On In/Finite Becoming:
Philosophic Considerations on Whitehead's Many Multiple Worlds

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It is a well known fact that Alfred N. Whitehead, in his last years in Harvard, developed a "philosophic cosmology,"[1] published as a series of books and articles of which *Process and Reality: An Essay in Cosmology* (1929) is held to be the most serious attempt to formulate a "theory of everything."[2] It is also known of this philosophic cosmology that it committed itself to the profound opinion that the universe should be conceptualized as a series of "cosmic epochs" or *cosmoi*.[3] This "meta-physics" (not far from its initiator Aristotle) is, indeed, concerned with "everything," not regarding the universe's "being" as such or a highest (possible) instantiation (e.g. God), but regarding the most basic characteristics of its in/finite *becoming*.[4] I want to investigate how this line of thought led Whitehead to imply (the possibility of) *many* multiple worlds.[5] Whether this might be of any scientific interest regarding current considerations of multiple worlds, or a "multiverse," is, of course, beyond the scope of philosophy. However, it is my aim to map out how Whitehead's *cosmoi* might remain at least of *philosophic* interest.[6]

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[1] MT 165.

[2] Cf. Whitehead's definition of philosophy os metaphysics as integrating all (possible and real) experiences in on "theory of everything—PR 3. Whithead's works are cited as AI—*Adventures of Ideas* (New York: Free Press, 1967); CN—*Concept of Nature*, repr. 1964 (Cambridge: Cambridge UP, 1993); FR—*Function of Reason* (Boston: Beacon Press, 1958); MC—*Mathematical Concepts of the Material World*, in F.S.C. Northrop and M. Gross, eds., *Alfred N. Whitehead: An Anthology* (Cambridge: Macmillan, 1953), 11-82; Imm.—"Immortality," in *Essays in Science and Philosophy* (New York: Greenwood Press, 1968), 77-96; MT—*Modes of Thought* (New York: Free Press, 1966); MG—"Mathematics and the Good," in *Essays in Science and Philosophy* (New York: Greenwood Press, 1968), 97-113; PNK—*An Enquiry Concerning the Principles of Natural Knowledge*, repr. 2nd ed. 1925 (New York: Dover, 1982); PR—*Process and Reality: An Essay in Cosmology*, corr. ed., ed. by D. R. Griffin and D. W. Sherburne (New York: Free Press, 1978); R—*The Principle of Relativity with Applications to Physical Science* (Cambridge UP, 1922); RM—*Religion in the Making*, new ed. (New York: Fordham UP, 1996); SMW—*Science and the Modern World* (New York: Free Press, 1967).

[3] Cf. PR 91.

[4] Cf. the whole construction of "Categories" in PR 20-28, which group around this problem of how we can rationally understand a world as permanently becoming without explaining it away.

[5] Cf. PR 17: "By providing the generic notions philosophy should make it easier to conceive the infinite variety of specific instances which rest unrealized in the womb of nature." Whitehead understands philosophy as an infinitely open-ended adventure not only (or primarily) we are unable to grasp everything at all, but because the world is inexhaustible.

[6] For the transformative activities, from emergence to experiential naturalism, from resonance to research projects, etc., mediating between physics and philosophy (meta-physics) in the Whitehead tradition in which I am not engaging here because they have been laid out sufficiently elsewhere cf. T. Eastman and H. Keeton, eds., *Physics and Whitehead: Quantum, Process, and Experience* (Albany: SUNY, 2004); Ph. Clayton and A. Peacocke, eds., *In Whom We Life and Move and Have Our Being: Panentheistic Reflections o God's Presence in a Scientific World* (Grand Rapids: Eerdmans, 2004), and D. R. Griffin, *Reenchantment Without Supernaturalism: A Process Philosophy of Religion*. Cornell Studies in the Philosophy of Religion (Cornell UP, 2000).

Part I: Whitehead's Philosophic Cosmology

1. Physics, Pan-Physics, and Meta-Physics

Although Whitehead never understood philosophy to be isolated from anything, so that it is always already constituted by its drawing upon, and exploring of, both science and religion, its *impulse* is not reducible to either of them; rather it remains uniquely philosophic.[7] From his early works on space, geometry, extension, algebra, logic, and scientific epistemology, Whitehead was well aware of the uniqueness of the philosophic question.[8] But although Whitehead's thought in the early 1920s—his *Enquiry Concerning Principles of Natural Knowledge*, the *Concept of Nature*, and *The Principle of Relativity*—was concerned with the "bifurcation of nature" in natural objects and mental events, he believed that "[n]one of the perplexities as to Nature will be solved by having recourse to the consideration that there is a mind knowing them."[9] To understand "the passage of nature," he sought a "*pan*-physics"[10] in which "all sciences [become] … one science"[11] rather than a genuine philosophy of the universe. Nevertheless, from this time on he articulated the desire to "embody the standpoint of these volumes into a more complex metaphysics."[12]

In a series of books from the mid 1920s on—*Science and the Modern World* (1925), *Religion in the Making* (1926), *Function of Reason* (1928), *Process and Reality* (1929), and *Adventures of Ideas* (1933)—Whitehead, now professor of philosophy at Harvard, addressed the "metaphysical question." Thereby, he aimed beyond the *methodological* reduction of Relativity and early Quantum physics to attack the "scientific materialism" that had taken over our perception and conception of reality *as such*, in the aftermath of the Cartesian universe that was divided into *res extansa* and *res cogitans*.[13] While it became a second (philosophic) skin,

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[7] Cf. PR 15.

[8] In *Mathematical Concepts of the Material World*, formulated in the same year as Einstein's Relativity Theory, 1905, Whitehead presented philosophic arguments in mathematical form regarding the physical world for its "ultimate" entities not being "points" but "strings," uniting matter and space; cf. MC 32: "linear objective reals." V. Lowe, "The Development of Whitehead's Philosophy, " in P. A. Schilpp, *The Philosophy of Alfred North Whitehead* (La Salle, 1991) 34 reminds us that Whitehead „considers [MC] one of the best pieces he had done".

[9] PNK vii.

[10] R 4.

[11] CN 2.

[12] PNK, foreword, 2nd edition.

[13] For the reconstruction of this move from physics to philosophy in the historical context of the development of both in European history cf. R. Sayer, *Wert und Wirklichkeit*. Spektrum Philosophie XIV (Würzburg: Ergon, 1999), 20-61.

Whitehead sought to deconstruct its abstractness, which was taken as the *essence* of reality and, hence, as the "ontological and epistemological basis" of physics.[14]

In developing the consequences of what he called "the fallacy of misplaced concreteness"[15] he now addressed the *deep question* regarding "nature as system"[16] that would also prove more adequate to the revolutionary developments in physics and biology.[17] In this shift from pan-physics to meta-physics the "profound and vexed question as to what we mean with 'reality'"[18] became the *philosophic* basis for his construction of a *philosophic* cosmology. Three elements describe this development:

1. In order to raise the meta-physical question of "reality," the "bifurcation of nature" must be seen as a fundamental misplacement of abstractions taken *for* reality. *Everything* must be understood to be "*in* nature." Methodologically, this means that we treat *both* "perceived" and "percipient events" as moments of a *connected* process. Instead of a "philosophy of the thing perceived," Whitehead wanted to engage in a "metaphysics of reality of which the scope embraces both perceiver and perceived."[19]
2. In aiming beyond this "bifurcation," Whitehead's philosophic project led him to reformulate nature as a fundamental interconnectedness of everything in terms of a multiplicity of events in mutually generated emergence, as "[o]ne all-pervasive fact, inherent in the very character of what is real is the transition of things, the passage one to another. This passage is not a mere linear procession of discrete entities," but happens as the "general character of nature," which is its "evolutionary expansiveness."[20] In other words, the most fundamental character of "reality" is its *organic* connectivity.[21]
3. Most importantly, however, these "becoming nexūs" of events of reality are not "explained (away)" by their *external* givenness under *physical* conditions; rather they exhibit an *internal* relationship of mutual recognition, or of "mutual *immanence.*"[22] *This* connectivity, however, becomes only accessible as consequence of the ability to raise the *philosophic* question regarding "reality":

   > These unities, which I will call events, are the emergence into actuality of something. How are we to characterize this something which thus emerges? The name '*event'* given to a unity, draws attention to the inherent transitoriness, combined with the actual unity. But this abstract word cannot be sufficient to characterize what the fact of the *reality* of an event is *in itself*.[23]

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[14] Cf. Whitehead's investigation on the philosophic implications of the new physics from the 17th century on in SMW 39-113.
[15] SMW 51.
[16] CN 146. This does, of course, in no way imply that the physical questions are "shallow."
[17] Cf. SMW 113-139.
[18] CN 146.
[19] CN 28.
[20] SMW 93.
[21] Cf. SMW 73.
[22] AI 134. For a discussion of "mutual immanence" as one of the most important terms of Whitehead's later philosophy cf. R. Faber, *Prozeßtheologie: Zu ihrer Würdigung und kritischen Erneuerung* (Mainz: Grünewald, 2000), 264-294.
[23] SMW 93; italic s added.

> The spatio-temporal unity of becoming, the event, is itself an *abstraction* if it is conceived of as a mere external process of transition, because it is, at the same time, the emergence of something as a *complex process of unification*. Its reality, therefore, must be of some "internal selfness"—this is its *reality in itself*.

