Process Philosophical Reflections on the Whiteheadian Intellectual Heritage

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Edited by

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Cambridge Scholars Publishing

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This book first published 2025

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-0364-5663-4
ISBN (Ebook): 978-1-0364-5664-1

In Memoriam
This text is dedicated to the memory of Helmut Maaßen
(1946–2023)

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INTRODUCTION

VESSELIN PETROV[1]

A. N. Whitehead (1861–1947) is widely regarded as one of the most significant scientists, philosophers and thinkers of the 20th century. His philosophical work has had a profound impact on the development of philosophy in almost all of its areas, including metaphysics, ontology, the philosophy of science, the philosophy of religion, ethics, æsthetics, and the philosophy of education, to name but a few. The significance of most of his books has remained undiminished nearly a century after their initial publication. Actually, the sheer breadth and influence of his philosophical contributions is such that it is almost impossible to enumerate all the areas of philosophy that have been influenced by him.

This is particularly evident in his Harvard period publications, including *Science and the Modern World* (1925), *Religion in the Making* (1926), *Symbolism. Its Meaning and Effect* (1927), *The Aims of Education* (1929), *The Function of the Reason* (1929), *Process and Reality* (1929), *Adventures of Ideas* (1933), *Modes of Thought* (1938), and *Immortality* (1941).

It is evident that his concepts are not confined to static notions; they possess a historical evolution and are in a perpetual state of development, particularly within the context of contemporary Whiteheadian scholarship. Whiteheadian philosophers do, of course, investigate and develop further Whitehead's legacy, and it is thus advisable to probe these contemporary assessments of Whitehead. The present volume aims to do just that. In order to do so, the book is divided into four parts: a) General concepts and basic skills in education; b) The future of education; c) Arts and ethics; d) Community, medicine, psychology, AI. The authors express their aspiration that this volume will be followed by complementary studies.

The first part of the book is dedicated to some general concepts and basic skills in education, and it comprises four chapters.

In the first chapter, Michel Weber provides an analysis of the concept of "creation" in the late philosophy of A. N. Whitehead, delineating a radical

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ontological renewal of the concept through five steps. Firstly, the premises are specified with the aid of two concepts of change. Secondly, the concept of "creation" present in *Science and the Modern World* and *Religion in the Making* is outlined. Thirdly, *Process and Reality*'s concept of "creativity" is introduced. Fourthly, the concept of "creative creation" is extracted from *Adventures of Idea*s. Fifthly, the author unfolds the concept of "co-creation" of the World and God that is articulated in one of Whitehead's last articles, "Immortality." Besides the theoretical usefulness of this analysis, there are also practical benefits to such a discussion, e.g., in education, because creativity is one of the main skills that should be fostered in students.

In the second chapter, Vesselin Petrov advances the notion that critical thinking serves as the catalyst for the development of all skills and competencies in education. Dr. Petrov's argument is predicated on the premise that the developmental epochs of the world and the stages of its knowledge are analogous to Whitehead's stages of education: romance, precision and generalisation. The argument commences with a concise historical exposition of the development of critical thinking, followed by a consideration of the competencies of critical thinking according to their description in the extant literature. The contemporary significance of critical thinking is emphasised, and the leading role of critical thinking among all other competencies is stressed. Dr. Petrov concludes that critical thinking should be featured in all subject matters that are learned in schools and universities, and not only in specialised courses.

In the third chapter, Denys Zhadiaiev interrogates the notion of 'key skills 2025' and the philosophical underpinnings of Whitehead's educational principles. Dr. Zhadiaiev underscores the enduring nature of our cognitive processes and modes of knowledge acquisition, positing that the fundamental tenets of these processes remain constant despite the technological advancements that have profoundly transformed our daily lives. By reflecting on Whitehead's insights on education, we are able to explore the enduring principles of cognition. The World Economic Forum's key skills, as outlined in its report, echo the principles set out in *The Aims of Education*.

Chapter four, authored by Petya Klimentova and entitled "Media literacy education in Bulgaria — Is the Birnam wood going to walk? (an attempt at a Whiteheadian approach)," is dedicated to the challenges encountered in several European nations concerning the integration of media literacy skills in secondary education. The chapter commences with a secondary analysis of the European Media Coach Initiative project, followed by the demonstration of the practical application of fundamental concepts through tangible techniques, drawing upon personal experiences in educational settings as perceived through the lens of Whitehead's

philosophy. The author's exploration of the contemporary status of media literacy education in Bulgarian schools, with a particular focus on key initiatives and programmes that have been implemented, underscores a pressing need for an enhanced, student-centred approach that emphasises critical thinking as a fundamental component of MIL. In her examination of Whitehead's educational theory, Dr. Klimentova contends that its three stages should be integrated into media literacy education.

