theory of the *monads* – atom-like constituents of reality that possessed a number of mind-like characteristics. First, each monad is utterly unique in that it represents a distinct perspective or outlook on the universe. The dynamism of the universe is reflected as an internal dynamism, a *living quality*, within each monad. As Leibniz explained: “Each monad is a living mirror...which represents the universe from its own point of view, and is as ordered as the universe itself.” (*Monadology*, 1714, sec. 3).

Second, the internal ordering of the monads is to be understood as embodying two primary qualities: *perception* and *appetite* (or desire). Perceptions are the changing internal states of the monads, and these changes are brought about by the monad’s appetites – a compelling desire to reflect the universe.

The strongly animistic tone of the terms ‘perception’ and ‘appetite’ is not coincidental, because each monad is identified with a *soul*. The connection of soul with some point-like entity comes from the earliest parts of Leibniz’s philosophy (even prior to his usage of ‘monad’), but did not become fully developed until the late 1690s. He wrote:

[I]n order to find these *real unities*, I was forced to have recourse to a *real and animated point*, so to speak, or to an atom of substance which must include some-

thing of form or activity to make a complete being. . . . I found that [the monad's] nature consists in force, and that from this there follows something analogous to sensation [i.e. perception] and appetite, so that we must conceive of them on the model of the notion we have of *souls*. (1695/1989: 139)

We could call them *metaphysical points*: they have *something vital*, a kind of *perception*, and [as] *mathematical points* are the *points of view* from which they express the universe. (ibid.: 142)

The final key characteristic of the monad is that it is, above all, a *unity*. Monads themselves are unities, but so too, in a different way, are collections of monads. Any material object is a collection of monads, and is integrated by the action of a “dominant monad” which represents the integrated unity of the object. It was via the dominant monad that Leibniz attempted to solve the ‘combination problem’ – of unifying disparate small minds into a single higher-order mind.

On this matter of unity Leibniz, following Bruno, made an important distinction between objects with a truly organic sense of unity and those that were mere sets, collections, or aggregations of distinct things. Aggregates such as “an army or a flock,” or “a heap of stones” do not possess a dominant monad and thus no unified mind. Interestingly, Leibniz never gave a formal definition as to what qualifies as a group and what defines a true individual; all he offered was this ambiguous phrase: “substantial unity requires a thoroughly indivisible and naturally indestructible being” (1686/1989: 79). Even such an apparently unified object as “a block of marble” is not a true individual, but rather is “only like a pile of stones,” that is, only exists as a unity in the mind of an observer, not in reality (because it is divisible and destructible).

Also of interest is Leibniz's rare mention of ambiguous cases of substantial unity, like plants and ecosystems. In one of his few discussions of the topic, he deferred on an answer: “about the sun, the earthly globe, the moon, trees, and other similar bodies. . . I cannot be absolutely certain whether they are animated, or even whether they are [true] substances. . .” (ibid.: 80). This has continued to be a central philosophical problem, even down to the present day. Modern process philosophers still struggle with the notion of unity, and object-oriented ontologies work to define the metaphysical status of an ‘object.’

Though they dominated philosophical discourse, Spinoza and Leibniz were not the only panpsychist thinkers of that era. French philosophers like LaMettrie, Maupertuis, and Diderot were at the forefront of the new humanism of the Enlightenment. In a universe without God or a supernatural soul, they still had to account for the presence of mind. Their conclusion: that matter itself had inherent mental qualities. They were materialists, but of the *vitalistic* sort. Such a view stands in notable contrast to the modern, mechanistic brand of materialism.

The organizational complexity of our bodies allowed sentient matter to express itself in complex and sophisticated ways. LaMettrie wrote that even human consciousness “is no more foreign to matter than thought is. . .” Regarding the complex human mind, he asks: “Is organization sufficient for everything? Yes, once again.”

(1747/1994:59). For Maupertuis, “attraction” and “intelligence” were essential properties of matter; these became manifest as desire, aversion, and memory – qualities present in all things. Diderot made frequent reference to “the general sensitivity of matter.” “This faculty of sensation,” he wrote, “is a general and essential quality of matter.” (1769/1937:49). Elaborating on this thought: “[f]rom the elephant to the flea, from the flea to the sensitive living atom, the origin of all, there is no point in nature but suffers and enjoys.” (ibid.: 80).

Diderot went further, tackling the combination problem and the unity of mind. On his view, if particles of matter are sensitive and intelligent, then simply by virtue of communication and contact they can form an integrated being. He made an analogy with a swarm of bees: “This cluster is a being, an individual, an animal of sorts.” (ibid.:67). It is a unitary being because of the extremely tight interaction between parts, which pass from being merely “contiguous” into being truly “continuous.” The human body is similar to the swarm of bees; the body is a collection of organs, which “are just separate animals held together by the law of continuity in a general sympathy, unity, and identity.” It is the “continual action and reaction” between parts that creates the unity; “contact, in itself, is enough” (ibid.: 76).

