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Historical Background

Synopsis

(1) Process philosophy represents an important sector of philosophical tradition. (2) It has a long and distinguished history, going back to the pre-Socratic philosopher Heraclitus, (3) and its development owes much to Plato and Aristotle. Other important processists include: (4) Leibniz, (5) Hegel, (6) C. S. Peirce, (7) William James, (8) Henri Bergson, (9) John Dewey, (10) A. N. Whitehead (11) and W. H. Sheldon. (12) In recent years, process philosophy has been one of the most prominent and active sectors of American philosophy.

1. Prospect

The philosophy of process is a venture in metaphysics, the general theory of reality. Its concern is with what exists in the world and with the terms of reference by which this reality is to be understood and explained. The guiding idea of this approach is that natural existence consists in and is best understood in terms of *processes* rather than *things*—of modes of change rather than fixed stabilities. For processists, change of every sort—physical, organic, psychological—is the pervasive and predominant feature of the real.

Process philosophy diametrically opposes the view—as old as Parmenides and Zeno and the Atomists of Pre-Socratic Greece—that denies processes or downgrades them in the order of being or of understanding by subordinating them to substantial things. By contrast, process philosophy pivots on the thesis that the processual nature of existence is a funda-

mental fact with which any adequate metaphysic must come to terms. The task of metaphysics is, after all, to provide a cogent and plausible account of the nature of reality at the broadest, most synoptic, and most comprehensive level. It seeks to help us understand the nature of things—to characterize and explain the realities we encounter in the world about us and to render intelligible the world as our experience presents it to us. And it is to this mission of enabling us to characterize, describe, clarify, and explain the most general features of the real that process philosophy addresses itself in its own characteristic way.

In recent years, "process philosophy" has virtually become a code word for the doctrines of Alfred North Whitehead and his followers. But, of course, this cannot really be what process philosophy actually is. If there indeed is a "philosophy" of process, it must pivot not on a thinker but on a theory. What is at issue must, in the end, be a philosophical position that has a larger life of its own, apart from any particular exposition or expositor.[1]

What is characteristically definitive of *process* philosophizing as a distinctive sector of philosophical tradition is not simply the commonplace recognition of natural process as the active initiator of what exists in nature but an insistence on seeing process as constituting an essential aspect of everything that exists—a commitment to the fundamentally processual nature of the real. For the process philosopher is, effectively by definition, one who holds that what exists in nature is not just originated and sustained by processes but is in fact ongoingly and inexorably *characterized* by them. On such a view, process is both pervasive in nature and fundamental for its understanding.

To be sure, process philosophy as such is something rather schematic. There are distinct approaches to implementing its pivotal idea of the pervasiveness and fundamentality of process, ranging from a materialism of physical processes (as with Boscovitch) to a speculative idealism of psychic processes (as in some versions of Indian philosophy). The ways of being a process philosopher vary drastically according to the nature of one's ideas regarding what process

is all about. We are dealing with a doctrinal tendency and not a particular position.

In historical perspective, process philosophy has run a somewhat meandering course that traces back more to the origins of philosophy in the days of pre-Socratic philosophy. The following discussion presents a rapid Cook's Tour of the highlights of this historical development.

2. HERACLITUS (6TH CENTURY B.C.)

Like so much else in the field, process philosophy began with the ancient Greeks. The Greek theoretician Heraclitus of Ephesus (b. ca. 540 B.C.)—known even in antiquity as "the obscure"—is universally recognized as the founder of the process approach. His book *On Nature* depicted the world as a manifold of opposed forces joined in mutual rivalry, inter-locked in constant strife and conflict. Fire is the most change-able and ephemeral of these elemental forces, is bottom of all: "This world-order . . . is . . . an everliving fire, kindling in mea-sures and going out in measures."[2] The fundamental "stuff" of the world is not a material substance of some sort but a natural process, namely, "fire," and all things are products of its workings (*puros tropai*). The variation of different states and conditions of fire—that most process manifesting of the four traditional Greek elements—engenders all natural change, for fire is the destroyer and transformer of things, and "All things happen by strife and necessity" (frag. 211). And this change-ability so pervades the world that "one cannot step twice into the same river" (frag. 215).