The second part of the volume continues the discussion of the problems in education from the perspective of its future. In chapter five, Roland Cazalis questions Whitehead and intensification from the perspective of the power of haptics in early education. The chapter is devoted to the impact on society of the development of digital technology and how it is changing the way we learn and teach. Process learning, in this context, necessitates an advanced pedagogical framework that extends beyond the mere acquisition of fundamental components. It is imperative to consider individuals in all dimensions of their existence and to provide them with a comprehensive framework. Such a perspective facilitates the differentiation of essential and optional elements within the curriculum, while simultaneously identifying the digital tools that must be mastered to customise learning to individual needs. Whitehead's educational approach, informed by his experiential method and interwoven with his aesthetic vision, presents all the hallmarks of such a pedagogy. In the latter, the stimulation of haptic senses appears crucial for effective learning through emotional and bodily engagement with graphics.

In chapter six, Štefan Zolcer interrogates the objectives of education for the future, challenging the conventional approach of preparing students for a past or, at best, a present reality. In light of rapidly evolving societal changes, the necessity to educate students for a future world becomes paramount. The question therefore arises as to what kind of future we aspire to prepare our students for, and what qualities we must cultivate. The paper presents a three-level model of the problems of education (partly applicable to the global crisis) and argues that Whitehead's philosophy can be helpful. The educational systems of many countries have focused mainly on the development of intellectual specialised knowledge, leading to the problem of professionalism, and a collection of isolated encyclopaedic knowledge without critical reflection or moral (aesthetic) sensitivity. However, there exists a plethora of other qualities that should be cultivated during the educational process, including critical thinking, emotional health and stability, flexibility, empathy, and cooperation. In the context of the prevailing moral, spiritual, and environmental crises, it is imperative to discern three distinct aspects of the general objectives of education

(individual, collective, and global) that can facilitate the attainment of a desired future. It is asserted that numerous qualities, some of which may be deemed more significant than future professions, can be cultivated through education. These include critical thinking, emotional health and stability, flexibility, empathy, cooperation, environmental awareness, and numerous others. The objective should be to design an education that fosters a flourishing society and healthy individuals, rather than merely preparing for a future job market or other specific needs. In this regard, Whitehead's philosophical insights on education can offer a valuable framework.

In Chapter seven, Vesselin Petrov explores the philosopher's responsibility for education in the age of AI. The central argument is that philosophy should be guided by the future, not the past, and that the process of education and learning is becoming increasingly complex. Dr. Petrov contends that, while the interaction between human learning and machine learning holds great promise, we are still in the early stages of this revolution, and its potential must be thoroughly (and urgently) assessed. A pivotal shift pertains to the role of educators, wherein human instructors are set to be supplanted by a form of artificial intelligence, thereby assuming the supervisory functions. The advent of strong artificial intelligence could potentially confer it with equivalent rights to human intelligence. Indeed, the existence of strong artificial intelligence may be considered analogous to the existence of extraterrestrial intelligence, necessitating a treatment that aligns with the principles that, according to the author, govern extraterrestrial intelligence. Consequently, the utilisation of strong AI in human learning and teaching processes could be regarded as analogous to an extraterrestrial intelligence imparting knowledge to human pupils. The principles of the learning theory that will govern the processes of learning in the future society of artificial intelligence may obviously differ from those that are currently applicable to humans. It would be unwise to leave people in the future to be entirely educated by a highly developed AI. Therefore, reliance on AI in the weak sense should be limited to the educational and learning processes. AI in the weak sense will not substitute for or eliminate the role of the teacher, but rather modify its functionality.