With all three elements, Whitehead was on his way towards formulating reality as "organic" reality, and his philosophy as a "philosophy of organism."[24] Insofar as this organic philosophy now addresses reality regarding "all there is" in its totality regarding its *general characteristics*, Whitehead names this endeavor "metaphysics."[25] However, insofar as this "whole" of reality—or the "universe"—can only be expressed by *some* relations of order and disorder, that is, by *connectivity*, his philosophy becomes *cosmology*, meaning the philosophic quest for the most general, but *effective* characters of such a *relational process of ordering, disordering, and un-ordering* that we call *reality*.[26]

2. Philosophic Cosmology?

Why do we not rest with physical cosmology, specially when we take into account its enormous progress since the "heliocentric turn" and Newton's *Principia*?[27] And why should we think of multiple worlds on a philosophic basis, when we have a number of physico-mathematical models combing the Uncertainty Principle, the quantum state of possibilities, and new inflation theories of the universe, all of which seems to force us to accept the hypothesis that we live in a strange, physical "multiverse"?[28]

We could, of course, refer to the fact that cosmology has traditionally been based on mythological stories, religious creation myths, and the pre-Socratic quest for the elements that constitute the universe and the reasons it came into being.[29] Or we might refer to the fact that, as Whitehead phrased it, "religion" always "suggest[s] a cosmology"[30] and vice versa, and that a philosophy (and a theology) of the *logos* expresses our belief in a rational universe.[31] We could, finally, refer to the fact that the human sense for the *world as a whole* was the foster-mother of

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[24] PR 18. This, and not "process philosophy" was Whitehead's term for his new philosophy.
[25] PR 90.
[26] Cf. PR 128.
[27] Cf. Ph. Clayton, "Introduction into Process Thought," in: T. Eastman and H. Keeton, eds., *Physics and Whitehead: Quantum, Process, and Experience* (Albany: SUNY, 2004), 5.
[28] Cf. M. Kaku, *Parallel Worlds: A Journey Through Creation, Higher Dimensions, and the Future of the Cosmos* (New York: Anchor, 2005) passim.
[29] Cf. C. Ruggles, *Ancient Astronomy: An Encyclopedia of Cosmologies and Myth* (Clio, 2005) passim.
[30] RM 141.
[31] Cf. N. Rescher, *Comsos and Logos: Studies in Greek Philosophy* (Ontos, 2005) passim.

scientific cosmology.[32] From humankind's oldest written memories of—including the *Emuma Elish* and the *I Ching*—on, the curiosity to ask the deep questions—Where did we come from? What is a world like ours like? Why is there a world at all?—may hold the key for the worth of a philosophic cosmology even in the face of its physical sisters and brothers.[33]

If, in fact—as Robert Nozick in his *Philosophic Explanations* (1981) puts it—the *deep* philosophic questions "arise from, are shaped and made vivid by, a concern with our value, significance, importance, stature, and preciousness,"[34] then they cannot be answered without recourse to both a specificly *human* approach to the world and an approach to the world as a *whole*. If, in other words, "our lives cannot have meaning, if we are no more than puppets of causes, if our attempt at knowledge is foredoomed to failure, if we have no worth that the actions of others ought to respect,"[35] we are caught up—even if erroneously, so at least inescapably—with the deep questions of the meaning of life and its grounding in the world.

This is the *existential* question, Heidegger's "ontological question" in which *Da-sein* and *Sein* form the "ontological difference," in which human beings understand themselves as "being-in-the-world."[36] It is the same question that informs Whitehead's search for reality in the *two-sided character* of "reality *in itself*" and as "reality *as a whole*." For Whitehead, *every event* is both "reality in itself" and an "individualization of the whole universe."[37] *Internality* and *universality* are the two sides that constitute Whitehead's "cosmology."[38]

From early on, Whitehead knew of this "value of nature" as being "perhaps the key to the metaphysical synthesis of existence."[39] But it was not until he realized the "poetic rendering of our experience" as an indissoluble element that divides philosophy from science that the "interpretation" of *all* of our experiences in one "system of general ideas"[40] became the formula

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[32] Cf. SMW 140. Cf. C. R. Palmerino and J. Thijsen, eds., *The Reception of Galilean Science of Motion in Seventeenth Century Europe*. Boston Studies in the Philosophy of Science (Springer, 2004) passim.
[33] Cf. PR 7; cf. Keller, *Face of the Deep: A Theology of the Becoming* (New York: Routledge, 2003), 28-30.
[34] R. Nozick, *Philosophic Explanations*. 15th edition (Harvard UP, 2003), 2.
[35] Ibid.
[36] Cf. M. Heidegger, *Being and Time* (Harper& Row, 1962) passim.
[37] PR 165.
[38] For Whitehead's cosmological de-centering of Heidegger's anthropocentrism cf. R. Spaemann, "Welche Erfahrungen lehrt uns die Welt verstehen? Bemerkungen zum Paradigma von Whiteheads Kosmologie," in F. Rapp and R. Wiehl, eds., *Whiteheads Metaphysik der Kreativität. Internationales Whitehead-Symposium Bad Homburg 1983* (Freiburg i.B., 1986), 169-182.
[39] CN 5.
[40] PR 3.

of his philosophy *as* cosmology. Philosophy for Whitehead is this two-sided adventure of *value* and *universality*—insoluble, but always connected to both science and religion.[41] In

> Remembering the poetic rendering of our experience, [in which] we see at once that the element of value, of being valuable, of having value, of being an end in itself, of being something which is for its own sake, must not be omitted on any account of an event as the most concrete actual something. 'Value" is the word I use for the intrinsic reality of an event.[42]

If this "reality in and for it self" must be understood as the *growing together of its multiple relations beyond itself*, this "concrescence as the individualization of the whole universe"[43] is a "process of attainment of a particular satisfaction" (PR 200), an *aesthetic* process of (universal) *interconnectivity*, in which

> the harmony of logic lies upon the universe as an iron necessity, [but] the aesthetic harmony stands before it as a living ideal molding the general flux in its broken progress towards finer, subtler issues.[44]

It is because of these *deep* philosophic questions regarding worth and universality, meaning and uniqueness, aesthetics and multiplicity, intensity and harmony, chaos and cosmos, that the philosophic cosmology must not be reduced to, or replaced by, physical cosmology.[45] In its own right, then, philosophic cosmology is not an evolutionary grandparent of physical cosmology, but a living sibling whose agenda

> is [to be] the critic of cosmologies. It is its function to harmonise, re-fashion, and justify divergent intuitions as to the nature of things. It has to insist on the scrutiny of the ultimate ideas, and on the retention of the whole of the evidence in shaping our cosmological scheme. Its business is to render explicit and—so far as may be—efficient, a process which otherwise is unconsciously performed without rational tests.[46]

Every physical cosmology has philosophic presuppositions and follows culturally unconscious routes of value-laden propositions regarding the worth and character of the world.[47] Newton's laws of gravity rested on a certain understanding of space as void based on the old atomist thesis of Epicurus, Democritus and Lucretius.[48] Einstein's Cosmological Constant was based on the deep-rooted conviction of the medieval cosmology of the un-moved immensity of

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[41] Cf. PR 15.
[42] SMW 93.
[43] PR 165.
[44] SMW 24.
[45] Cf. AI 39. By this I do, of course, not imply any strong anthropological principle, but only the fact that it is we humans that do physics and philosophy; it is a human activity. In Whitehead's account, the deep philosophical questions naturally lead to a non-anthropocentrism. Also, it is not implied that, in its own right, physical cosmology is insufficient by its own measure, but that it is "incomplete."
[46] SMW vii.
[47] Cf. SMW 174. Cf. FR 27-8: "We require a counter-agency to explain the existence of a universe in dissipation within a finite time. The analogy of the animal body suggests that the extreme rejection of final causation from our categories of explanation has been fallacious. A satisfactory cosmology must explain the interweaving of efficient and of final causation."
[48] Cf. E. S. Casey, *The Fate of Place: A Philosophic History* (Berkeley: UCP, 1998), 79-84.

the world.[49] Of course, "there can be no living science unless there is a widespread instinctive conviction in the existence of an *Order of Things*, and, in particular, of an *Order of Nature.*"[50]

Insofar as physical cosmology builds on cultural memory and uses "ultimate notions" out of the "divergent intuitions as to the nature of things," philosophy remains a presupposition for the ever renewed scientific work insofar as it continually refers to the deep questions and its imaginative production of a novel understanding of the world in its depth and as a whole.[51] It is in the context of such indispensable *existential* questions, with their *own* constructions of "universality" and the "universe" that, for Whitehead, every scientific endeavor takes place.[52] Philosophy "builds cathedrals before the workmen have moved a stone, and it destroys them before the elements have worn down their arches. It is the architect of the buildings of the spirit, and it is also their solvent…."[53]

In its existential function, philosophy is part of scientific constructions in the sense that only a society that has a critical relation to its world-constructive activities will allow for an environment of Life that includes a stable interest in scientific curiosity and prepares the material and mental resources and instruments to peruse this science. The deep questions generate a "metaphysical understanding [that] guides imagination and justifies purpose…apart from [which] metaphysical presupposition there can be no civilization."[54] Thereby, philosophic cosmology "maintain[s] an active novelty of fundamental ideas illuminating the social system."[55]

When John Barrow and Frank Tipler in their book *The Anthropic Cosmological Principle*[56] place Whitehead's "cosmology" in the context of evolutionary philosophies of the early 20th century—like Bergson's *Creative Evolution* and Samuel Alexander's *Space, Time, and Deity*—it is not so much about their "similarity" to Relativity and Quantum Theory, as it is that all three have raised the *existential* question regarding worth and meaning, reality in it self and as a whole—whether this is conveyed by such strange notions as *élan vital* or the "inner movement of life"[57] in Bergson, or of the universe "possessing the quality of deity"[58] in Alexander. It is about

[49] Cf. Casey, op. cit., 103-129; Kaku, op. cit., 37.
[50] SMW 4; cf. Ch. Kann, *Fussnoten to Platon: Philosophiegeschichte be A. N. Whitehead* (Hamburg: Felix Mainer Verlag, 2001), 63-70.
[51] Cf. PR 17.
[52] Although science might by itself and in its own view argue that it does so without any relation to such existential "universality," as a human activity it is always situated in such a cultural context.
[53] SMW 8.
[54] AI 128.
[55] MT 174.
[56] Cf. J. Barrow and F. Tipler, *The Anthropic Cosmological Principle* (Oxford UP, 1986), 185-195
[57] H. Bergson, *Creative Evolution* (Moneola, N.Y.: Dover, 1998), 46.

the full account of "*concrete* experience,"[59] of existence, by recognizing *all* "the various schemes of abstraction which are well founded in our various types of experience."[60] Philosophic cosmology, by "its own appeal to concrete experience [, …] confronts the sciences with concrete fact"[61]—"the poetic rendering of our experience,"[62] of reality in itself, and of existential meaning, in which universality can only be collected as a multiplicity of realizations of aesthetic value(s).

3. Cosmology vs. Metaphysics

What, then, is the importance of Whitehead's philosophic cosmology in the context of these deep philosophic questions? The answer lays in the *way* Whitehead *fuses* the two sides regarding reality *in itself* (the quest for existential value) and reality *as a whole* (the quest for universal meaning). Because of Whitehead's method of "imaginative rationalization," or "imaginative construction,"[63] that transcends every *simple* way "to observe by the method of difference,"[64] *no* "observed differentiation" will ultimately lead to a simple identification of "a world" or "one of many worlds" or, simply, "many worlds." On the contrary, Whitehead's philosophic argument is that the "fusion" of value and meaning is always a matter of in/finite *becoming.* We *cannot*, we cannot *ever*, come to the end of what we might consider "*a* world" or "*the* multiverse."