6. The German philosopher-scientists

In the century following the French Enlightenment, panpsychist thought developed most rapidly in Germany. The one hundred years from 1780 to 1880 were marked by the emergence of several major German philosophers articulating panpsychist views – the first among whom was Johann Herder. Herder sought to unify the diversity of physical forces (gravity, electricity, magnetism, light) under the framework of a single fundamental force, *Kraft*. As the ultimate reality, *Kraft* had to account both for physical forces and those of life and mind. Nisbet (1970:11) remarks that Herder “represents the *Kräfte* of plants and stones as analogous to the soul. ... [E]ach endowed with a different degree of consciousness...” In the mid-1780s Herder wrote:

All active forces of Nature are, each in its own way, alive; in their interior there must be Something that corresponds to their effects without – as Leibniz himself assumed...
(in Clark 1955:311)

Arthur Schopenhauer’s masterwork, *The World as Will and Idea* (1819), describes a two-fold system of reality. On the one hand it is a theory of classical idealism; objects are grasped from without as collections of sensory images or phenomena, and in this sense are aspects of mind. On the other hand, there must also be an interior to things, an intrinsic nature which is invisible to outside observers and which must compose the ultimate reality of things.

The intrinsic nature of physical objects, Schopenhauer said, is directly perceivable only in one very special case: our own bodies. We know the thing-in-itself of our own bodies because we *are* that thing. On the ‘inside’ we are desire, feeling, emotion: in

short, *will*. But the human body has no special ontological standing; it is a physical object like all objects. Therefore, whatever inner nature we have must be realized to some degree in all things. The thing-in-itself of *all* objects, he concluded, is nothing more than will. This thing-in-itself is the complementary aspect to the extrinsic phenomenal reality: “For as the world is in one aspect entirely *idea*, so in another it is entirely *will*.” (1819/1995:5). If all things are, intrinsically, will, then all things have an aspect of mentality – a clear panpsychist philosophy.

Schopenhauer addressed two general categories of physical entities: objects and forces. Regarding the former, material objects were seen by him as literally “objectifications of will,” that is, as physical manifestations or ‘solidifications’ of it. This was true for the human body, for individual organs, for non-human animals, and even for nonliving entities. Objectification occurs in varying degrees throughout nature, and generally corresponds to the complexity of the object.

Regarding physical forces, Schopenhauer, following and extending the ideas of Herder, described all of them as manifestations of will:

The force which stirs and vegetates in the plant, and indeed the force by which the crystal is formed, that by which the magnet turns to the North Pole, the force whose shock [results] from the contact between different metals, ...even gravitation, ...all these [are recognized] as in their inner nature...identical [to that] which is called *will*. . . . [The will] is manifest in every force of nature that operates blindly, and it is manifest, too, in the deliberate action of man; and the great difference between these two is a matter only of degree of the manifestation, not in the nature of what is made manifest. (1819/1995:42)

As with objects, physical forces are objectifications of will, albeit at a very basic level: “The most universal forces of nature present themselves as the lowest grade of the will’s objectification.” (ibid.:61). Some years later he added, “generally every original force manifesting itself in physical and chemical appearances, in fact gravity itself – all these in themselves...are absolutely identical with what we find in ourselves as *will*.” (1836/1993:20).

Thus, with his monistic idealism Schopenhauer was able to persuasively argue that mind in fact existed everywhere in nature:

Now if you suppose the existence of a *mind* in the human head, ...you are bound to concede a mind to every stone. ... [A]ll ostensible mind can be attributed to matter, but all matter can likewise be attributed to mind; from which it follows that the antithesis [between mind and matter] is a false one. (1851/1974:212–213)

Numerous other German thinkers echoed the panpsychist sympathies of that age. Among these:

- *Wolfgang von Goethe*, on the connection between mind and matter: “Since, however, matter can never exist and act without spirit [*Seele*], nor spirit without matter, matter is also capable of undergoing intensification, and spirit cannot be denied its attraction and repulsion.” (1828/1988:6).

- *Gustav Fechner*, on the psyche of plants: “If we take a cursory glance at some of the outstanding points, is not the plant quite as well organized as the animal, though on a different plan, a plan entirely of its own, perfectly consonant with its idea? If one will not venture to deny that the plant has a life, why deny it a soul? For it is much simpler to think that a different plan of bodily organization built upon the common basis of life indicates only a different plan of psychic organization. . . . [W]hether it be a plant or an animal, the complexity of structure and process is so completely analogous, except that the cells are differently arranged. . . .” (1848/1946: 168–169).
- *Herman Lotze*, on the sentience of atoms: “The indivisible unity of each of these simple beings [atoms] permits us to suppose that in it the impressions reaching it from without are condensed into modes of sensation and enjoyment. [As a result,] no part of being is any longer devoid of life and animation. . . . We must...in general allow and maintain that all motion of matter in space may be explained as the natural expression of the inner states of beings that seek or avoid one another with a feeling of their need...” (1856–64/1971: 360–363).
- *Eduard von Hartmann*, on the unity of mind and matter: “Hencewith is the radical distinction between spirit and matter abolished; their difference consists only in higher or lower forms of manifestations of the same essence... The identity of mind and matter [becomes] elevated to a scientific cognition, and that, too, not by killing the spirit but by vivifying matter.” (1869/1950, vol. 2: 180).
- *Ernst Mach*, on the inadequacies of both mechanistic materialism and primitive animism: “But now...our judgment has grown more sober... Both [the mechanical and animistic mythologies] contain undue and fantastical exaggerations of an incomplete perception. Careful physical research will lead...to an analysis of our sensations. We shall then discover that our hunger is not so essentially different from the tendency of sulphuric acid for zinc, and our will not so greatly different from the pressure of a stone, as now appears. We shall again feel ourselves nearer nature, without its being necessary that we should resolve ourselves into a nebulous and mystical mass of molecules, or make nature a haunt of hobgoblins.” (1883/1974: 560).