Heraclitus may accordingly be seen as the founding father of process philosophy (at any rate in the intellectual tra-dition of the West). And the static system of Parmenides affords its sharpest contrast amid the most radical opposition. However, the paradigm substance philosophy of classical antiquity was the atomism of Leucippus and Democritus and Epicurus which pictured all of nature as composed of unchanging and inert material atoms whose only commerce with process was an alteration of their positioning in space

and time. Here the *properties* of substances are never touched by change, which effects only their *relations*.

For Heraclitus, reality is at bottom not a constellation of *things* at all but one of *processes*. As Heraclitus saw it, we must avoid at all costs the fallacy of substantializing nature into perduring things (substances) because they are not stable things but fundamental forces and the varied and fluctuating activities which they produce that make up this world of ours. Process is fundamental: The river is not an *object* but an ever-changing flow; the sun is not a *thing*, but a flaming fire. Everything in nature is a matter of process, of activity, of change. Heraclitus taught that *panta rhei* ("everything flows"), and this principle exerted a profound influence on classical antiquity. Even Plato, who did not much like the principle ("like leaky pots" he added at *Cratylus* 440 C), came to locate his exception to it—the enduring and changeless "ideas"—in a realm wholly removed from the domain of material reality.

3. PLATO AND ARISTOTLE

His endorsement of many Heraclitean teachings makes Plato into a process philosopher of sorts.[3] In various dialogues (especially the *Theaetetus* and the *Timaeus*), he adopted the idea that the perceptible world is thoroughly Heraclitean and processual, unable to provide the stable, orderly foothold required for rational apprehension, description, and explanation. If we are to achieve theoretically adequate knowledge at all, then there must be nonperceptible, unchanging, matter-detached forms ("ideas") for us to get a rational grip on. Accordingly, Plato reasoned as follows:

- The sensory world of our ordinary life experience is through-and-through processual.[4]
- Reason demands stability: Whatever it grasps must be constant, unchanging, timelessly true.

Therefore, if reason is to accomplish its work, there must be another realm, separate from the world of sense, an ideal realm where the demands of reason can be accommodated.

   Although Aristotle placed substance at the center of his metaphysics, he, too, had vestigial processist commitments. In a way, he, too, inherited Heraclitean doctrines, seeing that the Aristotelian cosmos manifested stability only at its outer limits with the fixed stars and that all else is pervaded by change. For Aristotle, however, this change itself conforms to inherently natural—and specifically *biological*—patterns, so that the Plato's transcendent "forms" are no longer required.

   While Aristotle's metaphysics of substances and natural kinds was an emphatic substantialism, Aristotle's metaphysics nevertheless also deployed a considerable array of processist elements. For, so Aristotle insisted, the "being" of a natural substance is always in transition, involved in the dynamism of change. *Dunamis* (potency), *energeia* (activity), *kinesis* (motion), and *metabolē* (change) are fundamental categories of Aristotelian metaphysics, and he conceives of his particulars developmentally—an acorn is less a stable thing than a stage of an evolving organism moving continually if all goes well, along its predestined journey toward its eventual condition as an oak tree. The programmed directedness of Aristotelian processual particulars that enmesh them in a developmental tendency toward a *telos* (end-state)—and even beyond to decay and death—is a characteristic feature of Aristotelian metaphysics. The natural world, as Aristotle sees it, exhibits a collective dynamism that effects the transit from mere possibilities for a sector of nature to the realization of its full potential, its perfection (*entelecheia*). The Aristotelian view of things is pervasively processual.

   Aristotle's position was accordingly something of a halfway house, seeing that his ontology was less one of substances pure and simple than one of substances-in-process. Against Zeno and the Parmenidean tradition (so prominent in Plato), which maintained the ultimate irreality of change, Aristotle upheld the significance of process. The doctrine of causes, the role of activity and passivity among the categories, and the emphasis on change in the theory of physics—all mark Aristotle as one of the key figures in the history of process philosophizing. And, indeed, many of the most pivotal and useful concepts of process thought were introduced into

the orbit of philosophical discussion by Aristotle. In fact, the conception of process plays so significant a role in his philosophy that Aristotle, too, deserves a place in this tradition.[5]

With process philosophy, then, as with so much else in the domain of philosophy, the speculations of the thinkers of ancient Greece prepared the way.