Hence, Whitehead's cosmology becomes a *rival* to any metaphysics that claims to be able to find and finally state of *what* reality *is*—as was the tradition of classical metaphysics from Aristotle to E. E. Harris[65]—and to be bold enough to attempt to formulate the *most general characteristics of all possible worlds*. Such notions rest on the presupposition that we *can* reduce in/finite *becoming* to *being*, fact, unity, *one* structure, or an *all*-inclusive wholeness. In Whitehead's view, however, such claims are nothing but the reappearance of "misplaced concreteness" that treats abstractions (being, unity, structure, or fact) *as* "ultimate concepts" of realty. This conception has three implications:

(a) Metaphysics becomes "indifferent" from philosophic cosmology, or, in other words: their difference represents a *tension of necessity and contingency* that is ultimately *undecidable*.

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[58] S. Alexander, *Space, Time, and Deity*. 2nd. vol. (London: Macmillan, 1966), 353.
[59] SMW 81.
[60] SMW 81.
[61] SMW 87.
[62] SMW 93.
[63] PR 5.
[64] PR 4.
[65] Cf. E. E. Harris, *Fundamentals on Philosophy: A Study of Classical Texts* (New Jersey: Humanities, 1969), 1-10.

While metaphysics would be the cosmology of all possible *cosmoi*, cosmology would represent the metaphysics of *our* actual cosmos.[66] While metaphysics develops the "ultimate concepts" with which to understand *all* experiences in their depth and width under the most general principles of interrelatedness that would be true in any world,[67] cosmology, on the other hand, must refer to these principles as *contingent instantiations of laws* of which we are not allowed to say that they exhibit a kind of necessity that would make them necessarily true for all possible worlds, but only for *a* world, e.g. our cosmos.[68]

Because of the interference of necessity and contingency regarding a "metaphysical scheme," building "a coherent, logical, necessary system of general ideas,"[69] "such a complete metaphysical understanding of the universe,"[70] has to be kept in some relation to the general facts of *this* epoch. Cosmology is the effort to frame a scheme of the *general character of the present stage of the universe.*"[71] What seems to be the most basic element of a metaphysics of all *cosmoi* in Whitehead's account, namely the creative passage of nature as a nexus of interrelated events of expansiveness, is in fact "a rational scheme of *cosmology* in which a final reality is identified with acts of experience."[72]

Consequently, the metaphysical enquiry will mostly be concerned with the organic character of "a coherent *cosmology* based upon the notions of 'system,' 'process,' 'creative advance into novelty,' '*res vera*' (in Descartes' sense), 'stubborn fact,' 'individual unity of experience,' 'feeling,' 'time as perpetual perishing,' 'endurance as re-creation,' 'purpose,' 'universals as forms of definiteness,' 'particulars—i.e., *res verae*—as ultimate agents of stubborn fact'."[73] On the other hand, however, it becomes highly questionable whether *any* "metaphysical characteristics…—in that proper sense of 'metaphysics'—…which apply to all actual entities" in what world ever can *ever* be found. In other words, it "may be doubted whether such metaphysical concepts have ever been formulated in their strict purity—even taking into account the most general principles of logic and of mathematics."[74] Or said differently: "Metaphysics

[66] For the complicated development of Whitehead's concept and multiple meanings of "cosmology" in relation to "philosophy," "metaphysics,", and "science" cf. Kann, op. zit., 85-115.
[67] Cf. PR 3.
[68] Cf. PR 125.
[69] PR 3.
[70] FR 68.
[71] FR 76; italics added.
[72] PR 143; italics added.
[73] PR 128; italics added.
[74] PR 90.

never reaches the complete generality associated with logical necessity."[75] In fact, Whitehead would betray his own hypothesis of *in/finite becoming* if he stated otherwise. But by the same token, the *dynamics* of this indifference stays always "*in* difference,"[76] so that the "fusion" of necessity and contingency obviously can never be stabilized beyond any further creative development.[77]

(b) The indissolubility of in/finite becoming into being leads quite naturally to Whitehead's hypotheses of many multiple worlds. This can be best explained in relation to Heidegger's articulation of the deep questions of *existence*, which was proposed in *Being and Time*, published at the same time as Whitehead's *Process and Reality*. For Heidegger, the most profound metaphysical question of *Dasein* in being the openness of *Sein* is: Why is there anything at all and not rather nothing?[78]

Although Whitehead's cosmology is not devoid of a simulacrum of Heidegger's "ontological difference" represented by his understanding of the role and ultimacy of "creativity" in his thought,[79] it is precisely his *refusal* of the "ontological question" that makes all the difference between Whitehead's and Heidegger's metaphysics—the possibility of a philosophic cosmology of many multiple worlds in Whitehead over and against the silence on this question in Heidegger. David Hall, in his "Logos, Mythos, Chaos: Metaphysics as Quest for Diversity," observes of these different approaches that

> The ontological question "Why is there something rather than nothing at all?" is generally thought to provide a more radical beginning for metaphysical speculation than the cosmological question "What kinds of things are there?" Thus, Martin Heidegger has been considered a more radical thinker than A. N. Whitehead, who (at least according to received interpretations) remained content with the strictly cosmological concern.[80]

However, while in Whitehead *Dasein* is universally de-centered, so that *every event* "in a buzzing world, amid a democracy of fellow creatures"[81] (although to an extremely different extent—from "God" to "the most trivial puff of existence in far-off empty space"[82]) now

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[75] L. Lundeen, *Risk and Rhetoric in Religion: Whitehead's Theory of Language and the Discourse of Faith* (Philadelphia: Fortress, 1972), 93.
[76] For the understanding and dialectics of "indifference" and in/difference" cf. R. Faber, "'Gottesmeer'—Versuch über die Ununterschiedenheit Gottes," in Th. Dienberg and M. Plattig, eds., *"Leben in Fülle": Skizzen zur christlichen Spiritualität*, Theologie der Spiritualität, vol. 5 (Münster: Lit, 2001), 64-95.
[77] This will be explained further in Part III.
[78] Cf. M. Heidegger, *Introduction to Metaphysics* (Yale UP, 2000),1-54.
[79] Cf. PR 21; cf. L Ford, "Whitehead and the Ontological Difference," in *Philosophy Today* 29 (1985): 148-155.
[80] D. Hall, "Logos, Mythos, Chaos: Metapyhsics as the Quest for Diversity," in R. Neville, ed., *New Essays in Metaphysics* (Albany: SUNY, 1987), 9.
[81] PR 50.
[82] PR 18.

becomes the "concrescence" of the "*whole* universe,"[83] universal meaning is not mediated by the Heideggerian question of the "why at all" anymore, because it undercuts the in/finite becoming by settling on a *final* "ground" to which the "why" is luring.[84] Instead, since for Whitehead nothingness is nonentity[85] and "nonentity is no boundary,"[86] the really *radical* question becomes that of chaos and cosmos.[87] Because "you cannot approach nothing; for there is nothing to approach,"[88] Whitehead's deep philosophic questions shift from "ground" to *unbounded becoming* for which "[t]here is no reason, so far as our knowledge is concerned, to conceive the actual world as purely orderly, or as purely chaotic."[89] David Hall comments decisively:

> As traditionally interpreted, both the cosmological and the ontological questions presuppose an *ordered ground*. But the truly radical question is, in fact, the cosmological one, since it may receive the Nietzschean answer: There are only interpretations, perspectives, the sum of which is Truth, the sum of which is Chaos. – The radical character of the cosmological question is rooted in the insight that one cannot peruse the ontological concern without thereby meaning to ask why order rather than disorder, or why *this* order rather than some other.[90]

The contingency of order, the abyss of chaos, and the "chaosmic" character of unbounded becoming—these are the ingredients that structure and haunt Whitehead's deep question of value and meaning as the "cosmological question" beyond metaphysical paternalism.[91] Concerned with both value, aesthetics, and harmony *and* an infinite multiplicity of realizations of such harmonic relations of values, i.e., infinite *cosmoi* or "cosmic epochs" and "aboriginal disorder,"[92] it is evident that Whitehead's cosmological question suspends any final ground or state of affairs, any final metaphysics, any final order, any final world. But in all this he insists on in/finite becoming, i.e., in infinity of worlds in becoming.[93]

(c) If philosophic cosmology is concerned with order and disorder, harmonies and chaos, it will generate many *multiple worlds.* It will "revolve round the *diverse* notions of Law, the *diverse* notions of the *communication* between real individuals, the *diverse* notions of the

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[83] PR 165; italics added. That this is approach is often wrongly accused of "panpsychism," cf. I. Leclerc, "Whitehead and the Dichotomy of Rationalism and Empiricism," in F. Rapp and R. Wiehl, eds., *Whiteheads Metaphysik der Kreativität. Internationales Whitehead-Symposium Bad Homburg 1983* (Freiburg i.B., 1986), 13-32.
[84] It has to be recognized, though, that Heidegger's own "answer" to the question "Why" is not hinting to a "final" ground; rather to something similar as we can find in Whitehead's notion of "creativity."
[85] Cf. PR 46.
[86] PR 66.
[87] Cf. PR 95.
[88] PR 93.
[89] PR 110.
[90] Hall, ibid.
[91] Cf. G. Deleuze, *The Fold: Leibniz and the Baroque* (Minneapolis: UMP, 1993), 81.
[92] PR 95.
[93] Cf. PR 111. The problem of self-reference urges us to understand Whitehead's "categories" and "principles" as *limits* where the become paradox, but always in opening a path to "hint" at their self-dissolution. Beyond them, in other words, is silence.

mediating basis in virtue of which such communication is attained."[94] It will become a "philosophy of organism"[95] that is concerned with the world as a nexus of intertwined events in strata of environments and of diverse social and non-social character,[96] based on *universal connectivity*. In *Adventures of Ideas*, Whitehead refers to it as Plato's and Democritus' conceptualization as *khora* and *kenon*—space and void—indicating "the immanence of Law, derived from the mutual immanence of actualities."[97] In *Process and Reality*, this "doctrine of the medium of intercommunication"[98] appears as

> 'necessary,' in the sense of bearing in itself its own warrant of universality throughout all experience, provided that we confine ourselves to that which communicates with immediate matter of fact. But what does not so communicate is unknowable, and the unknowable is unknown; and so this universality defined by 'communication' can suffice. – This doctrine of necessity in universality means that there is an essence to the universe which forbids relationships beyond itself, as a violation of its rationality. Speculative philosophy seeks that essence.[99]

Both the *relativity* of instantiations of harmony and order, of law and structure, that might characterize "cosmos" in an infinite variety of possible instantiations, and the *different* possible approaches to connectivity, lead directly to the relativity of *multiple worlds* and the conceptualization of *many* multiple worlds.[100]

Part II: Whitehead's Epochal Theory of *Cosmoi*

4. Chaos and Cosmoi

If Whitehead's basic approach to cosmology is order and chaos, harmony and discord, and the flux of structuring and perishing, the *organic* character of its underlying relationality maps out the landscape of the *interaction* in the formation and passage of events in their connectivity. [101] Indeed, the *cosmic structure* of the universe is generated by the intertwined stratification of layers of relativity and their effects on the formation of the concrete universe we experience. And the *existential experience* of it is, as has been seen, the basis for any cosmological consideration.