The reign of German panpsychists concluded with two influential figures, Haeckel and Nietzsche. Haeckel was among the first philosophers to take up the notion of evolution and build it into a comprehensive metaphysical system. Evolution demonstrated the continuity of all beings, and strongly argued against the radical emergence of wholly new qualities like mind or sentience. As a consequence, the case for monism strengthened considerably, as it did for panpsychism: “One highly important principle of my monism seems to me to be, that I regard *all* matter as *ensouled*, that is to say as endowed with *feeling* (pleasure and pain) and *motion*. . . .” (1892: 486). Later Haeckel observed, “Our conception of Monism. . . is clear and unambiguous; . . . an immaterial living spirit is just as unthinkable as a dead, spiritless material; the two are inseparably combined in every atom.” (1895: 58).

In his most famous work, *The Riddle of the Universe* (1899), Haeckel argued that science had proven the unity of matter and energy. He then equated mass with ‘body’, energy with ‘spirit’, and then united these two pairs in an explicitly Spinozan manner. Haeckel claimed that all living creatures, microbes included, possess “conscious psychic action.” The inorganic world also possesses an inherent psychic quality, though he takes care to emphasize that this is unconscious rather than conscious mentality. This applies even to the atoms: “I conceive the elementary psychic qualities of sensation and will, which may be attributed to atoms, to be *unconscious*. . .” (1899/1929:179). Near the end of his life he proposed that, in addition to matter and force, the one monistic reality be attributed a third characteristic called *psychoma*, or “general sensation.” The result was a three-way identity: “(1) No matter without force and without sensation. (2) No force without matter and without sensation. (3) No sensation without matter and without force.” (1904:465).

Nietzsche spent most of his effort characterizing (and criticizing) the human condition. The defining concept for humanity was the *will to power* – a life-affirming drive toward dignity, self-mastery, and greatness. But the will to power was not limited to the human sphere; it was rather a universal metaphysical principle. As it was for Schopenhauer (whom Nietzsche admired), this will was manifest in all forces and all objects of the world. In his 1886 masterpiece *Beyond Good and Evil*, he wrote:

Granted finally that one succeeded in explaining our entire instinctual life as the development and ramification of *one* basic form of will – as will to power, as is *my* theory – . . . [then] one would have acquired the right to define *all* efficient force unequivocally as: *will to power*. The world seen from within, the world described and defined according to its ‘intelligible character’ – it would be ‘will to power’ and nothing else. (sec. 36)

Further elaboration came from his notebook entries that were eventually published as *The Will to Power* (1906):

The victorious concept ‘force’ . . . still needs to be completed: an inner will must be ascribed to it, which I designate as “will to power,” i.e. as an insatiable desire to manifest power; . . . [and] as a creative drive. . . . [O]ne is obliged to understand all motion, all ‘appearances,’ all ‘laws,’ only as symptoms of an inner event, and to employ man as an analogy to this end. (sec. 619)

This world is the will to power – and nothing more! And you yourselves are also this will to power – and nothing more! (sec. 1067)

‘Attraction’ and ‘repulsion’ in a purely mechanistic sense are complete fictions: a word. We cannot think of an attraction divorced from an intention. The will to take possession of a thing or to defend oneself against it and repel it – that we ‘understand’ . . . (sec. 627)

My idea is that every specific body strives to become master over all space and to extend its force (–its will to power) and to thrust back all that resists its extension. (sec. 636)

[My theory would be] that all driving force is will to power, that there is no other physical, dynamic or psychic force except this. (sec. 688)

[T]he innermost essence of being is will to power. . . (sec. 693)

7. Anglo-American panpsychism

Until the late 19th century there were few panpsychists among English or American philosophers. In the mid-1600s Henry More's "Spirit of Nature" and Margaret Cavendish's organicist materialism each contained panpsychist ideas, as did Joseph Priestley's dynamism of the late 1700s. But panpsychism within the English-speaking world did not really develop until the work of William Kingdon Clifford in the 1870s. Clifford wrote two influential articles, "Body and mind" (1874) and "On the nature of things in themselves" (1878), that argued for a 'mind-stuff' form of panpsychism. The former article established Clifford's belief in a form of Spinozist parallelism. He cites evolutionary continuity in arguing that there is no point in the chain of material organization at which mind can be conceived to suddenly appear:

[I]t is impossible for anybody to point out the particular place...where [emergence of consciousness] can be supposed to have taken place. ... [E]ven in the very lowest organisms, even in the Amoeba...there is something or other, inconceivably simple to us, which is of the same nature with our own consciousness... [Furthermore] we cannot stop at organic matter, [but] we are obliged to assume...that along with every motion of matter, whether organic or inorganic, there is some fact which corresponds to the mental fact in ourselves. (1874/1903:60–61)

Echoing Fechner and Bruno, he notes that this doctrine "is no mere speculation, but is a result to which all the greatest minds that have studied this question in the right way have gradually been approximating for a long time." (ibid.)