The third part of the volume comprises chapters that address issues pertaining to arts and ethics. Chapter eight is dedicated to a critique of philosophical approaches as art forms by Denys Zhadiaiev, who highlights the ambiguity of the boundary between philosophical and non-philosophical domains, thereby underscoring the emergence of novel philosophical types. According to Kant, while there are no established rules for philosophy, there are guidelines for the expression and clarification of ideas considered to be philosophical. In light of this observation, Dr. Zhadiaiev interrogates the

very principles of philosophical expression, positing with Aristotle that non-contradiction stands as a fundamental tenet. The objective is to evaluate sophistry and relativism against this criterion, thereby ascertaining the contemporary state of postmodernism and metamodernism. Any conceptualisation of a constructed reality must be predicated on a robust framework of categories, rendering it imprudent to formulate trends on the relativistic, precarious foundation of beliefs. The author's objective is to clearly identify the principles that qualify any form of knowledge as philosophical. Furthermore, the author attempts to demonstrate that certain inclinations in social and political discourse suggested as 'philosophy' may not truly reflect those principles against which discourses can be considered as an authentic philosophical approach.

Chapter nine is devoted to process architecture as an ecological alternative to modern architecture. Maria-Teresa Teixeira claims that process philosophy provides a new way of thinking which is necessary if the world is to overcome an economic model that destroys life and unduly appropriates every planet creature. Architecture is rarely considered in ecological theories, yet it is one of the main culprits of environmental breakdown. The author's primary theoretical foundation is the philosophy of architecture developed by Christopher Alexander, an architect and philosopher, in his magnum opus, *The Order of Nature*. This philosophy aims to reject the disconnectedness of people from their environment, striving instead for a holistic approach to architecture that fosters life. Alexander's approach draws upon Whitehead's philosophy to address the shortcomings of the prevailing modern architecture worldview. The challenge of overcoming the disconnections in modern architecture, both from nature and from the human condition, appears formidable. Nevertheless, the notion of wholeness, which underlies reality as a fundamental and spontaneous order, has the potential to engender novel lifestyles that have already been explored and may once again enable an ecologically sustainable mode of existence on our planet.

Chapter ten by Sylvia Borissova considers aesthetic experience and normativity in a process axiological perspective. Taking as a starting point the genealogy of axiology as a philosophical field consolidated at the edge of the 19th and the 20th century, Dr. Borissova delves into the metaphysical and ontological developments of the concept of value in Whitehead's process philosophy, and then analyses the relation between aesthetic experience and normativity. In the context of process axiology and Whitehead's philosophical legacy, the consequences of the quality unifying processes of creativity are not only works of art, but all "concrescences" of novel actual entities, both organic and inorganic.

Chapter eleven explores the ethical implications of Whitehead's philosophy, highlighting the potential for ethical reflection within his organicist metaphysics. Federico Giorgi examines several ethical implications by drawing upon recent scholarship and using Whitehead's work as a point of reference. The analysis is divided into three sections: a) an introduction to the metaphysical framework of Whitehead's ethical investigations; b) a detailed discussion of some fundamental notions of Whitehead's ethical view, such as importance, value and beauty; c) the description of the processes which, on a Whiteheadian view of morality, enable the emergence of moral feelings; d) a discussion of possible ethical issues related to space exploration, aimed at assessing the relevance of a Whiteheadian moral theory for cosmocentric ethics. The author puts forward the argument that there exists a close connection between Whitehead's moral insights and his concept of creative advance, in the sense that each of the three dimensions which Whitehead ascribes to morality is matched with an aspect of the creative advance. Furthermore, the author contends that moral values occur in our beauty experiences, thus demonstrating that ethics is not completely separated from aesthetics.

The fourth part of the book contains a discussion of topics around community, medicine, psychology, and AI.

Chapter twelve, written by Maria Regina Brioschi, is devoted to an analysis of community and communication from a Whiteheadian perspective. The chapter is divided into several sections. The first section claims that a process approach is especially needed today, with the challenges posed by technological advancement and social changes. The second part tackles the topic of community and attempts to understand the advantages of a processual perspective. The third part focuses on communication, demonstrating how it should be radically revised. Finally, Dr. Brioschi introduces one of Whitehead's most relevant concepts: evidence.

In chapter thirteen, Anastasiia Zinevych discusses processual and structural approaches to end-of-life narratives analysis, providing two hermeneutical strategies of the clinical end-of-life narratives of terminally ill patients. The first strategy is a synthetic strategy, which seeks to intuitively grasp the meaning of the narrative as a whole, and searches for a lived reality lying beyond the narrative. The second strategy is analytical, seeking to identify the structural elements of the narrative, such as images, motifs and plots, and to identify a dominant macro-plot that unites these structural elements by meaning. The first strategy is processual, and is usually opposed by process thinkers to the second, which is structural-semantic. Dr. Zinevych furthermore discusses the ways for reuniting of

those strategies as two levels of hermeneutic-anthropological analysis. The author's findings support the hypothesis that while the narrative content is fluid, the meta-plot that unites its elements (situational motifs, sub-plots, etc) remains stable, as do the recurring leitmotifs (unifying situational motifs). The stable meta-plot thus unfolds in situational plots and correlates with the core of personality. The most challenging question, however, remains the relationship between the selected elements of the narrative, particularly motifs, and the psychological category of motivation. Since we currently lack a method that allows us to identify this psychological component with the same level of precision, this remains a task for future research.