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[94] AI 135; italics added.
[95] PR 95.
[96] Cf. PR 205.
[97] AI 134.
[98] Ibid.
[99] PR 4.
[100] Although invoked or even conjured up from the unimaginable abyss of chaos in the process of in/finite becoming, this "cosmological multitude" does *not* devaluing "reality in itself" (value) or ban us to "islands of meaning" in an infinite sea of nothingness. In Whitehead's account of the deep questions, "[u]niversality of truth arises from the *universality of relativity*, whereby every particular actual thing lays upon the universe the obligation of conforming to it." (S 39).
[101] Cf. AI 257.

Although we may start with the most concrete environment that forms our access to the cosmos, namely our human body,[102] the overall structure in which Whitehead reconstructs bodily existence is the wide environment of a *universal body* of "societies of events" that exhibit a complex and multilayered "social" formation of the events instantiating it. A "society," in Whitehead's eyes, "is a nexus with social order; and an 'enduring object,' or 'enduring creature,' is a society whose social order has taken the special form of 'personal order'."[103] This "social order"—in its various forms and degrees of complexity—is an *immanent* "form" or "defining characteristic" of the nexus of events *insofar* as all events of this nexus adopt this character and *insofar* as it is inherited and reproduced by following generations of events of this society.[104]

From this strictly *contextual* and *immanent* approach to this character of societies, it follows that all societies are *nested* in environments of wider societies of which the infant or covered societies share the defining characteristic with the parent societies while, at the same time, the parent or covering societies offers the environment in which infant societies may proliferate by following their own peculiar character, or if they do not, may perish.[105] No order is strictly "given," that is, in the sense of any necessity, except in the sense that in all environments only compatible societies can survive or societies with both the art of adaptation and the art of reconstruction of their environment.[106] One indispensable factor in this whole process is the *openness of the becoming and the decline* of (natural and cultural) order related to the immanent development and interaction of all included organisms.[107]

> The world is a community of organisms; these organisms in the mass determine the environmental influence on any one of them; there can only be a persistent community of persistent organisms when the environmental influence in the shape of instinct is favourable to the survival of the individuals. Thus the community as an environment is responsible for the survival of the separate individuals which compose it; and these separate individuals are responsible for their contributions to the environment. Electrons and molecules survive because they satisfy this primary law for a stable order of nature in connection with given societies of organisms.[108]

In such a nested multiplicity of societies with more or less, narrower or wider, higher or lower, sophisticated or primitive, orders, two "ends" approach chaos: On one end, a highly

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[102] Cf. PR 65; MT 165.
[103] PR 34. For the complex interaction of these layers of events, societies, end environments cf. Th. Hosinski, *Stubborn Fact and Creative Advance: An Introduction to the Metaphysics of Alfred North Whitehead* (Lanham: Rowman & Littlefield, 1993), 128-151.
[104] Cf. AI 203.
[105] Cf. PR 90. Cf. E. Kraus, *The Metaphysics of Experience: A Companion to Whitehead's* Process and Reality (New York: Fordham UP, 1998), 65-75.
[106] Cf. FR 6-7.
[107] CF. PR 110-12. Whitehead does not *in principle* but only *in degree* differentiate between societies in nature and (human) culture; cf. also S part III:
[108] S 79.

sophisticated society may allow for "entirely living nexūs of events" which, in their creative novelty, cannot be comprised by *any* defining characteristic,[109] but are, in being living and original, essentially "non-social."[110] On the other end, we approach the most general characteristic of any given environment that, in the broadest possible sense, must be the last metaphysical resort of *any* "character" at all, or the limit of its vanishing, because all possible and real and actual societies of events must rest in a nexus that exhibits nothing more than *bare* relatedness as such. This "pure immanence" corresponds to *Adventure of Ideas'* notions of *khora* and *kenon* and, in *Process and Reality*, with the universal "non-social nexus" that, itself being without any further characteristics, "is what answers to the notion of 'chaos'."[111]

> According to this account, the background in which the environment is set must be discriminated into two layers. There is first the relevant background, providing a massive systematic uniformity. This background is the presupposed world to which all ordinary propositions refer. Secondly, there is the more remote chaotic background which has merely an irrelevant triviality, so far as concerns direct objectification in the actual entity in question. This background represents those entities in the actual world with such perspective remoteness that there is even a chaos of diverse cosmic epochs.[112]

In its suspension in "chaos," then, the *cosmoi* arise out of a background that is hardly rather more than in/finite becoming *itself*. The faintest "necessary" condition that differentiates chaos from the possible instantiation of *any* order in actual becoming of societies is just that *general continuity* that may result from the mutual immanence of all events. For any "physical world," Whitehead assumes such a minimum condition for constituting any *value* at all to be a "necessity," by which everything "is bound together by a general type of relatedness which constitutes it into an extensive continuum."[113] For the "general properties of extensive connection" of this *primordial society* Whitehead senses them to be

> the defining characteristic of a vast nexus extending far beyond our immediate cosmic epoch. It contains in itself other epochs, with more particular characteristics incompatible with each other. Then from the standpoint of our present epoch, the fundamental society in so far as it transcends our own epoch seems a vast confusion mitigated by the few, faint elements of order contained in its own defining characteristic of 'extensive connection.' We cannot discriminate its other epochs of vigorous order, and we merely conceive it as harbouring the faint flush of the dawn of order in our own epoch. This ultimate, vast society constitutes the whole environment within which our epoch is set, so far as systematic characteristics are discernible by us in our present stage of development.[114]

Here, we look at the birthplace of Whitehead's concept of "cosmic epochs," of different *cosmoi*, of, in all probability, mutually exclusive realms of (natural) Law, of the self-creative formation of mutually independent hierarchies of societies and environments, coordinated in

[109] Cf. PR 103-4.
[110] PR 107.
[111] PR 72.
[112] PR 112.
[113] PR 96. For the "extensive continuum" cf. Kraus, op. cit., 63-65.
[114] PR 97.

"societies of societies, and in societies of societies" by which the "Universe achieves its values."[115] Indeed, this philosophic account of cosmology is concerned with the becoming of values and universal meaning in a radical relativistic, or better, relational background that, at the same time, leaves the most possible freedom for the emergence of novelty—especially exemplified within even the highly sophisticated societies in which (like in human "persons") chaotic events reappear *intensely*.

Without going into all the detail of Whitehead's account of the "order" in our cosmic epoch, we must mark an important difference between the "chaotic" and "uniform" background, on the one hand, and the most general characteristics of *this* epoch, on the other. The widest "uniform" background that is shared by *all* societies of *this* cosmos, its defining characteristic, is to form a "electromagnetic society"[116]; pushed back even further, they may come to form a "geometrical society."[117] In relation to the chaotic and extensional background, all of those factors, like "the four dimensions of the spatio-temporal continuum, the geometrical axioms, even the mere dimensional character of the continuum—apart from the particular number of dimensions—and the fact of measurability" are all but "arbitrary factors in the order of nature."[118] Hence, the "birthplace" of cosmic epochs is recognition of the *universality* of chaotic "mutual immanence" *itself* or the most faint uniformity of the "extensive continuum," which

> expresses the solidarity of all possible standpoints throughout the whole process of the world. It is not a fact prior to the world; it is the first determination of order—that is, of real potentiality—arising out of the general character of the world. In its full generality beyond the present epoch, it does not involve shapes, dimensions, or measurability; these are additional determinations of real potentiality arising from our cosmic epoch.[119]

These differentiations regarding the background of the "Universe" are most important, especially when we undertake the imaginative task of figuring out what these other cosmic epochs might be like and how they relate to one another besides their most general relation of relationality itself.[120] We must realize from the outset, however, that Whitehead did not go further! Instead, he conceptualizes borders like horizons and possibilities to extend them. Here are four of these "horizons":

1. Whitehead does not forbid thinking about alternative cosmic epochs, but he is very reluctant to loosen up his methodologically tamed imagination.[121] But he did not rule out

[115] AI 206.
[116] PR 98. This point has to be seen from a late 1920s perspective, in which the other forces where not yet discovered. This, however, would not make any difference to the general thesis.
[117] PR 97.
[118] PR 91.
[119] PR 66.
[120] Cf. Kaku, op. cit., part II.
[121] Cf. FR 40-1.

that, in "the future the growth of theory may endow our successors with keener powers of discernment" regarding the "systematic characteristics" of the extensive continuum and other instantiations of world as is "discernible by us in our present stage of development."[122]

2. Pure chaos is impossible, because of the *possibilities* which must be placed in relation to the extensive continuum. Their "realm" of reality, for Whitehead, is situated in what he calls the Primordial Nature of God, which represents the final "irrationality" (or, what amounts to the same, the "ground of rationality") of the *existence of becoming* of values, orders, laws, but, by the same token, novelty, possibility, and intensity.[123] It answers David Hall's question of the indispensable contingency of the cosmological questions. Whitehead, therefore, interpreted the relation of possibilities to the extensive continuum as the immanence of an "Eros of the Universe,"[124] who lures for the intensive realization of harmonic orders by being incarnated in every event.[125] In *Process and Reality*, this "axiom" of the impossibility of pure chaos, then, reads as follows: "The immanence of God gives reason for the belief that pure chaos is intrinsically impossible."[126]
3. But since there is no set order "beyond" the societies constructing the cosmic epoch that would function as a necessary "given" (except "extensiveness"), all order is *contingent* upon the *decisions* of the societies and their events to implement an order or not, or, from the other side, to be sustained by an environment or not. This means, first, that "no static maintenance of perfection is possible."[127] But, secondly, it includes the insight that, since there is no pre-given order for the realization of the chaotic background, there will be no *final* state of perfect order. Although this "belief in a final order" seems to be quite "popular in religious and philosophic thought," in fact, the "immensity of the world negatives the belief that any state of order can be so established that beyond it there can be no progress."[128]
4. A last border-condition will have enormous consequences for the further interpretation of Whitehead's multiple worlds hypothesis: Since the faintest background of the extensive continuum does not include any more specific characteristics beyond relationality such as geometry, dimensionality, or measurement, we may not equate the relations of the cosmic epochs as harbored in the extensive continuum with any notion of "space" or "time". Both are, for Whitehead, other than for Newton,[129] *abstractions* of the relationship of events and societies of events in *this* cosmic epoch, in which there is both "'extensiveness' of space and the 'extensiveness' of time."[130] But they have no general necessity or concreteness.[131] Hence, although Whitehead seems to allow for other cosmic epochs to remain present as a "faint flush of the dawn of order in our own epoch,"[132] we *must not equate* the relation of one epoch to another with *any* space- or time-like relation. So, besides the suggestion that

[122] PR 97.
[123] Cf. SMW 178.
[124] AI 11, 253.
[125] Cf. AI 198.
[126] PR 111.
[127] AI 274.
[128] PR 111.
[129] Cf. PR 70.
[130] PR 61.
[131] Cf. PR 73.
[132] PR 97.

not "all types of seriality" "involve terminal instances,"[133] the "seriality" of the relation of cosmic epochs may also be beyond any spatiotemporal succession.