Shortly thereafter, British essayist Samuel Butler acknowledged the discovery that living and nonliving things were composed of precisely the same elements and forces; he wrote, "if we once break down the wall of partition between the organic and inorganic, the inorganic must be living and conscious also, up to a point." In a nod to the inherent difficulties in conceiving of emergence of mind, he added:

[I]t is more coherent with our other ideas, and therefore more acceptable, to start with every molecule as a living thing...than to start with inanimate molecules and smuggle life into them; ... what we call the inorganic world must be regarded as up to a certain point living, and instinct, within certain limits, with consciousness, volition, and power of concerted action. (1880: 23)

Related sympathies could be found in the contemporary works of Spencer (1884) and Prince (1885).

Within a few years William James began his inquiry into panpsychism. His *Principles of Psychology* (1890) devotes a full chapter to Clifford's mind-stuff theory, and displays notable sympathy to the view. James asserts that the theory of evolution provides among the strongest evidence yet:

If evolution is to work smoothly, consciousness in some shape must have been present at the very origin of things. . . . Some such doctrine of atomistic hylozoism. . . is an indispensable part of a thorough-going philosophy of evolution.

(1890/1950: 149)

Over the next 15 years James gradually increased his commitment to panpsychism. In his Gifford Lectures of 1901–2 he asked: “How could the richer animistic aspects of Nature. . . fail to have been first singled out and followed by philosophy as the more promising avenue to the knowledge of Nature's life?” (1902: 392). He continued:

A conscious field *plus* its object as felt or thought of *plus* an attitude toward the object *plus* the sense of a self to whom the attitude belongs [constitutes a] full fact. . . ; it is of the *kind* to which all realities whatsoever must belong. . .

(ibid.: 393)

His first outright endorsement of panpsychism came in his Harvard lecture notes of 1902–3, in which he noted “pragmatism would be [my] method and ‘pluralistic panpsychism’ [my] doctrine.” (in Perry 1935: 373). His 1904–5 lectures addressed mind-matter causality, leading

into that region of pan-psychic and ontologic speculation of which [panpsychists] Professors Bergson and Strong have lately [addressed] in so able and interesting a way. . . I cannot help suspecting that the direction of their work is very promising. . . .

(1912/1996: 189)

And again in his 1905–6 lecture notes: “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 Perry 1935: 446).

James arrived at a clear and unambiguous position by the time of his Hibbert Lectures of 1907 (published in 1909 as *A Pluralistic Universe*). He explained that his theory of radical empiricism is a form of ‘pluralist monism’ in which all things are both ‘pure experience’ and ‘for themselves’, i.e. are objects with their own independent psychological perspectives. One lecture (chapter) is dedicated to a sympathetic reading of Fechner's system of a cosmic hierarchy of mind – something that he clearly endorses:

[T]he whole human and animal kingdoms come together as conditions of a consciousness of still wider scope. This combines in the soul of the earth with the consciousness of the vegetable kingdom, which in turn contributes. . . to that of the whole solar system, and so on from synthesis to synthesis and height to height, till an absolutely universal consciousness is reached.

(1909/1996: 155–156)

Another gives James' final stance on the combination problem: "the self-compounding of mind in its smaller and more accessible portions seems a certain fact." (p. 292). The conclusion is that "we finite minds may simultaneously be co-conscious with one another in a super-human intelligence." In the final lecture he clearly stated his belief in a 'superhuman consciousness' and in "a general view of the world almost identical with Fechner's." (pp. 309–310). He saw in this a new worldview, a sea-change in philosophy, "a great empirical movement towards a pluralistic panpsychic view of the universe" (p. 313).

The 19th-century closed with three notable works. First was Paul Carus' article in *Monist*, "Panpsychism and panbiotism" (1892). Carus critically assessed Haeckel's views, laying out his own vision that "everything is fraught with life." The article included a fascinating reprint of a short essay on, of all things, "Mr. Thomas A. Edison's panpsychism."

Next was Josiah Royce's book *Spirit of Modern Philosophy*, in which he introduced a form of panpsychism based on absolute idealism. Supplementing Schopenhauer's insight with evolutionary theory, he argued that if humans possess an inner reality then so too must all things:

The theory of the 'double aspect,' applied to the facts of the inorganic world, suggests at once that they, too, in so far as they are real, must possess their own inner and appreciable aspect. ... In general it is an obvious corollary of all that we have been saying. (1892:419–420)

Elaborating this idea a few years later, he wrote:

[W]e have no sort of right to speak in any way as if the inner experience behind any fact of nature were of a grade lower than ours, or less conscious, or less rational, or more atomic. ... [T]his reality is, like that of our own experience, conscious, organic, full of clear contrasts, rational, definite. We ought not to speak of dead nature. (1898/1915:230)

The third item was Charles Sanders Peirce's article "Man's glassy essence." This built upon his declaration of the previous year in which he defined "matter as effete mind" – a system he called *objective idealism*. He observes that living tissue and cell matter display clear signs of sensitivity and feeling, and indeed "all the functions of mind." (1892/1992:343). But these things are only complex chemistry; therefore, we must "admit that physical events are but degraded or undeveloped forms of psychical events." (p. 348). Under these conditions the only coherent metaphysical system is a panpsychist dual-aspect theory of mind:

[A]ll mind is directly or indirectly connected with all matter, and acts in a more or less regular way; so that all mind more or less partakes of the nature of matter. ... Viewing a thing from the outside, ...it appears as matter. Viewing it from the inside, ...it appears as consciousness. (p. 349)