4. GOTTFRIED WILHELM LEIBNIZ (1646–1717)

The principal standard bearer of process theory in modern philosophy was Leibniz, who maintained that all of the "things" that figure in our experience, organisms alone excepted, are mere phenomena and not really unified substances at all. The world, in fact, consists of clusters of minute, virtually punctiform processes he called *monads* (units), which are "centers of force"—in fact, bundles of activity. These monads aggregate together to make up and constitute the world's things as we experience them. But each individual monad is a unit unto itself—an integrated whole of programmed change that denominates it as a single, unified, long-term process.

Although Leibniz is often miscast as a "pluralist"—the exponent of an ontology of many substances—the fact remains that he contemplated only one *type* of "substance" in nature, the *monads*, which actually are nothing but pure processes. Each of these monads is endowed with an inner drive, an "appetition " which ongoingly destabilizes it and provides for a processual course of never-ending change. The whole world is one vast systemic complex of such active processual units. They are programmed agents—"incorporeal automata"— developing in coordinated unison as individual centers of activity operating at different levels of sophistication within an all-comprising unified cosmic whole. Even as a differential equation generates a curve that flows over a mathematical surface, so the internally programmed dynamism of a monad leads it to unfold naturally over the course of time, tracing out its life history from beginning to end. Leibniz accordingly viewed the world as is an infinite collection of agents (monads) linked to one another in an all-pervasive harmony, with each agent, like a member of an orchestra, playing its part in

engendering nature's performance as a whole. On this basis, Leibniz developed a complex theory of nature as an integrated assemblage of harmoniously coordinated eventuations so that processes, rather than substantial objects, furnish the basic materials of his ontology.[6]

5. GEORG WILHELM FRIEDRICH HEGEL (1770–1831)

Hegel is prominent among process thinkers because historical development—be it of nature or of thought—lies at the very center of his philosophizing. For Hegel, whatever exists in the world of reality or of ideas is never a stable object but a processual item that is in transit and cannot be properly understood through its stable properties or as a successism of stable states, a matter of now this, now that. It is a process, an item constantly reshaped in an ongoing development proceeding through the operation of a dialectic that continually blends conflicting opposites into a unitary but inherently unstable fusion. Historical change is omnipresent. For Hegel, the real in all its dimensions can be understood and accounted for only in processual terms.[7]

The idea of Concept (*Begriff*) is central in Hegel's thought, but Hegel's concepts or universals are no mere abstractions existing in a static Platonic world-disoriented realm of immaterial pure forms. They are inherently active, and strive for a concrete realization in singularity (*Einzelheit*) so as to exist as particulars in and for thought. They must thus achieve embodiment in the natural world, a standpoint reflected in the notorious theory of self-externalization (*Entäusserung*) of the Absolute Idea of world-history writ large through a dynamic of dialectical development that is the principal conception of Hegel's *Logic*. For Plato, the material realm somehow participates in those static Ideas about which we can learn by an epistemic dialectic; for Hegel, the material world is itself somehow the product of an ontological dialectic driven by an inner dynamic of ideas. What is now pivotal is not idealized order but process, or, rather, that (somewhat mysterious) manifold of processes through which idealized order achieves concretization in nature.

6. Charles Sanders Peirce (1839–1914)

Much of traditional philosophy since the ancient Stoics has emphasized the stabilities and fixities characteristic of the world's structure of lawful order. Like Hegel, Peirce rejected this view root and branch. For him, the universe—its lawful order included—is in a state of constant change and development. Not a stability of kinds but a through-and-through process of cosmic evolution characterizes the reality we confront throughout our efforts to understand the world.

The leading metaphysical ideas of Peirce's philosophy of nature (chance [tychism], spontaneity, synechism) are all fundamentally processual, and the whole of his metaphysical position is dynamical and geared to development, evolution, and teleology.[8] The root conception of Peirce's pragmatism—that of a cognitive resource's "proving its utility" in practice—endows his theory of truth and reality with the processual/dynamical aspect that is characteristic of process thought. Even universals are, for Peirce, to be construed in dynamical terms.[9] Like many thinkers of his era, Peirce was deeply impressed by the development of evolutionary theory and saw this selective dynamism at work everywhere—not only in the biological realm but also in the physical cosmos, in its lawful order, and in the development of our knowledge of it. For Peirce, the key to understanding anything that is central in philosophy—nature, value, truth—is provided by the idea of development under the aegis of evolutionary processes.[10]

7. William James (1842–1910)

Peirce's congeners in the tradition of American pragmatism continued his juxtaposition of pragmatism and processism. Both William James and John Dewey, for example, developed versions of pragmatism in which the basic ideas of philosophy of process were in one way or another prominent.