5. Multiple Worlds

Because of Whitehead's affirmation of chaos and *cosmoi* we can talk about "*multiple* worlds" that, regardless of their indissoluble multiplicity and the mutual exclusiveness of their character, still have a certain interconnection which may be called "the Universe."[134] How, then, do we understand the relationship of the cosmic epochs to the Universe and to one another? And how does this understanding relate to Whitehead's deep philosophic questions of value and meaning (in distinction from the physical questions of the relation of space, time, matter, energy, fields, particles, and their mathematical theories of unification)?[135]

In order to answer this question, we cluster it with John Borrow's and Frank Tipler's twofold understanding of Whitehead's cosmic epochs in *The Anthropic Cosmological Principle*. On the one hand, on "a sufficient large scale, the universe is pictured as chaotic"; on the other hand, that Whitehead is seen to embrace an Everett-like quantum "Many-Worlds model [which] allows evolution to occur on a global scale with simultaneously all possible universes to exist." The difference would be that "the different universes exist in the bubble universe model in physical space, whereas in the Many-Worlds model the different universes exist in a Hilbert space of realized possibilities." They add that "Whitehead can be regarded as the first philosopher who appreciated the advantage of the Many-Worlds ontology." [136] This seems to be important for Barrow and Tipler because they suppose that "Whitehead was the first to suggest that the problem of contingency might be solved if the actual Universe realized all possibilities."[137] Consequently, they understand "the Many-Worlds ontology and Whitehead's cosmology" as "that which was implied by what A. O. Lovejoy called the 'Principle of Plenitude'."[138]

We immediately recognize the problem of the relation of the ontological and the cosmological question and a possible overall solution: *that all possible worlds exist*. Whitehead, in the midst of this answer, seems to be engaged in two models, a physical and an ontological model of multiple worlds, both of which also seem to address the two deep questions with the

[133] PR 111.
[134] AI 206.
[135] Cf. Kaku, op. cit., part I.
[136] J. Barrow and F. Tippler, *The Anthropic Cosmological Principle* (Oxford UP, 1986), 193. They are not invoking Leibniz, however.
[137] Barrow and Tipler, ibid., 106.
[138] Barrow and Tipler, ibid. 193.

same solution: *the reality of all possible worlds*. I think, both attempts to answer the deep questions are ill-taken when applied to Whitehead's understanding of multiple worlds. In order to demonstrate this, thereby preparing a direction for a positive understanding of Whitehead's account, I will excavate the implicit problems of the Barrow-Tipler thesis by asking four questions.

(a) Does the Many-Worlds approach, assumed for Whitehead, solve the problem of the indefinitely small (quantum reality) and the infinitely large (the universe at large)? With Michio Kaku, we may suppose that the new inflation theories not only direct us to the existence of many worlds in a wider "hyperspace" that may be called a "Universe" or "Multiverse," but that they implicate a quantum multiplicity of possible worlds (in superposition) and even their realization as "parallel worlds."[139] I am not concerned with the physical theory here of which distinguished representatives may say more; rather, I am interested in the *philosophic implication*s of the Barrow-Tipler thesis that the Hilbert space may be an *ontological* entity and, even if so, whether it answers a philosophic question: that of the *contingency* of the comic order, or the *cosmological* question, in relating the indefinitely small with the infinitely large, so that one generates the other.

Although we might hold the thesis that Whitehead can be successfully connected with quantum theory and Everett's Multi-World's interpretation, as has been undertaken, e.g., by Michael Epperson in his *Quantum Mechanics and the Philosophy of Alfred North Whitehead* (2004), I doubt that the *deep* questions, which are always hidden under Whitehead's account of the small (the event) and the large (the cosmos), those of value and meaning, can be extracted out of a physical reinterpretation of his philosophic entities. Of course, there are relations that Whitehead saw himself, e.g., in addressing Quantum and Relativity Theories in his *Science and the Modern World*. But his interest was not the equation of physical and meta-physical entities, but *resonance* between physical science and philosophic account.[140] We could also refer to the fact that Whitehead's understanding of the inner becoming of actual events is surprisingly coherent with, e.g., Heisenberg's philosophic account of the entities of quantum reality as being *potentials*—in being "real" and (to a certain extent) "pure potentials." One could even refer to the

[139] Kaku, op. cit., 13-18.
[140] Cf. SMW, ch. 9. "Resonance" is, of course, a physical as well as an aesthetic notion.

fact that Whitehead saw the actualities in their status of becoming as allowing for a certain *indeterminacy* regarding the space-time-region they might realize.[141]

However, besides the danger of confusing physical and meta-physical accounts of space-time potentials, of superposed physical entities and value decisions of self-becoming occasions, what does not fit here is the *reduction of the large to the small or vice versa*. For Whitehead, all actualities in their becoming are beyond space-time, creating a spatiotemporal whole, a satisfied occasion, happening physically at once, as a "quantum *in solido*" (PR 283), an "epoch."[142] *But* the "*cosmic* epoch" is *not* generated "at once"; it does not even necessarily instantiate such a spatiotemporal structure, which we experience in our cosmic epoch, *at all*. Its unity is *not* that of a "quantum *in solido*"; rather it is *disconnected* from other epochs by the chaotic difference and the implementation of a certain contingent order in the societies generating and sustaining its epochal character.[143] The only element that unites the contingency of the "epochal time" of a quantum-event and the "epochal order" of a cosmos, is that both are expressions of *infinite becoming of finite becomings and their interconnectedness*.[144]

(b) Does Whitehead envision his cosmic epochs as forming a "bubble universe" in physical space? From the answer follows that Whitehead did not understand even the *becoming* of events as situated in physical space and time. On the contrary, while the "quantum is an extensive region," the "genetic process is not in temporal succession"[145] and is not a "spatial region." While Whitehead acknowledges that every actuality "with its physical pole" (in recognition of the physical world) is spatiotemporal, in its "mental pole" (its recognition of potentials) it is not physical at all.[146] This even has the radical consequence that the "mutual immanence" of occasions may be so different for the physical and the mental poles of actualities that they may "not [be] subject to the same laws of perspective as are those of the physical poles" so that "[m]easurable time and measurable space are then irrelevant to their mutual connections."[147]

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[141] PR 284.
[142] PR 68.
[143] This is the reason that the quantum "epoch" cannot be replaced with a "cosmic epoch" presupposing the ideas that it would be like an actuality in a cosmos or in the extensive continuum, because we would equate the characteristics of the background society for all quantum "epochs" in the same "cosmic epochs" with the "universal" background, which might not be much more than connectivity as such, or even less, a chaotic nexus beyond any character at all.
[144] A connection, Whitehead conceptually connects to what he names „prehension."
[145] PR 283.
[146] CF. PR 285.
[147] AI 248.

Accordingly, if it is not sufficient to reduce our comic epoch to spatio-temporality, or to place it (entirely) "in physical space," this must be said all the more from *other* possible cosmic epochs. Furthermore, since the most general background character of all cosmic epochs is a certain "extensiveness," which must not be equated with either dimensionality, geometry, or space-time, there is no reason to assume that the "chaos," out of which all the cosmic epochs are assumed to spring forth, has the "physical" character in any relevant sense related to *this* cosmos. Even if Whitehead thinks of "extensiveness" as the last border between a physical and a non-physical world,[148] it is *not* with *any necessity* that we must assume that other cosmic epochs would be *physical* worlds. Rather, what counts is Whitehead's insistence on in/finite becoming—its *internal* generation and its *infinite* verieties of realization.

(c) Does Whitehead envision "all possible worlds" as a solution to the cosmological question (assuming, as demonstrated, that it also addresses and answers the ontological question)? This is the core question to which all others converge! We remember that the cosmological question, as the most deep question regarding universal meaning, adresses the problem of "why *this* order," and "why order *at all*"? The resistant contingency of order, due to its immanent character in the cosmic societies, has been seen as reason for the openness and indefinite seriality of realization in ever new *cosmoi*. Whitehead, more than many other philosophers, has not "closed" this question by referring to anything that would transcend this infinite series of worlds. Hence, two possibilities arise: either we regard the world as the realization of the best possible world, as Leibniz has suggested, or we assume all possible worlds as having been realized, as was proposed, e.g., by David Lewis. In the first case, we have to invoke a measure regarding which we regard this world as the best possible, against a background of all other possible worlds that would be derivations or privations of *this* world. For Leibniz, this measure was the highest possible harmony between order and novelty. [149] In the second case, contingency would, indeed, vanish; the question would not arise: all possible worlds *are* realized.[150]

Although we find formulations in Whitehead's cosmology, insofar as it is concerned with order and harmony, that imply that this cosmic epoch may be said to instantiate a "pre-established harmony"—a notion which Whitehead borrowed from Leibniz—it relates to the

[148] Cf. PR 96.
[149] Cf. G. Leibniz, "Monadology," in: H. W. Carr, *The Monadology of Leibniz* (UCLA, 1930), § 53.
[150] Cf. D. Lewis, "Possible Worlds," in St. Laurence and C. Macdonald, eds., Contemporary Readings in the Foundations of Metaphysics (Malden, Mass.: Blackwell, 1998), 96-102.