8. Process philosophy in the early 20th century

Modern process philosophy is closely identified with the work of Whitehead, but in fact it draws as much from the insights of Leibniz, James, Peirce, and Bergson. A contemporary of James and Pierce, Henri Bergson stressed the importance of time as a fundamental metaphysical entity. Bergson's sympathies toward panpsychism began with *Matter and Memory* (1896) but did not really develop until *Creative Evolution* (1907). His main thesis – that matter is “the lowest degree of mind” – clearly echoes Peirce. In the manner of Schopenhauer, Bergson offers that “pure willing [is the] current that runs through matter, communicating life to it” (1907/1911:206). But Bergson's clearest statement came in *Duration and Simultaneity* (1922). Here he achieved a true process philosophy in which all physical events contain a memory of the past. Given his earlier insistence that memory is an essential component of mind, one arrives at the conclusion that mind is in all things:

What we wish to establish is that we cannot speak of a reality that endures without inserting consciousness into it. . . . [I]t is impossible to imagine or conceive a connecting link between the before and after without an element of memory and, consequently, of consciousness.

We may perhaps feel averse to the use of the word “consciousness” if an anthropomorphic sense is attached to it. [But] there is no need to take one's own memory and transport it, even attenuated, into the interior of the thing. . . . It is the opposite course we must follow. . . . [D]uration is essentially a continuation of what no longer exists into what does exist. This is real time, perceived and lived. . . . Duration therefore implies consciousness; and we place consciousness at the heart of things for the very reason that we credit them with a time that endures.

(1922/1965:48–49)

Regarding this view, Capek (1971:308) noted, “there is no question that [Bergson] regarded physical events as ‘proto-mental’ entities.”

‘New realist’ Samuel Alexander was also supportive of process thinking. He claimed that there were six levels of emergence in evolution – Space-Time, primary qualities, secondary qualities, life, animal mind, and Deity – and that each level served as ‘mind’ to the preceding level. This notion is advanced in *Space, Time, and Deity* (1920). Alexander wrote:

For though matter has no life, it has something which plays in it the part which life plays in the living organism and mind plays in the person; and even on the lowest level of existence [i.e. motion], any motion has its soul, which is time. Thus matter is not merely dead as if there was nothing in it akin to life. It is only dead in that it is not as alive as organisms are. . . . [W]e are compelled to the conclusion that all finite existence is alive, or in a certain sense animated. (vol. II, p. 67)

Hence “there is nothing dead, or senseless in the universe, [even] Space-Time itself being animated” (ibid.:69).

As the most prominent of process philosophers, Whitehead's views on mind and reality are relatively well-known. Even in the first of his metaphysical books, *Science and the Modern World* (1925), he exhibits sympathies to panpsychism. Here he lays out his 'philosophy of the organism' that encompasses a nested hierarchy of parts and wholes, and also reflects mind-like qualities at all levels. "If," he says, "you start from the immediate facts of our psychological experience," and accept that there are "no arbitrary breaks" in nature, then "you are led to the organic conception of nature" (p. 73). And by 'organic' he was explicit that this is to include "the organic unities of electrons, protons, molecules, and living bodies." This places mind or mentality at the center of existence: "cognitive mentality is in some way inextricably concerned in every detail." (p. 90).

Events in nature are described as "actual occasions." In its complete form, such an event "includes that which in cognitive experience takes the form of memory, anticipation, imagination, and thought." (p. 170). If all actual occasions are 'complete,' then presumably all would have memory, thought, and so on. Later Whitehead described such events or occasions as *dipolar* in nature – containing both physical and mental stages. By the mid-1920s his position was clear: *all* natural events are dipolar, and thus *all* events possess a mental aspect; "panpsychism is clearly affirmed in the sense that every actuality has mentality." (Ford 1995:28).

In *Modes of Thought* (1938:156) Whitehead offers this passage:

[T]his sharp division between mentality and nature has no ground in our fundamental observation. ... I conclude that we should conceive mental operations as among the factors which make up the constitution of nature.

As the ultimate reality, these mental/physical events reflect a panpsychic universe in which, furthermore, all events are interconnected: "There is no such mode of ["independent"] existence; every entity is only to be understood in terms of the way in which it is interwoven with the rest of the Universe." (1941:687).

Like Whitehead, Bertrand Russell held (at least for most of his career) to a neutral monist view in which events were the primary reality. This allows a bridging of the mind-matter gap: "matter is less material, and mind less mental, than is commonly supposed." (1927a:7). In themselves, these events are to be seen as sense-datum or 'percepts': "As to what the events are that compose the physical world, they are, in the first place, percepts, and then [secondarily] whatever can be inferred from percepts. . ." (p. 386). He added: "mental events are part of that stuff [of the world], and. . .the rest of the stuff resembles them more than it resembles traditional billiard-balls" (p. 388).

Other of Russell's writings were suggestive of panpsychism. He wrote: "My own feeling is that there is not a sharp line, but a difference of degree [between mind and matter]; an oyster is less mental than a man, but not wholly un-mental." (1927b:209). Part of the reason why we cannot draw a line, he said, is that an essential aspect of mind is *memory*, and a memory of sorts is displayed even by inanimate objects: "we cannot, on this ground [of memory], erect an absolute barrier between mind and matter. . .