For William James, time and the processes that unfold under its aegis are the central issues of metaphysical concern. The human psyche is an organized complex of process, and our affective and cognitive human experience typifies the

processual nature of things. Reality, as we humans do and must come to experiential terms with it, is nothing but a structured manifold of processes.[11] James saw the world as a sea of flux comprising a manifold of changes that are not a clear-cut replacement of one hard-edged state by another but a melting and fusing of boundaryless processes that lead into one another. The blooming buzzing confusion of physical process and the ordinary stream of consciousness that provides for structural awareness provide, as James sees it, the key to philosophical understanding of the world's course of things.

James emphasized the ontological centrality of process in terms of "the causal dynamic relatedness of activity and history."[12] He saw nature as engaged in constant—and constantly ineffectual—striving to bring order into chaos and to enforce coherent unity upon an recalcitrant and, indeed, ineliminable diversity and plurality. Such a manifold of activity is a law unto itself—even the classic logical laws of excluded middle and noncontradiction do not bind it, seeing that concrete activity everywhere manifests the potential for breaking out into the most contradictory characterizations.[13] In expressing his agreement with Peirce, James remarked that to "an observer standing outside of its generating causes, novelty can appear only as so much 'chance', while to one who stands inside it is the expression of 'free creative activity'. . . . The common objection to admitting novelties is that by jumping abruptly, *ex nihilo*, they shatter the world's rational continuity."[14] But, he continues, novelty "doesn't arrive by jumps and jolts, it leaks in insensibly, for adjacents in experience are always interfused, the smallest real datum being both a coming and a going."[15] The expression "block universe" served James as a term of derogation, because he scorned and abhorred the idea of a closed world that has no place for novelty and adventure.

Like his spiritual kinsman, Henri Bergson, James believed that arguments along the lines of Zeno's classical paradoxes demonstrated the incapacity of stable concepts to characterize the fluidities of an ever-changing reality. But whereas Bergson looked for escape from conceptual rigidities

to the biological sphere, James saw them in the psychological sphere. For him, it is the nature of human experience which, above all, prevents the imposition of conceptual fixities from giving an adequate account of reality. Accordingly, James strongly emphasized the processual nature of experience:

> Now the immensely greater part of all our knowing . . . never is completed or nailed down . . . [but] each experience runs by cognitive transition into the next one. . . . We live, as it were, upon the front edge of an advancing wave-crest, and our sense of a determinate direction in falling forward is all we cover of the future of our path.[16]

James's worldview of flux, spontaneity, and creative novelty projects a philosophy of substantiality without substance. For James, the ongoing innovations launched by intelligent life characterize the tendency of an ongoingly processual reality to break the rules that have grown too restrictively narrow in an endeavor to forge a new and more effective adjustment to an ever-changing scheme of things. Intelligent action is self-development. "The problem for the [intelligent] man is less what he shall now choose to do than what being he shall now resolve to become."[17] James emphasized that one characteristic mode in which we humans participate in nature's processes is through *choice*, and in choosing—in free action—we both make ourselves and change the world into something that would otherwise be different. Even truth and knowledge come within the realm of the Jamesean dynamism: They are not things we *find* but things we *make*.[18]

8. HENRI BERGSON (1859–1941)

Henri Bergson also regarded process and temporality as pivotal features of the word and, in particular, as central to our human scheme of things where life and consciousness manifest change everywhere. For him, time both affords the matrix for experience and provides the stage setting for reality in nature. But while time is fundamental, it is also elusive, seeing that we experience events in time but not the passage

of time as such. We see material things but miss the energy that creates them and makes them go. And human conceptual thought is not adequate for the apprehension of time: All of our "exact" science is merely an approximation that apprehends the statics of reality better than its dynamics, proceeding through time—disjointed mathematical formalisms that are, in themselves, lifeless. Conceptualizing thought is inadequate to the vibrancy of human experience. Reality consists of process but thought deals in stable "things." And herein lies the problem. For