"*subjective* harmony" of the internal constitution of becoming events regarding, and *not* to the cosmos.[151]. Applied to the cosmos at large, Whitehead's rather disparaging remarks that "Leibnizian theory of the 'best of possible worlds' is an audacious fudge produced in order to save the face of a Creator constructed by contemporary, and antecedent, theologians."[152] Instead, since all order is the consequence of the inner process of becoming in the interrelation of all societies, there cannot be any *best* possible world *as* realized.

Regarding the refusal to recognize the *fundamental contingency* of the cosmos by postulating the realization of all possible worlds, we are on difficult ground. David Lewis' seductive theory that all possibilities form realms that are actual for themselves as our world is actual for us, has some very unfortunate implications: on the one hand, these worlds would in their actuality exist absolutely independently; they are full-blown "parallel worlds." On the other hand, if all possible worlds are realized, coupled with the contingency of this cosmos, the deep question of value and meaning becomes irrelevant, because we must then imagine even the most devalued worlds, and the most meaningless of realities, to be actualized.[153] This again renders any question for meaning absurd. Here, the Borrow-Tipler thesis reveals itself as a physical, and not a philosophic, thesis.[154]

For Whitehead, the difference between actual worlds and possible worlds holds firm. While every becoming in our cosmos concretizes itself out of its own "actual world,"[155] and all societies of actualities form an *actual* cosmic epoch, possibilities are of utmost importance for the individual as well as the social process of the construction, maintenance, and the decline of a cosmic epoch, either as unactualized "real potentials" of past actual worlds that might become actualized in new actualities, or as "pure potentials" through which novelty enters the cosmic process.[156] In its most basic character, the "extensive continuum" in a cosmic epoch is neither actuality nor possibility, but "one relational complex in which all potential objectifications find their niche," which, therefore, "underlies the whole world, past, present, and future."[157]

Hence, there can be no actual or possible world which is not an exponent of this *fundamental connectivity* (in the "extensive continuum," or the "chaotic nexus" of the *khora* or

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[151] Cf. PR 27, CatOblg vii.
[152] PR 47.
[153] Cf. W. Lycan, "Possible Worlds and Possibilia," in: St. Laurence and C. Macdonald, eds., Contemporary Readings in the Foundations of Metaphysics (Malden, Mass.: Blackwell, 1998), 83-95.
[154] Insofar as the physical thesis may, or even must, not imply the deep questions of value and meaning.
[155] PR 22, CatExpl i.
[156] Cf. PR 23, CatExpl vi.
[157] PR 66.

the *kenon*). Against Lewis, there cannot be any parallel worlds without any connections. Alternatively, the quantum parallelism of Many-Worlds in a Hilbert space, as Barrow and Tipler have proposed, would not have discovered "all possible worlds," but just *one* (possible) cosmic epoch, which, like ours, allows for quantum decoherenc. We could even think of a cosmic epoch in which there would exist "coherent beings" that could follow all the differentiations of those "parallel worlds"; but they would still experience *one* particular world. Again, the cosmological question is *not* answered by a model of "all possible worlds," because they would either remain a *mere abstraction* or become but *one* possibility of the realization of becoming, *one* cosmic epoch.

(d) Does Whitehead, with the Multiple-World thesis, solve the ontological question of existence? This is the trickiest question: On the one hand, Whitehead does not invoke God to answer the ontological question—as did Leibniz—to corroborate his thesis of the existence of the bests possible world. And since Whitehead does not refuse the contingency of the existence of this world, or *any* world for that matter, the question is not answered by Whitehead in any direct sense, but is referred to the cosmological question.

To understand how the ontological question of Leibniz and Heidegger becomes the cosmological question (as David Hall has shown), we might adopt Robert Nozick's model of transformation: When we ask, "Why is there anything instead of nothing?," we presume that there is a "natural state" for which all other states diverge so that all of them except the natural state need an explanation and a "force" that generates this departure. In the ontological question the natural state is "nothingness," which is the only one that needs no explanation; and the "force" allowing for a deviation of this state may be a *creation ex nihilo*—a common Christian explanation. However, if we do not allow for this "inegalitarian" approach[158] and instead opt for an "egalitarian" theory[159] that does not mark out just one of the possible states—non-existence—then, so says Nozick, we might end up with a "principle of fecundity."[160] With no great surprise, Lewis's "possible worlds" and Lovejoy's "principle of plenitude"[161] reappears so that the ontological question becomes, in fact, part of the cosmological question.

While Whitehead may not be interpreted with the Barrow-Tipler thesis of Many Worlds, Lewis' possible worlds, or (the philosophic interpretation of) Everett's quantum parallelism, everything leads to Whitehead's *cosmological* question. And, as a *deep* question, it involves

[158] Cf. Nozick, op. cit., 121-7.
[159] Cf. ibid., 127-8.
[160] Cf. ibid., 128-31.
[161] Ibid. 129.

Whitehead's insistence on the "ultimacy" of in/finite becoming. This will be the subject of the last section, on Whitehead's *many* multiple worlds and their strange offspring.

Part III: Whitehead's Many Multiple Worlds

6. In/finite Becoming

While Lewis speaks of parallel worlds, Lovejoy of a maximum realization of possibilities in one universe, and Everett of a branching universe,[162] Whitehead insists on the in/finite becoming of *cosmoi*. One of the maybe most telling insinuations is his adaptation of the evolutionary cosmology of Plato's *Timaeus*. Whitehead proposes that in

> the *Timaeus* the origin of the present cosmic epoch is traced back to an aboriginal disorder, chaotic according to our ideals. This is the evolutionary doctrine of the philosophy of organism. Plato's notion has puzzled critics who are obsessed with the Semitic theory of a wholly transcendent God creating out of nothing an accidental universe. Newton held the Semitic theory. The *Scholium* made no provision for the evolution of matter—very naturally, since the topic lay outside its scope. The result has been that the non-evolution of matter has been a tacit presupposition throughout modern thought. Until the last few years the sole alternatives were: either the material universe, with its present type of order, is eternal; or else it came into being, and will pass out of being, according to the fiat of Jehovah. Thus, on all sides, Plato's allegory of the evolution of a new type of order based on new types of dominant societies became a daydream, puzzling to commentators.[163]

The alternatives with which Whitehead contrasts this "evolutionary doctrine of the philosophy of organism" are striking: either the world is created by the fiat of a transcendent creator *ex nihilo*, or its static order is proposed to be of an eternal nature. While the first one was ruled out by the transformation of the ontological in the cosmological question, the second was answered by Whitehead's *refutation* of the fecundity principle or principle of plenitude insofar as it negates the *contingency* of cosmic order. In fact, both alternatives represent the alternatives of Leibniz and Heidegger on the one hand, Lewis and Lovejoy on the other.[164]

Whitehead's alternative is profound: It states the in/finite becoming of cosmic epochs. Far more than discussing merely the infinite appearance and disappearance of cosmic epochs in an infinite sea of chaos, it reformulates the deep questions: *if value and meaning are not bound to either an eternal world or a creation of God, it must be related to becoming in such a way that this becoming cannot be, and, in fact, never is, suspended by any transcendent fact.*[165] The unbroken series of becoming holds for the indefinitely small, the genetic becoming of events, and the infinitely large, the becoming of *cosmoi*. Here, finally, both limits coincide. There is *nothing*

[162] Cf. ibid., 670n10.
[163] PR 95.
[164] Although, in the case of Heidegger, the "cosmological" questions seems always to be bifurcated (and in this sense vanished) into the ontological and the anthropological question.
[165] CF. PR 7 about the alternative of "fact" or process" of being ultimate in various cosmologies of various cultures in the East and the West.

beyond becoming (of events and *cosmoi*), and since nothingness is no boundary, there is only becoming.[166] This has important epistemological and ontological implications.

(a) Epistemologically, in/finite becoming indicates that our search for "explanations," "understanding,"[167] or for "reasons" ("causes and "principles") appeals to a supreme court which is neither any "being" or "Being as such," nor any "mind" or "God's mind"; neither physical reality nor mathematical formulary,[168] but rather the *process of becoming* of what they come-to-be as reasons, explanations, or causal and formal realities.[169] Whitehead conceptualized this infinite reference to becoming with at least these two "principles": first, a "principle of process" that states that nothing is what it is without its becoming. *How* it becomes determines *what* it is;[170] second, an "ontological principle" stating that the only "reasons" are actual becomings.[171] This non-foundational approach to knowledge has immediate consequences for Whitehead's multiple worlds approach. Here are two examples:

1. While our epistemological intention may be to find "essential propositions" that *identify* reasons and causes, principles and formularies, in Whitehead's view, there is no final unity of *identity* that can be approached that is not *in itself* either complex or related to its *becoming* this unity and transcending its identity in the course of further becoming of understanding and knowledge. If we, e.g. with Einstein and Hawking seek a unified formulary or a "Grand Unified Theory" as a final unified explanation of everything, or if we think with Kaku of the Big Bang as a "state of perfect unity," which led to our cosmos by symmetry breaking, .i.e. states of asymmetrical imperfection,[172] the categories used here—identity, unity, perfection—all refer epistemologically to "essential propositions" transcending and reconstructing becoming by an ontology of "perfect being."[173] But this, for Whitehead, is problematic, as shown in his famous remark in *Concept of Nature* that

   > the view of Nature which I have maintained in these lectures is not a simple one. Nature appears as a complex system whose factors are dimly discerned by us. But, as I ask you, Is not this the very truth? Should we not distrust the jaunty assurance with which every age prides itself that it at last has hit upon the ultimate concepts in which all that happens can be formulated? The aim of science is to seek the simplest explanations of complex facts. We are apt to fall into the error of thinking that the facts are simple because simplicity is the goal of our quest. The guiding motto in the life of every natural philosopher should be, Seek simplicity and distrust it.[174]

2. Although simplicity is an important heuristic instrument, as a philosophic aim it is vicious. It betrays the infinite complexity of in/finite becoming. Especially regarding the categories

[166] Cf. PR 66.
[167] For the difference cf. Nozick, op. cit., 12.
[168] Cf. P. Davis, *The Mind of God: The Scientific Basis for a Rational World* (New York: Touchstone, 1992).
[169] Cf. PR 46.
[170] Cf. PR 23, CatExpl ix.
[171] Cf. PR 24, CatExpl xviii.
[172] Cf. Kaku, op. cit., 96-101.
[173] This "ontology of being" was typically prevalent in European cosmology from Parmenides, Plato, and Plotinus on.
[174] CN 163.