[I]nanimate matter, to some slight extent, shows analogous behavior” (p. 306). Russell concludes, in an Epicurean vein:

The events that happen in our minds are part of the course of nature, and we do not know that the events which happen elsewhere are of a totally different kind. The physical world. . . is perhaps less rigidly determined by causal laws than it was thought to be; one might, more or less fancifully, attribute even to the atom a kind of limited free will. (p. 311)

Perhaps his clearest statement came near the end of his writing career, in his 1956 book *Portraits from Memory*. Again the notion of memory is key. Memory is “the most essential characteristic of mind, . . . using this word in its broadest sense to include every influence of past experience on present reactions.” (pp. 153–154). He observes that this generalized conception of memory must apply, properly speaking, to all physical objects and systems.

This [memory] also can be illustrated in a lesser degree by the behavior of inorganic matter. A watercourse which at most times is dry gradually wears a channel down a gully at the times when it flows, and subsequent rains follow [a similar] course... You may say, if you like, that the river bed ‘remembers’ previous occasions when it experienced cooling streams. . . . You would say [this] was a flight of fancy because you are of the opinion that rivers and river beds do not ‘think.’ But if thinking consists of certain modifications of behavior owing to former occurrences, then we shall have to say that the river bed thinks, though its thinking is somewhat rudimentary. (p. 155)

Apart from Whitehead and Russell, the other widely-known process philosopher of the 20th century was Charles Hartshorne. His panpsychist outlook was evident in his first major work, *Beyond Humanism* (1937). The book includes a critique of science and the scientific method, which, Hartshorne says, treats objects in nature not as individuals but as crowds, swarms, and aggregates. Mind and sentience are not to be found in aggregates, but only in true individuals, and thus science overlooks the possibility of panpsychism – interpreted as meaning ‘all true individuals possess minds.’

Apart from the problem of aggregates, Hartshorne tackled the issue of ‘proving’ panpsychism. Rather than attempting this directly, he turned the question around. He asked: Can science, which is in the business of proofs, *disprove* panpsychism? His answer was ‘no,’ both because science treats things primarily in aggregate form, but also because it cannot distinguish the fact *that* an object feels from *how* it feels. He went on to explain that philosophical reasoning offers no inherent basis for rejecting panpsychism. Quite the contrary: there are “great philosophical advantages” (1937: 175) to it, including explaining the relation between sensation and feeling, and deeper comprehension of the concepts of space and time. As he stated: “the idea of time is unintelligible unless panpsychism is true” (p. 174), relying on a Bergsonian argument for memory in all aspects of reality.

Hartshorne claimed that organic sympathy (and the accompanying panpsychism) is capable of resolving six major philosophical problems: mind-body, subject-object,

causality, the nature of time, the nature of individuality, and the problem of knowledge. Very briefly: The human mind results from a “sympathetic participation” or rapport with the sentient cells of the body – whose sentience is itself a product of the rapport with sentient atoms. The relation of subject to object is similarly an exchange between enminded participants, without which knowledge would be impossible. More generally, all causality is manifested through such a resonance between two minds. Moments in time are a “sympathetic bond” between past and future, much as Bergson and Whitehead described. The ‘individual’ is a result of a balance between the integrative power of sympathy and the disintegrative power of its opposite, antipathy; in the manner of Empedocles, Hartshorne noted that pure sympathy would destroy individuality (by merging all into one), and pure antipathy would not allow for any structure or knowledge at all.

In the final analysis Hartshorne concluded that panpsychism (or ‘psychicalism,’ as he prefers) has little direct bearing on matters of science *per se* but does profoundly influence our human attitudes, and consequently our actions. “For logical, aesthetic, and religious reasons our view of the general [panpsychic] cosmic status of quality (and value) influences our behavior, and in this sense its consideration is pragmatically significant.” (1990:397). It is, after all, the most viable ontology available to us – certainly preferable to an utterly unintelligible materialism: “the concept of ‘mere dead insentient matter’ is an appeal to invincible ignorance. At no time will this expression ever constitute knowledge.” (1977:95).

9. Late 20th century panpsychism

Continuing the line of panpsychist theologian-philosophers that ran from Augustine and Francis through Campanella and Hartshorne was Pierre Teilhard de Chardin. Drawing on Bergson and Schiller, Teilhard described a picture of cosmic evolution in which matter undergoes a continual process of complexification of structure and, correspondingly, of mind and spirit. In his *Phenomenon of Man* (1959) he argued that “there is necessarily a double aspect to [matter’s] structure... [C]o-extensive with their Without, there is a Within to things.” (p. 56). Thus he arrives at a panpsychic cosmos:

[W]e are logically forced to assume the existence in rudimentary form...of some sort of psyche in every corpuscle, even in those (the mega-molecules and below) whose complexity is of such a low or modest order as to render it (the psyche) imperceptible... [T]he universe is, both on the whole and at each of its points, in a continual tension of organic doubling-back upon itself, and thus of interiorization. (pp. 301–302)

Herbert Feigl’s influential 1958 article, “The ‘mental’ and the ‘physical’” argued for a form of the identity theory (i.e. that the mind is in some sense identical to the brain) that has been interpreted as a kind of panpsychism. In fact, all identity theories tread very close to it. If mental states are identified with physical states of the brain, then we

have two alternatives: (a) there is something ontologically unique about the physical structures of the human brain, such that only they instantiate mind, or (b) mentality must be associated in some sense with all physical structures. To date no one has offered a reasonable argument for (a), and thus (b) carries significant force.