> through all our natural [cognitive] abilities of perceiving and conceiving . . . we believe that immobility is as real as movement . . . [but] we can find a solution to philosophical problems only if we succeed, by a reversal of our mental habits, to see in mobility the only reality that is actual. Immobility is but a picture (in the photographic sense of the word) taken of reality by our mind. (*La Pensée et le mouvant*, in *Oeuvres*, vol. III [Paris: Presses Universitaires de France, 1970], p. 560)

The direct intuition of living experience is more faithful to reality than conceptualizing (and thereby stabilizing) thought. Bergson contrasted psychological *duration* with physical *time*. Physical time is a mathematicized spatial concept based on the timeline analogy, while psychological duration is a creature of *experience* that functions in our thought-life where we encounter "succession without distinction . . . an interconnection and organization of elements, each one of which represents the whole, and cannot be distinguished or isolated from it except by [the distorting transformation of] abstract thought."[19] But the creative process typical of duration pervades nature and establishes the central role of change on the stage of natural existence. Everything in the world is caught up in a change of some sort, so that it is accurate rather than paradoxical to say that what is changing is change itself.

Nature is pervaded by a *nisus* or striving to bring to realization something more, something over and above the existing frame of things—and then is manifest with special force

and vivacity in the organic realm where the creature forces of evolutionary development are pervasively at work. No two distinct stages of a thing and no two distinct experiences of it are ever exactly the same. Change, innovation, creativity are nature's essence and organic *life* in their most powerful expression. Evolution and *élan vital*—organic life's driving force of creative vitality—are everywhere at work. And this creativity and innovation are no mystery to us: We experience them in our own activities—above all, in our own acts of free will.[20]

Bergson substantially accepted Plato's approach to process. Both address the following aporetic cluster of individually plausible but collectively inconsistent contentions:

1. Only flux is experientially real; physical reality as we experience it is always unstable.
2. Adequate conceptual characterization of physical reality as we experience it is possible.
3. Concepts are always something fixed and stable.
4. Stable concepts cannot adequately characterize an unstable object.

Plato and Bergson alike resolve the inconsistency that arises here by rejecting 2 and denying that our concepts can capture physical reality. But they interpret the significance of this consideration differently. Plato effectively says, "So much the worse for experienced physical reality. Since *real* reality must be intelligible, this relegates the experienced physical realm to the status of a mere illusion." Bergson, by contrast, effectively says, "So much the worse for mere conceptual intelligibility. It reveals its own inadequacies by being unable to come to grips with experienced physical reality." For Bergson, the world transcends the limits of reason, seeing that a reality that has process, flux, and change as fundamental features cannot be adequately encompassed by any fixed set of descriptive categories.[21]

9. JOHN DEWEY (1859–1952)

The combination of pragmatism with processism at work in C. S. Peirce and William James is also found in the thought

of John Dewey. It is particularly prominent in his 1920s lectures on James and Bergson. Like these thinkers, Dewey emphasized that experience is self-creation, citing with favor Bergson's example of "an artist standing before a blank canvas [who] puts up his brush, [and] no one—not even he himself—can know ahead of time what the result will be."[22] Dewey accordingly envisioned "an intrinsic connection of time with individuality" because "[individual] development cannot occur when an individual has power and capacities that are not actualized at a given time," although the potentialities at work are not Aristotelian ("connected to fixed, predestined ends") but rather open ended and novelty admitting:

> The career which is his unique individuality is the series of interactions in which he was created to be what he was by the ways in which he responded to the occasions with which he was presented. One cannot leave out either conditions *as opportunities* nor yet unique ways of responding to them. An occasion is an opportunity only when it is an evocation of a specific event, while a response is not a necessary effect of a cause but is a way of using an occasion to render it a constituent of an ongoing unique history. Individuality conceived as a temporal development involves uncertainty, indeterminacy, or contingency. Individuality is the source of whatever is unpredictable in the world.[23]

Like many processists, Dewey interpreted individuality and novelty in a way that takes human development to be the characteristic mode of innovative process.