of understanding we tend to cling to *static binaries* leaning towards a dualism of explanation. Mind and matter, simplicity and complexity, cause and reason, energy and emotion—they all seem unbridgeable elements of what Whitehead called "bifurcation of nature into two systems of reality, which, in so far as they are real, are real in different senses."[175] In a certain resonance with Derrida's critique of such a metaphysics of binaries to be transformed into the play of *différance*[176]—a difference that can never be closed by any simple unification—Whitehead's in/finite becoming reformulates all dualities as mutually immanent and, hence, in mutual movement and determination of each other.[177] This is especially true for "last resorts" of binary conceptual unification like unity and multiplicity, identity and difference, one and many,[178] or that between the physical and the mental.[179]

When Whitehead in *Adventures of Ideas* proposes that the "notion of physical energy, which is at the base of physics, must then be conceived as an abstraction from the complex energy, emotional and purposeful,"[180] he is *not* ontologically proposing a somewhat "physical compound" of *both*—thereby betraying both sides, the physical and the philosophic. Instead, he is epistemologically calling for an "in/finite becoming" as the *ever shifting* basis for all our fixed notions, which, in their stabilized duality, must be wrong,[181] or better, must be destabilized in relation to their *becoming*, which in its complexity is *not reducible* to the identification of dualities.[182]

(b) Ontologically, Whitehead's "ontological principle" exemplifies what has been discussed in the previous section, namely that the "ontological question" of existence" is integrated in the "cosmological question" of chaos and cosmos, because "existence" is due to the becoming of something out of something else of which this new becoming has to take account.[183] Thus, the original ontological structure of an *act* is not crafted after a substance model, for which something exists (substance) *before* it has a history of acts (executing the substance's qualities and attributes), but with an event model, for which the act of existence is always the *becoming of itself.*[184] An act is always the *concrescence of an actual world*, out of which something becomes its existence.[185] Globally, "existence" is not a relation to nothingness, but a question of "the

[175] CN 30.
[176] Cf. J. Derrida, *Writing and Difference* (London: Routledge, 1978).
[177] Cf. R. Faber, "Whitehead at Infinite Speed: Deconstructing System as Event," in C. Helmer, M. Suchocki, and J. Quiring, eds., *Schleiermacher and Whitehead: Open Systems in Dialogue* (Berlin: de Gruyter 2004), 39-72.
[178] Cf. AI 190.
[179] Cf. S 20-1.
[180] AI 186.
[181] For the falseness of stabilized metaphysical propositions cf. PR 8.
[182] Cf. R. Faber, *Gott als Poet der Welt: Anliegen und Perspektiven der Prozesstheologie*. 2nd ed. (Darmstadt: WBG, 2004), § 43.
[183] Cf. Cobb, *Is it too Late? A Theology of Ecology*. rev. ed. (Environmental Ethics Books, 1995), 113.
[184] Cf. PR 28-29.
[185] The original meaning of *ex sistere* is, indeed, to become our of something else.

evolution of a new type of order based on new types of dominant societies"[186]—in/finite becoming of order and its never-ending renewal, creating ever-new cosmic epochs.

In relation to the deep questions of value and meaning, the difference is significant. While the ontological question leads to the questioning of value and meaning in light of a nothingness that veils all experience of worth with undefined "after-worlds" of power to generate meaning, in the cosmological context no (transcendent) excuse (like cause, principle, fact, formulary) for becoming can be sought, which would not have again its own becoming. In this sense, the cosmological question never questions the *becoming* of value and meaning—since all becoming is ever a becoming of value and meaning[187]—but only their "being," eternity, immortality.[188]

It is precisely here where Whitehead's differentiation between actual and possible worlds and his introduction of a primordial Eros that hinders any pure chaos, becomes important: while *actual* worlds are always in a process of becoming and perishing, the real deep question for value and meaning is that of the *possible* worlds insofar as they may inherently hold the promise of *immortality*, which for Whitehead is a term signifying the permanence and availability of the production of value and meaning (in events and *cosmoi*) for others.[189]

Here two other "principles" of Whitehead coincide: the "principle of relativity" (which we know already as his basic approach to connectivity), which states that everything must become part of the becoming of other becomings;[190] and the principle of "intensive relevance," which states that *every possibility*—be it real or pure—enters every becoming as part of its process of valuation and decision, valued up or down, *deciding* on the "sculpture" of the existence the becoming will become.[191] The first principle recognizes facts as "real potentials" to enter a new process as (abstract) *values* to be reckoned with and to be evaluated anew. The second principle recognizes also "pure potentials"—so called "eternal objects"—to enter the process of potential reevaluation as surprising novelties or possible worlds to decide on.

Since the "own activity in self-formation passes into its activity of other-formation,"[192] this process of valuation becomes *immortal* as *value* for others, while new possibilities enter the

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[186] PR 95.
[187] For Whitehead's refusal of "vacuous actuality" cf. PR 29.
[188] This does not mean that an „ontology" and „cosmology of becoming" is immunized from questioning, but that it would also to be transformed into a *question*, which would be its *becoming*.
[189] Cf. PR 223, 230.
[190] CF. PR 22, CatExpl iv.
[191] Cf. PR 148.
[192] AI 193.

process as visions of immortal quality. As visions, they are no mere possible worlds, but become *desires of concrete permanence* for which nothing of self-worth is lost. Like the

> four symbolic figures in the Medici chapel in Florence—Michelangelo's masterpieces of statuary, Day and Night, Evening and Dawn—[they] exhibit the everlasting elements in the passage of fact. The figures stay there, reclining in their recurring sequence, forever showing the essences in the nature of things. The perfect realization is not merely the exemplification of what in abstraction is timeless. It does more: it implants timelessness on what in its essence is passing. The perfect moment is fade-less in the lapse of time. Time has then lost its character of 'perpetual perishing'; it becomes the 'moving image of eternity.'[193]

Now the cosmological question transforms into the *question for infinite meaning*. "Existence" never was about quantity x, but about the *self-value* of becoming-x and the *universal meaning* of x's world; it is about the in/finite becoming of *flux and permanence, perishing and immortality.*[194]

7. Strange Worlds

It is precisely with these final "opposites" and their complex, ever *becoming* (and never final) relation that leads Whitehead, guarded by his own cosmological intuition of in/finite becoming, to envision *many* multiple worlds, *strange* worlds.[195]

(a) Actual and Possible Worlds

Possibilities may either form the actual or a potential world of an event. Since unity is always local, i.e., that of the *event* of becoming and *its* actual world,[196] the societies of the cosmic epoch are historic realizations of routes of inheritance and novelty that comprise *many different actual worlds*, united only by the social connection and the mutual immanence of all

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[193] PR 338.
[194] PR 347-8.
[195] Similar to Nozack's *principle of indifference*, which does not privilege any presupposition, Whitehead's whole view is based on *only* a strategic duality (or multiplicity) of principles that has always to be counter-balanced. I call this his *principle of non-privileging* any perspective, side, or principle. This is the motive behind his critique of Darwinism as privileging selectivity, or a law, for that matter, over the multiplicity of events and their only emergent (and perishing) laws, with what he calls "counter-agency" in FR 25-26: "The universe, as construed solely in terms of the efficient causation of purely physical interconnections, presents a sheer, insoluble contradiction. The orthodox doctrine of the physiologists demands that the operations of living bodies be explained solely in terms of the physical system of physical categories. This system within its own province, when confronted with the empirical facts, fails to include these facts apart from an act of logical suicide. The moral to be drawn from the general survey of the physical universe with its operations viewed in terms of purely physical laws, and neglected so far as they are inexpressible in such terms, is that we have omitted some general counter-agency. This counter-agency in its operation throughout the physical universe is too vast and diffusive for our direct observation. We may acquire such power as the result of some advance. But at present, as we survey the physical cosmos, there is no direct intuition of the counter-agency to which it owes its possibility of existence as a wasting finite organism." This non-privileging leads *directly* to Whitehead's differentiation of what I call "strange worlds." The "many multiple worlds" are, then, not indicating *possible* multiple worlds, but *real* "strange" worlds.
[196] Cf. PR 21.

becomings.[197] The *peculiar character* of cosmic epochs, with their many complex world-layers, contributing to their over-all "form," however, is due to the *interaction* of these many actual worlds *as potential worlds* of inheritance and reevaluation in ever new becomings, which form the *character* of a cosmic epoch with *alternative possible worlds* of pure possibility that stand for the *contingency* of the historic route of each and every cosmic epoch.

> The peculiarity of the course of history illustrates the…relevance of the 'ontological principle'…. The evolution of history can be rationalized by the consideration of the determination of successors by antecedents. But, on the other hand, the evolution of history is incapable of rationalization because it exhibits a selected flux of participating forms. No reason, internal to history, can be assigned why that flux of forms, rather than another flux, should have been illustrated. It is true that any flux must exhibit the character of internal determination. So much follows from the ontological principle. But every instance of internal determination assumes *that* flux up to *that* point. There is no reason why there could be no alternative flux exhibiting that principle of internal determination. The actual flux presents itself with the character of being merely 'given.' It does not disclose any peculiar character of 'perfection.'[198]

(b) All Possible Worlds

Since possibilities only "exist" in relation to actual worlds or regarding the "existence" of the Universe in its cosmic epochs, "all possible worlds *are* not realized actually—as Lewis claims—but, like in Leibniz, only in the "mind of God."[199] Since, for Whitehead, the "total multiplicity of Platonic forms is not 'given',"[200] do the Primordial Nature is understood to relate all possible worlds to all actual worlds by creatively determining their actually chaotic connectivity in a "primordial ordering," which, at the same time, is the primordial instance of an *actual decision*, a *becoming*, although not in physical time or the time of any cosmos.[201] This determination of all possible worlds in relation to all actual worlds, then, is the

> ideal realization of potentialities in a primordial actual entity [that] constitutes the metaphysical stability whereby the actual process exemplifies general principles of metaphysics, and attains the ends proper to specific types of emergent order. By reason of the actuality of this primordial valuation of pure potentials, each eternal object has a definite, effective relevance to each concrescent process. Apart from such orderings, there would be a complete disjunction of eternal objects unrealized in the temporal world. Novelty would be meaningless, and inconceivable.[202]

In Whitehead's account, "all possible worlds" do *not* realize any infinite *parallelism* of actual worlds; rather they are *no world at all*. As a chaotic realm of possibilities in the Primordial Nature they "exist" only and *precisely* as possibilities *for* actualization,[203] allowing for both novelty and order—as contingently actualized in the in/finite becoming of events and *cosmoi*.

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[197] Cf. AI 134.
[198] PR 46-7.
[199] PR 46.
[200] PR 43.
[201] Cf. PR 31.
[202] PR 40.
[203] PR 301.