Yet Feigl was noncommittal. On the one hand “the identity theory regards sentience...and other [unexperienced] qualities...as the basic reality.” But he seeks to avoid “the unwarranted panpsychistic generalization.” However, “one is tempted, with the panpsychists, to assume some unknown-by-acquaintance qualities quite cognate with those actually experienced” (pp. 474–475). Elsewhere he is reported to have said, “If you give me a couple of martinis, a good dinner, and a couple of after-dinner drinks, I would admit that I am strongly tempted toward (a rather watered-down, innocuous) panpsychism.” (in Globus et. al. 1976:320). This is an illuminating comment. Feigl seems to know that, intellectually, panpsychism is the superior view, but some inhibition holds him back. One wonders how many others are in such a position today.

Then in the 1970s the discussion accelerated once again. Gregory Bateson’s 1970 article “Form, substance, and difference” introduced his famous but vague definition of ‘information’ as a “difference which makes a difference.” It is also where he first connected the phenomenon of mind with feedback systems and the flow of information:

The elementary cybernetic system with its messages in circuit is, in fact, the simplest unit of mind; ... More complicated systems are perhaps more worthy to be called mental systems, but essentially this is what we are talking about. . . . We get a picture, then, of mind as synonymous with cybernetic system... (1972:459–460)

Cybernetic feedback systems (at least in terms of autonomous control) are ubiquitous in nature. They exist at all levels of organization, from molecular to galactic – anywhere that parts interact to form quasi-stable structures. Therefore such ‘cybernetic mind’ must be present throughout the universe. This in fact was Bateson’s conclusion: “we know that within Mind in the widest sense there will be a hierarchy of subsystems, any one of which we can call an individual mind” (ibid.).

He elaborated:

It means. . .that I now localize something which I am calling “Mind” immanent in the large biological system – the ecosystem. Or, if I draw the system boundaries at a different level, then mind is immanent in the total evolution structure. . . . The individual mind is immanent but not only in the body. It is immanent also in pathways and messages outside the body; and there is a larger Mind of which the individual mind is only a subsystem. This larger Mind. . .is still immanent in the total interconnected social system and planetary ecology. (460–461)

It is not just universal Mind, but mind at all levels of existence – true pluralistic panpsychism.

Gordon Globus followed with a series of articles advocating a kind of functionalist panpsychism. Two early articles (1972, 1973) were refined and elaborated upon in his “Mind, structure, and contradiction” (1976). This “defense of panpsychism” focused

on a form of identity theory that identified mind with ‘structure.’ The brain structures itself according to its perceptions, but likewise all things are to some degree affected and reordered by their perceptions of their surroundings:

[A] brain and a rock are systems differing enormously in “richness” of structure, and the respective “minds” accordingly differ enormously. . . . Although I appreciate that most will consider it ridiculous to attribute awareness to a rock, for my purposes, I choose to emphasize the awareness intrinsic to rock . . .

(1976:290)

Globus employed the venerable Epicurean argument: “At heart, the issue is just that there is no place to unarbitrarily draw a line (or even a range) in a hierarchy of systems increasing in complexity, above which we can say that mind occurs and below which it does not.” The whole notion of mind as emerging only in high-complexity structures is “human chauvinism at its worst.”

In 1979 prominent American philosopher Thomas Nagel published the essay “Panpsychism.” As he said, “panpsychism appears to follow from a few simple premises, each of which is more plausible than its denial” (1979:181): (1) physical reality consists solely of rearrangeable particles of matter; (2) mental states are neither reducible to, nor entailed by, physical states; (3) mental states are real; and (4) there are no truly emergent properties. A sound analytic argument, though traditionalists would challenge premises 2 and 4.

Like Feigl, Nagel equivocates. On the one hand the four premises are compelling. However, after some discussion he concludes: “I. . . believe that panpsychism should be added to the current list of mutually incompatible and hopelessly unacceptable solutions to the mind-body problem” (ibid.:193). And yet at the end he suggests that a form of panpsychism might be viable, one in which the “[material] components out of which a point of view is constructed would not in themselves have to have points of view” (p. 194); in other words, atoms may somehow carry with them “proto-mental properties” which, though not mental, combine to create experience and points of view.

Nagel addressed the topic again in his 2002 book *Concealment and Exposure*. The relevant essay, “The psychophysical nexus,” discusses the thorny issue of how far down, below the level of the brain, one might be able to postulate any mind-matter relationship. He notes that the brain must consist of numerous conscious subsystems that somehow combine to form the complex, unified whole, and that, because of this fact, we are logically compelled to consider pushing mind-matter duality down to the lowest levels of matter:

[T]he active brain is the scene of a system of subpersonal processes that combine to constitute both its total behavioral and its phenomenological character. . . . This differs from traditional functionalism. . . in that the ‘realization’ here envisioned is not to be merely physiological but in some sense mental all the way down. . . (p. 230)

But Nagel declines to elaborate:

I leave aside the question of how far down these states might go. Perhaps they are emergent, relative to the properties of atoms or molecules. If so, this view would imply that what emerges are states that are in themselves necessarily both physical and mental. . . . If, on the other hand, they are not emergent, this view would imply that the fundamental constituents of the world, out of which everything is composed, are neither physical nor mental but something more basic. (p. 231)

It is unclear whether such a view is panpsychist. Nagel suggests that all matter may have “mental potentialities,” which are “completely inert in all but very special circumstances” (p. 234). Whether the concept of ‘universal inert mental potentiality’ qualifies as a form of panpsychism is open to debate.