As Dewey saw it, time and change constitute a mystery—the mystery of why and how "the world is as it is" that encompasses "the sense of development both creative and degenerative."[24] This mystery lies at the heart of the human situation in all its dimensions, social and intellectual alike: "The ground of democratic ideas and practices is found in the potentialities of individuals, in the capacity for positive developments if properly developed. . . . The free individuality which is the source of art is also the final source of creative development in time."[25]

With Dewey, as with James, there is a close relationship between processism and pragmatism. It was precisely because he saw human existence in terms of an emplacement within an environment of unstable flux that Dewey dismissed the prospect of governing life by rules and fixities, and saw the need of a flexible approach geared pragmatically to the changing demands of changing situations.[26]

10. ALFRED NORTH WHITEHEAD (1861–1947)

As indicated above, Whitehead has been the dominant figure in recent process philosophy.[27] Whitehead fixed on "process" as a central category of his philosophy because he, too—like James and Bergson before him—regarded time, change, and creativity as representing salient metaphysical factors. The building blocks of reality as envisioned in Whitehead's classic *Process and Reality* are not substances at all but "actual occasions"—processual units rather than "things" of some sort—with human experience affording their best analogon. Even as in conscious experience humans *apprehend* what goes on about them, so these actual activities "prehend" what goes on in their environment in a way that encompasses a low-grade mode of emotion, consciousness, and purpose. Thus Whitehead's "actual occasions" are, as it were, living units of elemental experience.

Whitehead saw two principal sorts of creative process at work in nature: those that are operative in shaping the internal make-up of a new concrete particular existent ("concretion") and those that are operative other-orientedly when existents function so as to bring new successors to realization ("transition"). But the "existents" at issue are not, of course, *substances* in the sense of old-line metaphysics but rather processual particulars ("actual occasions") of the aforementioned sort.

To be sure, Whitehead was first and foremost a geometer and, like Einstein, focused attention no less on space than on time. Still, invoking the name of Bergson, Whitehead adopted "Nature is a process" as a leading principle, and counted temporality, historicity, change, passage, and novelty among the

most fundamental facts to be reckoned within our under-
standing of the world.[28] A unit of reality is "the ultimate crea-
ture derivative from the creative process," he remarked.[29] This
view was underpinned by Whitehead's profound appreciation
of Leibnizian *appetition*—the striving through which all things
endeavor to bring new features to realization.[30] Like Leibniz,
Whitehead did not see time as something independent of its
existential content. For him, temporality and its changes are
basic—a "perpetual perishing" matched by a perpetual emer-
gence in the "concrescence" of new reals. And in back of this
lay the Heraclitean doctrine that "all things flow" and the
rejection of a Parmenidean/Atomistic view that nature con-
sists in the changeable interrelations among stable, unchang-
ing units of existence.[31]

In Whitehead, as in Leibniz, microcosm and macrocosm
are coordinated, linked to one another in a seamless web of
process. Whiteheadian entities, like Leibnizian monads, are
infinitely complex and, in a way, boundless. Each represents
a perspective on the world that reaches out to touch and, as it
were, encompass the rest. In Whitehead, as in Leibniz, there
is a dialectical tension between individual and world. Each
item of existence in nature touches the others and without
them would not be what it is. With Leibniz, Whitehead envi-
sions a "philosophy of organism" in that everything that exists
not only forms part of the organic organization of nature-as-a-
whole but also will itself constitute an organism of sorts—an
integrated whole with an organic constitution of its own. But it
is the pervasiveness of the growth/decay cycle operative
throughout nature that marks this metaphysic of organism as
being a metaphysic of process as well. The conception of an
experientially integrated whole—a unit that is an organically
systemic whole—represents a line of thought that links White-
head closely to Leibniz and Bergson.

Whitehead's metaphysical categories—experience, feeling,
prehension, power and potentiality, organic activity, and
development—all represent pivotal features of a philosophy of
process. For him, novelty and innovation is ever the order of
the day; as he saw it, the natural world is a sea of process. He
emphatically rejected the idea of clear separations in nature:

There simply are no hard-edged objects with sharp-bound-aried locations in space. He insisted that the traditional idea of "simple location" must be rejected; what we have in nature is a manifold of diffused processes spread out in a fieldlike manner over regions of space. (Clark Maxwell and the field approach in physics exerted a great influence on Whitehead and provided him with one of the principal paradigms of his thought.)