Chapter fourteen, authored by Elisabetta Angela Rizzo, explores the application of Whitehead's concept of symbolic reference to autism, illuminating the relationship between perception and symbolic reference. The chapter emphasises the role of perceptual differences in shaping language in the context of autism, a traditionally defined condition by social communication challenges, but also profoundly influenced by unique sensory experiences. Recognising these sensory-perceptual differences is essential for improving communication and reducing misunderstandings between autistic and non-autistic people. Whitehead's symbolic reference arises from the interaction of two modes of perception: causal efficacy and presentational immediacy. By incorporating sensory perception theories in autism, Dr. Rizzo demonstrates how Whitehead's philosophy can enhance our understanding of symbolic engagement within autistic communication.

In Chapter fifteen, Roland Cazalis advances a Whiteheadian approach to the perception of molecular machines, contending that Whitehead's philosophy furnishes a conceptual framework for formulating the logic underlying the perceptual mechanism of molecular machines, including viruses. Dr. Cazalis broadens the definition of perception to encompass all of reality, eschewing its subjective origins, thereby demonstrating that at the most fundamental level of reality, blind acts of perception prevail. This approach is grounded in the concepts of prehension, concrescence, and satisfaction, the latter occurring when the viral genome is integrated into the cellular genome, becoming a functional component of a living system. Interactions between molecular automatons and living matter serve as a model for analysing the relationship between inert matter and living matter. The author identifies the conditions that enable this interaction, namely the long-standing shared history between viruses and living organisms, as well as the value underlying the viral trajectory, all orchestrated within an organic logic.

In sum, this book represents a significant enhancement to Whiteheadian scholarship, extending the frontiers of philosophical discussion. Its insights are applicable not only to process philosophers worldwide but also to scholars from diverse philosophical backgrounds. Furthermore, it serves as a catalyst for new investigations, findings and advancements in various fields, including education, medicine, psychology, ethics, ecology, arts, aesthetics, artificial intelligence, society, communities, human civilisation and more. The present volume also demonstrates the necessity for philosophy to be guided by the concrete issues impacting our common future, rather than by past abstract analyses, and to adopt a pragmatic, even optimistic approach.

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ACKNOWLEDGEMENTS

Expressions of gratitude are extended to the participants of the 13th International Whitehead Conference, which was devoted to the subject of "Whitehead and the History of Philosophy" in 2023, as well as the participants of the 8th European Summer School in Process Thought, which was devoted to the subject of "Philosophy nowadays: Philosophical approaches on cultural heritage, resilient communities and future times" (2024). The present volume has largely emerged from these two conferences.

—Vesselin Petrov (Bulgarian Academy of Sciences)

PART ONE:

GENERAL CONCEPTS AND BASIC SKILLS IN EDUCATION

CHAPTER ONE

THE CONCEPTS OF "CREATION" IN THE LATE PHILOSOPHY OF A. N. WHITEHEAD

MICHEL WEBER[1]

Abstract

The present paper sketches the radical ontological renewal of the concept of creation achieved by the late Alfred North Whitehead (1861–1947). Its aim is to specify the price to pay, within his (expanded) categories, for a real processualization of the God-World interaction.

The paper is structured in five steps. First, the premises are specified with the help of two concepts of change. Second, the paper sketches the concept of "creation" present in *Science and the Modern World* and *Religion in the Making*. Third, it proposes a sharp analysis of *Process and Reality*'s concept of "creativity." Fourth, we see how *Adventures of Ideas* proposes a "creative creation" of sorts. Finally, the implications of the "co-creation" of the World and God, as articulated in one of Whitehead's last articles, "Immortality," are unfolded.