The closest Whitehead comes to the idea of the "realization" of all possible worlds (of which he, however, denies any logical necessity) is by his understanding of their "ideal realization" in the Primordial Nature as non-temporal "formative elements" *for* all actual worlds.[204] As a consequence, the Eros lures ever new realizations of ever new orders of ever new cosmic epochs, even if they are incompatible.

> This principle of intrinsic incompatibility has an important bearing upon our conception of the nature of God. The concept of impossibility such that God himself cannot surmount it, has been for centuries quite familiar to theologians. Indeed, apart from it there would be difficulty in conceiving any determinate divine nature. But curiously enough, so far as I know, this notion of incompatibility has never been applied to ideals in the Divine realization. *We must conceive the Divine Eros as the active entertainment of all ideals, with the urge to their finite realization, each in its due season.*[205]

However, since the Eros of the Universe—as the "inter-face" of all possible and actual worlds—is not aiming at any "harmony of logic," but rather at "aesthetic harmony,"[206] we are far from the relentless execution of all possible worlds and its devaluing effect (as in Lewis). Instead, the Eros, in seeking *intensity of satisfaction* through harmonious realization,[207] will lure to *aesthetically satisfying worlds* of ever greater value and ever more intensive meaning. Since "the purpose of God in the attainment of value is in a sense a creative purpose,"[208] all realization will be lured to worlds of ever greater integration of flux and permanence, Life and Immortality.[209]

(c) Physical and Spiritual Worlds

Already established that cosmic epochs are not in any peculiar sense of *this* cosmic epoch "physical," we may now see the diffuse difference between physical and mental events[210] and their different interrelation[211] by discerning a "variety of aspects, under which the various actual occasions enter into each other's natures" so that their "description [allows for]… various relationships within the real physical and spiritual worlds."[212] Although Whitehead saw the "physicality" of worlds as fundamental and a "spiritual world" as "derivative from its physical counterpart"[213] and although he does not endorse "the existence of purely spiritual beings other

[204] Cf. RM 89-90.
[205] AI 277; italics added.
[206] SMW 24.
[207] Cf. PR 105.
[208] RM 104.
[209] From what is said elsewhere, this does not implicate any „final state" or *telos*, but an open-ended in/finite becoming. This is explicitly made clear in Whitehead's late lecture on "Immortality," employed later in the text.
[210] Cf. RM 102.
[211] Cf. AI 248.
[212] RM 102.
[213] Ibid.

than God,"[214] Whitehead *does* explore "other" *strange* worlds in which to think of "purely spiritual beings means, on this metaphysical theory, that there are routes of mentality in respect to which associated material routes are negligible, or entirely absent."[215] In the context of the desire for ever more intense and harmonious realization of flux and permanence—Life and Immortality—these worlds appear just as the inner consequence of the metaphysical principles we have outlined. I find at least three relevant consequences to these "strange worlds":

1. A cosmic epoch in which the "temporal world, [for which] it is the empirical fact that process entails loss: the past is present under an abstraction" is suspended, because "there is no reason, of any ultimate metaphysical generality, why this should be the whole story": "Why should there not be novelty without loss of this direct unison of immediacy among things?"[216] This would be a quite different world in which precisely the perishing, which reduces intensity, would be lost; novelty, however, as "possible now worlds" would be of permanent value to sustain Life.
2. At a certain point, Whitehead knows that even his only criterion for a physical world, namely "extensiveness," is not of such a generality that nothing beyond it would become least very a border-possibility. Because of the "rule" of in/finite becoming that "extensiveness becomes, but 'becoming' is not itself extensive"[217], and because "even extensiveness allows of grades of specialization, arbitrarily one way or another, antecedently to the introduction of any…additional notions,"[218] we may think of a cosmic epoch beyond extensiveness in any relevant sense related to our cosmic epoch—a "spiritual world" perhaps of which we, of course, do know nothing. Hence,

   > Perhaps [the extensive continuity]…is an ultimate metaphysical truth holding of all cosmic epochs; but this does not seem to be a necessary conclusion. The more likely opinion is that extensive continuity is a special condition arising from the society of creatures which constitute our immediate epoch.[219]

   So even if, "for the philosophy of organism the primary *relationship* of physical occasions is *extensive connection*," and "for our epoch, extensive connection with its various characteristics is the fundamental organic relationship whereby the physical world is properly described as a community"[220] (PR 288), it

   > is difficult to draw the line distinguishing characteristics so general that we cannot conceive any alternatives, from characteristics so special that we imagine them to belong merely to our cosmic epoch. Such an epoch may be, relatively to our powers, of immeasurable extent, temporally and spatially. But in reference to the ultimate nature of things, it is a limited nexus. Beyond that nexus, entities with new relationships, unrealized in our experiences and unforeseen by our imaginations, will make their appearance, introducing into the universe new types of order.[221]

3. In a final bold move, Whitehead even envisions that not only may "all possible worlds" be harbored in the Primordial Nature, but that, since God would be the ultimate intersection of

[214] RM 111.
[215] RM 110.
[216] PR 340.
[217] PR 35.
[218] PR 91.
[219] PR 35-6.
[220] PR 288.
[221] Ibid.

all possible and all actual worlds, there might be a Consequent Nature, in which all actualizations of all possibilities, all in/finite becomings in their actualization as events and *cosmoi* might be of infinite value and universal meaning even beyond their relevance to the process in which they are situated with "objective immortality." In *Adventures of Ideas*, Whitehead envisions this "world" as Peace, which is the

> emergence of some deep metaphysical insight, unverbalized and yet momentous in its coordination of values. Its first effect is the removal of the stress of acquisitive feeling arising from the soul's preoccupation with itself. Thus Peace carries with it a surpassing of personality. There is an inversion of relative values. It is primarily a trust in the efficacy of Beauty. It is a sense that fineness of achievement is as it were a key unlocking treasures that the narrow nature of things would keep remote. There is thus involved a grasp of infinitude, an appeal beyond boundaries.[222]

Infinite value and universal meaning, then, always aim beyond the regime of perishing and demand the integration of "reality in itself" and "reality as a whole" in what may be called an "eschatological realm."[223] In *Process and Reality*, it appears alternatively as "kingdom of heavens," which "is the transmutation of that temporal actuality into a living, ever-present fact"[224] or as Consequent Nature,

> in which the many are one everlastingly, without the qualification of any loss either of individual identity or of completeness of unity. In everlastingness, immediacy is reconciled with objective immortality.[225] (PR 351)

(d) The Worlds of Activity and Value

The exploration of such strange worlds in answering the deep philosophic questions of cosmology demonstrates Whitehead's principle of in/finite becoming, which can, at no time, be reduced to any unity or static duality, or unrelated multiplicity of elements. In a difficult, ultimate conceptualization, Whitehead expresses this "principle" by his refusal to dissolve God and the Worlds into one another and by understanding their differentiation as primordial exemplification of the in/finite process of *mutually determining* "fluency *and* permanence,"[226] or better,

> actuality with permanence, requiring fluency as its completion; and actuality with fluency, requiring permanence as its completion. The first half of the problem concerns the completion of God's primordial nature by the derivation of his consequent nature from the temporal world. The second half of the problem concerns the completion of each fluent actual occasion by its function of objective immortality, devoid of 'perpetual perishing,' that is to say, 'everlasting.' This double problem cannot be separated into two distinct problems. Either side can only be explained in terms of the other.[227]

In a final reflection in his last lecture on "Immortality," Whitehead reconceptualized this difference as a relationship of two Worlds: the "World of Activity" and the "World of Value". The "World of Activity…is the World of Organization: It is the Creative World."[228] It indicates all series of in/finite becoming in all worlds; it is the "embodiment" of what Whitehead in

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[222] AI 285.
[223] Cf. R. Faber, "God's Advent/ure: The End of Evil and the Origin of Time," in J. Bracken, ed., *World Without End: Christian Eschatology from Process Perspective* (Grand Rapids, 2005), 91-112.
[224] PR 350.
[225] PR 351.
[226] PR 347.
[227] PR 347. For a discussion of this *twofold* principle of flux and permanence cf. Faber, *Prozesstheologie*, § 12.
[228] Imm. 79.

Process and Reality calls "Creativity"[229]—the creative unification of many—or in *Adventures of Ideas* the "Self-Creativity"[230] of every becoming— *finite* becoming by involving an *infinite* background of which it is a finite decision. In his last article, "Mathematics and the Good," Whitehead's states it this way: the "essential relatedness of all things" has value and meaning, because all "finite entities require the unbounded universe, and…the universe acquires meaning and value by reason of its embodiment of the activity of finitude."[231] Therefore, "all possible worlds" form a "World of Value [that at its "basis"] exhibits…the notion of God."[232]

Since any "World can only be explained by reference to the other World,"[233] it is precisely in their *mutual interaction* that the deep cosmological question comes to the forth: While in themselves they are mere "abstractions from the Universe" or the "totality of the universe,"[234] value and meaning become *generated* only at the *intersection* of both worlds *as* their in/finite becoming. *All the many multiple worlds of Whitehead finally coincide in this process of infinity and finite becoming as the infinitely becoming of the intersection of those two Worlds*. Hence, while

> Spinoza emphasized the fundamental infinitude and introduced a subordinate differentiation by finite modes…. Leibniz emphasized the necessity of finite monads and based them on a substratum of Deistic infinitude. Neither of them adequately emphasized the fact that infinitude is mere vacancy apart from its embodiment of finite values, and…finite entities are meaningless apart from their [infinite] relationship beyond themselves. (MG 106)

In view of this in/finite process of becoming, *our* cosmos itself seems to be becoming a somewhat odd actualization of—of what?

> The universe…is thus passing with a slowness, inconceivable in our measures of time, to new creative conditions, amid which the physical world, as we at present know it, will be represented by a ripple barely to be distinguished from nonentity. – The present type of order in the world has arisen from an unimaginable past, and it will find its grave in an unimaginable future. There remain the inexhaustible realm of abstract forms, and creativity, with its shifting character every determined afresh by its own creatures, and God, upon whose wisdom all forms of order depend.[235]

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[229] PR 21.
[230] AI 236.
[231] MG 106.
[232] Imm. 90. Cf. R. Faber, "De-Ontologizing God: Levinas, Deleuze and Whitehead," in C. Keller and A. Daniell, eds., *Difference and Process. Between Cosmological and Poststructuralist Postmodernism* (Albany: SUNY, 2002), 209-234.
[233] Ibid.
[234] Imm. 80.
[235] RM 160.