Moreover, with Whitehead, as with many of his contemporaries, the idea of evolution played a key role. He saw the evolution of living organisms on earth as a particular manifestation of the most fundamental creative process of the universe in general. It is not directed by laws beyond itself but generated from large populations of entities all at once seeking their own fulfillment and contributing, over countless generations, to the great cycle of generational succession that makes for the advance of the whole. Evolution is of course not a thing, of some kind, but the name we give a process consisting in the ongoing succession of dynamic elements, each maturing its transitory contribution to the unfolding of existence. And time, like evolution, is also not a thing but the name we give to overall series of risings and perishings of concrete moments of satisfaction and sacrifice. Time is therefore fundamentally the byproduct of "enjoyment" (as Whitehead called it, stretching the term to its limits).

Strongly opposed to sharp divisions and dichotomies of all kinds, Whitehead condemned "the bifurcation of nature." For him, the world is an organic whole that exhibits a unified fabric in which all threads are linked together. Whitehead takes a prismatic view of reality: All existence is multiply many-faceted, and existence at all levels, from subatomic to cosmic, exhibits physical, organic, intellectual (infraction-processing), and axio-logical (normative/evaluative) characteristics.

In theory, one can have a process philosophy that is oriented phenomenologically (in seeing process as fundamental in human experience and in the order of cognition), or biologically (in seeing process as fundamental in life and in the order of organic existence), or physicalistically (in seeing process as fundamental in nature and in the order of physical existence).

But in Whitehead, the most thoroughgoing processist of recent times, all three of these approaches are unhesitatingly fused into a seamless whole.[32] He saw the real as prismatic, as contriving all those different facets conjointly. The amplitude of Whitehead's thought is demonstrated by the extent to which its speculative dimension can be linked to current trends in continental philosophy and conjointly the extent to which its processual doctrines can be linked to the concerns of analytic philosophy.[33]

Whitehead's influence on the development and diffusion of process philosophy was immense—indeed, decisive. His challenging writings, his many years of teaching at Harvard, and the force of his example as a scientifically literate philosopher combined to make for a widely sympathetic reception of his ideas. One recent historian rightly says that "it was not strange that for many professional philosophers he became not merely a major thinker with whom dialogue was possible but even something of a cult figure."[34]

11. Wilmon H. Sheldon (1875–1981)

W. H. Sheldon, who studied at Harvard and taught for many years at Yale, stands prominently among the earlier American process philosophers whose work proceeded in substantial independence from Whitehead.[35] He, too, opposed—quite independently—what Whitehead called the "bifurcation of nature" and rejected the various dualisms that had figured so prominently in the history of philosophy. The real, according to Sheldon, exhibits in all of its aspects an active, ever-fluctuating intermediation between various polar opposites (being/nonbeing, stability/change, activity/passivity, etc.). As he saw it, such ambivalent fluctuation operates throughout nature, forever averting the stable fixity of an unyielding extreme. No destructive conflict, but a productive advance, is marked in such tensions. For process, in its role as an active motor of change from A to B, thereby also links and unites A and B into a connected and integrated whole. "The role of the principle of process is to remove the clash and conflict between [such] polar opposites. . . . Process comes in to help

out polarity, and in doing so helps itself also."[36] Sheldon encapsulates this idea in a principle of "productive duality," which holds that reality—like Zeno's flying arrow—encompasses and unites through a "sameness in difference" *both* the fixity of a definite position *and* the transiency of a continual change.[37]

In particular, Sheldon saw the conflict of philosophical systems—materialism vs. idealism, intellectualism vs. voluntarism, determinism vs. indeterminism, and so on—as products of failure to realize the existence of productive polar tensions through the distorting overemphasis on one of two interconnected polar opposites. For him, the situation of electromagnetism is paradigmatic: The real phenomena we confront are one and all products of a creative opposition of polar opposites.[38] These opposites do not cancel each other out but create a tension or destabilization that gives rise to process of development. The result of opposition is thus not neutralization but a tension that engenders processual change.