Keywords: A. N. Whitehead, process philosophy, process theology, becoming, creation, creativity, co-creation

Introduction

Although the concept of creation *per se* belongs to the religious sphere of revelation and faith, it has received a specific treatment within the philosophical project, which has factually (if not necessarily) acted as an interface. The purpose of this paper is to sketch the radical ontological renewal of this question that has been attempted by the late Alfred North Whitehead (1861–1947). Specifically, it focuses on *Process and Reality*'s categoreal scheme, which represents the pinnacle of his Harvard period

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(1924–1937).[2]

In order to display the development of the idea of creation in Whitehead's thought, five steps are required.

Firstly, the premises are specified with the aid of two concepts: change *qua* transformation or morphogenesis, and change *qua* creation or hylogenesis. The former is a continuist concept that perceives Nature's unrest as a "perpetual transition into novelty." Change is morphological in so far as new patterns are made of old ones. With the strong concept, there cannot be a continuous stream of events progressively disclosing new cosmic features. Genuine novelty can only enter the World in a disruptive, bud-like manner, manifesting as the unexpected rupture within the fabric of the universe.

Secondly, the paper delineates the concept of "creation" as posited in two earlier Harvard works, *Science and the Modern World* and *Religion in the Making*, which fundamentally reinterpret Plato's *Timaeus* by introducing the concept of an actual occasion and an eternal object, along with a "God" of sorts.

Thirdly, it puts forward a thoroughgoing analysis of the concept of "creativity", which is at the core of the "Category of the Ultimate", itself the focal point of *Process and Reality*.

Fourthly, it is evident that *Adventures of Ideas* proposes a *tertium quid* offering, to a certain extent, the advantages of Plato's intuitive solution and of Whitehead's late concepts: a "creative creation" of sorts.

The fifth point of discussion is concerned with the implications of the "co-creation" of the World and God, as articulated in one of Whitehead's final articles, entitled "Immortality."

1. Change

Among the plethora of philosophical conundrums, the inquiry into change stands as a particularly profound enigma, given its pervasive influence across diverse fields of study, commencing with ontology and its Zenonian perspective, while extending to ethics and the notion of liberty, and culminating in psychotherapy and the very prospect of remedying maladies. As has been argued elsewhere, there has constantly been a synergy between ontology and psychology; there is always, *volens nolens*, a correlation between the ontological and the psychological leading concepts; they do not simply fit, they match each other (Weber 2012, Weber 2021). If one sees oneself as endowed with an "ego" experiencing only accidental changes,

[2] A preliminary version of this paper was published in (Weber 2005).

one understands the world as made of "substances" undergoing only contingent changes.

Everyday life reveals two aspects of experience that appear to be equally fundamental: change (a notion advocated, for example, by Heraclitus and Shelley) and persistence (a concept prized, for example, by Parmenides and Wordsworth). According to some scholars, activity, novelty, flux and accident constitute the ultimate reality; according to others, passivity, persistence and blind repetition are fundamental.

The ontological non-dualism imposed by process thought does not result in the destruction of Aristotelian substantialism, but its relativisation. Whitehead's objective is not to revoke the category of substance, but rather to reconstruct its limited applicability from an eventful perspective. In essence, this entails the elucidation of the mesocosmic legitimacy of the notion of substance (its congruence with our human experience, which neither encompasses the macrocosm nor adequately addresses the microcosm) through the utilisation of societies (or trajectories) of "bud-like" events. The process standpoint is of particular interest as it was categorically dismissed by Aristotle and Plato as unscientific. The event or accident (sumbebekos) is prioritised over essences, substances and other such entities, which are considered secondary and contingent. The objective is to establish an accidental science, a science of change, becoming, instability and process. Let us specify.

The concept of process is an ancient one, manifesting in two primary forms: a weak (transformative) process and a strong (creative) process. It is important to note that this is a broad perspective, seeking simplicity but also distrusting it. The proposal put forward is a cautious one, given the necessity to remember that

> most of the muddles of philosophy are […] due to using a language which is developed from one point of view to express a doctrine based upon entirely alien concepts.[3]

1.1. The weak concept

The weak concept, which is characterised by its focus on events, flux, instability and related phenomena, prioritises the concept of becoming over that of being. In this sense, 'being' is interpreted as the surface manifestation of ever-changing, underlying relationships. This conceptualisation may occur at the phenomenological level, without the involvement of ontological problematisation. A notable illustration of this perspective can be found in

[3] *Var. auct.* 1932, 27. "Seek simplicity and distrust it." (Whitehead 1964, 163)

Whitehead's 'London period'. This is a continuist concept, which perceives Nature's unrest as a "perpetual transition into novelty". Change is morphological in nature, with new patterns being continuously constructed from old ones, akin to the use of the same bricks in the successive construction of a house, a shop and a factory.