David Bohm’s *Wholeness and the Implicate Order* (1980) argues that quantum theory fundamentally undermines the assumptions of mechanism. He puts forth a neutral monist theory in which “both inanimate matter and life [are comprehended] on the basis of a single ground, common to both” (1980: 193). As the common ground, the ‘implicate order’ unites life and non-life in a way that implies the attribution of mind to both.

In 1982 Bohm remarked that the implicate order was *self-aware*; thus, “in a way, nature is alive, as Whitehead would say, all the way to the depths. And intelligent.” (1982: 39). A speech in early 1985 contained clear and unambiguous statements. Following (but not acknowledging) Bateson, Bohm noted that mind is to be associated with “information content.” On this view, “the notion of information [is] something that need not belong only to human consciousness, but that may indeed be present, in some sense, even in inanimate systems of atoms and electrons.” (1986: 124–125). His conclusion was a form of pluralistic panpsychism:

I would suggest that both [mind and body] are essentially the same. . . . It is implied that, in some sense, a rudimentary consciousness is present even at the level of particle physics. It would also be reasonable to suppose an indefinitely greater kind of consciousness that is universal and that pervades the entire process [of the universe]. (ibid.: 131)

In the mid-1990s another quantum-theory based approach emerged from the work of Stuart Hameroff and Roger Penrose (Hameroff 1994; Penrose 1994; Hameroff & Penrose 1996). They developed a model of the human mind based on the coordinated collapse of superposed quantum states within neurons. Such repeated and self-organized collapses are seen as ‘moments of experience,’ as in the Whiteheadian model. Hameroff then explored the philosophical implications of such an “orchestrated reduction” theory (see his 1998a, 1998b, 2006), linking quantum self-collapse, wherever it may occur, to a proto-conscious event. He suggested that “perhaps panpsychists are in some way correct and components of mental processes are fundamental, like mass, spin or charge” (1998a: 121). Furthermore, “consciousness may involve a self-organizing quantum state reduction process occurring at the Planck scale [10^{-33} cm].

In a panexperiential Platonic view consistent with modern physics, quantum spin networks encode proto-conscious ‘fundamental’ experience. . .” (1998b).

Two books of note appeared in 1996. First was Chalmer’s *The Conscious Mind*. He laid out a naturalistic dualism theory of mind in which he suggested (with an apparent diffidence) that mind can be associated with ubiquitous information states – following Bateson and Bohm, though without citing their relevant views. Second, Abram’s *Spell of the Sensuous* argued from a phenomenological basis for a return to an animistic worldview as a remedy for the radical separation of humanity from nature, a separation resulting from Cartesian and mechanistic philosophies. More poetic essay than detailed philosophical inquiry, Abram’s objective was simply to provoke “new thinking” among intellectuals, and to suggest a new conceptual approach “to alleviate our current estrangement from the animate earth” (p. x).

A milestone work in process panpsychism came in 1998, with David Ray Griffin’s *Unsnarling the World-Knot*. Griffin gives a full and detailed exposition of the process view of panpsychism, referring to his own view as *panexperientialism*. Along the way he provides a detailed critique of both materialism and dualism, observing that panpsychist approaches have the potential to resolve a number of otherwise intractable problems. This book culminates a series of writings by Griffin advocating his panexperientialism (see e.g. his 1977, 1988, 1997).

Moving into the 21st century we find continued progress and development of panpsychist themes. DeQuincey (2002) gives a concise reading of panpsychism in history, further exploring the process view. Clarke (2003) does likewise, examining additional moral and theological implications. Mathews’ *For Love of Matter* (2005) argues for a wider conception of the self, encompassing most all structures in the universe; she shows that this is not only the most rational course of action, but that it will also lead to a more sympathetic and compassionate worldview.

Most recently, Galen Strawson gave a series of talks arguing against the brute emergence of mind, and in favor of a panpsychist form of physicalism. The outcome was a landmark article, “Realistic monism.” Originally published in the *Journal of Consciousness Studies* (2006), this piece is reprinted in its entirety in the present work, along with some further thoughts on Strawson’s specific theory of mind.

Panpsychism thus enters the new millennium with vigor and renewed promise. It is no longer held hostage to claims that it is “breathtakingly implausible,” or that “there is not the slightest reason” to adopt it (Searle 1997: 48, 50). Having established its lengthy and honorable pedigree, philosophers of mind are now free to reexamine questions of mind and reality in a panpsychist light. And have no doubt: the philosophical impact of such an action will be far-reaching. *There is hardly an area of modern philosophy that would remain untouched by taking panpsychism seriously*. Mind, ontology, ethics, epistemology, perhaps even theology – all would be open to striking and radical revision. And given the deep ruts that modern philosophy finds itself in, such a development may be exactly what we need.

The ancients understood the value of such a worldview. They trusted their intuitions that the cosmos was animate throughout. They even suggested that it was the

very key to future revelations about the natural world. Let me close with the poetic and visionary fragment 110 from Empedocles:

If thou shouldst plant these things in thy firm understanding and contemplate them with good will and unclouded attention, they will stand by thee for ever every one, and thou shalt gain many other things from them; . . . for know that all things have wisdom and a portion of thought.⁷

7. Guthrie (1962–1981), vol. 2, p. 230.