Unlike Bergson or James, Sheldon saw Zeno's puzzles not so much as paradoxes but as signposts toward the solution of a productive duality in indicating how reality transcends the limits of a static analysis. Through its unstable, productive, and creative nature, reality resists the fixity with which we humans endow it through a language-inherent overemphasis on some aspect. The processual nature of the real enables it to transcend the spurious conflicts and incompatibilities engendered by a human myopia that inheres in our reliance for fixed and stable conceptual classifiers. In a manner reminiscent of the Egg of Columbus, Sheldon dismisses the logicians' quibbles with the splendid dictum "Reality solves its own problems in the very act of existing."[39]

12. Retrospect

The teachings of these various exponents of process philosophy illustrate the fertile variety of ideas and doctrines that this approach has manifested over the years. However greatly these positions differ in other regards (and they do so enormously), they all agree in seeing time, process, change, and

historicity as among the fundamental categories for under-standing the real. They put into focus the point, duly empha-sized by Whitehead himself, that process philosophy does not represent the position of any particular thinker but reflects a major tendency or line of thought that traces back through the history of philosophy to the days of the Pre-Socratics. Nor did this philosophical approach come to an end with the work of this eminent exponent; it was continued not only by his school (including Charles Hartshorne and Paul Weiss, among others) but also by other philosophers of different allegiance.[40]

After all, no philosophical position as such is *defined* by its historical exponents; it is at most *exemplified* by them. And, in fact, the process-oriented approach in metaphysics is historically too pervasive and systematically too significant to be restricted in its bearing to one particular philosopher and his adherents. Indeed, one important task for the partisans of process at this particular juncture of philosophical history is to prevent the idea of "process philosophy" from being margin-alized through a limitation of its bearing to the work and influ-ence of any one single individual or narrowly defined school, however prominent. Indeed, the historical process of process philosophy's own development instantiates and vividly illus-trates process philosophy's message that we live in a world where nothing stands still and that change is of the very essence of reality.

The process approach has been a particularly important development in and for American philosophy—especially owing to its increasingly close linkage to pragmatism in such thinkers as Peirce, James, and Dewey. In recent decades, the great majority of its principal exponents have done their philo-sophical work in the United States, and it is here that interest in this approach to philosophy has been the most intense and extensive, constituting a considerable subsector within American philosophy at large. To be sure, philosophy in North America is too complex and diversified an enterprise to be captured or even dominated by any one school of thought; it is a highly diversified manifold that encompasses tendencies of thought representing a wide variety of sources. There is no question, however, that process thought constitutes one

(albeit only one) very prominent sector of the active philosophical scene in the United States at the present time. Apart from the proliferation of books and articles on the topic,[41] other indicators of this phenomenon include the formation of the Society for Process Studies, as well as the prominence of process philosophizing under the aegis of the Society for American Philosophy and the American Metaphysical Society. Another clear token is the journal *Process Studies*, published by the Center for Process Studies in Claremont, California, and founded in 1971 by Lewis S. Ford and John B. Cobb, Jr., a publication that has in recent years become a major vehicle for article-length discussions in the field. Representatives of process philosophy occupy influential posts in departments of philosophy and religious studies in many of America's universities and colleges, and some half-dozen doctoral dissertations are produced annually in this field. American philosophy is at this historic juncture an agglomeration of different industries, and process philosophy is prominent among them.

Regrettably, authors of histories and surveys not infrequently fail to give process philosophy the recognition that is its due. For example, the otherwise excellent survey of American philosophy by the able French scholar Gerard Deledalle omits all mention of process philosophy as such and takes only perfunctory notice of Whitehead in an appendix.[42] To take the line is not, perhaps, to give us *Hamlet* without the ghost, but is at least tantamount to omitting Horatio.

From the days of the Pyrrhonian sceptics of antiquity we are told again and again throughout the history of philosophy that speculative systematization is inappropriate—that such knowledge as we humans can actually obtain is confined to the realm of everyday life and/or its precisification through science. Repeated in every era, this stricture is also rejected by many within each. The impetus for big-picture understanding, for a coherent and panoramic view of things that puts the variegated bits and pieces together, represents an irrepressible demand of the human intellect as a possession of "the rational animal." And process metaphysics affords one of the most promising and serious options for accommodating this demand.