According to Greek philosopher-scientists, change exhausts itself in (can be understood only by) kinêsis and morphogenesis; hylogenesis (the creation of "matter") is properly unthinkable. The coming to be of new mundane items is understood as the birth of "new" forms, not of new matter, simply because the cosmos is "closed" and tightly hierarchized.

In Aristotelian terms, change was conceptualised in Greece as either movement or generation/corruption (coming into and the going out of being: "genesis kai phtora").[4] Movement, defined as the change of position in space, be it quantitative or qualitative, presupposed the essential continuity of the mobile as subjectum. Conversely, generation/corruption, the most fundamental mode of change, was conceptualised as morphogenesis, i.e. the continuous genesis of new forms from old ones. This suggests that transformation or metamorphosis could not allow events to irrupt the world with totally new features. The reason for this is quite simple: change occurs within a cosmos, a pre-given ordered Totality. The concept of cosmic growth, in this context, is rendered entirely unthinkable.

1.2. The strong concept

The strong concept raises not only the ontological question, but also poses a more audacious claim: namely, that a continuous stream of events progressively disclosing new cosmic features is an impossibility. In this sense, *Process and Reality*'s (1929) "creative advance" asserts that genuine novelty can only manifest in a disruptive, bud-like manner, with the aim of securing true becoming and facilitating the emergence of the unexpected within the fabric of the universe. As Whitehead (1968, p. 97) asserts, "Process and individuality require each other": change is not merely a

[4] The challenge inherent in this argument stems from the necessity to assign conceptual labels to delineate the overarching Greek state of mind. Moreover, Aristotle's utilisation of his own categories is not as unambiguous as one might expect, yet he elucidates that a subject perpetually persists amidst change. Change can be categorised as either 'generation/corruption' (genesis kai phtora) or one of the forms of 'kinêsis': quantity change (growth and corruption: auxesis and phtisis), quality change (alteration: alloiosis) and change of place (locomotion: phora). The place ('topos') in accordance with which the phora occurs is not a neutral space, but a geocentric and spatially hierarchised one.

passive process, but rather, it is the very essence of creation, or, more aptly, creativity.

In Whitehead's process philosophy, "nature is never complete" and "it is always passing beyond itself" (Whitehead 1978, p. 289). The British philosopher's ontology is process-based, hence adequate to the "open" chaosmos. Whitehead's organicism argues for a reformed hylogenesis. However, asserting that Whitehead's understanding of change, whether kinetic or morphogenetic, is solely hylogenetic, would not be a radical enough claim, as substantialistic hylemorphism is merely reframed, rather than being entirely dismissed. When Whitehead asserts that the Aristotelian concept of the "procession of forms" should be replaced by the notion of the "forms of process," it becomes evident that hylemorphism must be rejected. (Whitehead 1968, p. 140) Consequently, the concept of movement, morphogenesis or hylogenesis is rejected (Whitehead 1978, pp. 73, 35, 68, 79) in favour of a perpetual creative re-creation of the World. Whitehead's concept of change has undergone a transformation, moving from a notion of continuous change within the World to a perspective of discontinuous change, characterised by the emergence of a new event at the periphery of the World, thereby inducing its transformation. From a technical standpoint, the concept of a spatio-temporal trajectory has evolved into that of a hypertrajectory within the extensive continuum.[5] In Greek thought, everything changes and nothing becomes; in Whitehead's system, everything becomes

[5] The status of the extensive continuum is delineated in Process and Reality Part IV, and it is imperative to differentiate the extensive continuum and the extensive connection. The relation of extensive connection, operating between regions (whereas the "extensive abstraction" of his earlier works was operational among a continuum of events), spells how extension is both required by the processes of concrescence and of transition, and derivative from them. It is, so to speak, both ex ante and ex post. Extension is required in so far as extensive connection provides a general type of relatedness that secures the possibility of the solidarity between past, present and future actual entities, i.e., in so far as it expresses the solidarity of all possible standpoints. For instance, the concrescence presupposes its basic region. This ultimate relationship is sui generis, and cannot be defined or explained, but its formal properties can be stated. Some of the simpler characteristics of extensive connection are probably such ultimate metaphysical necessities." (Whitehead 1978, p. 288). These characteristics lead straight to a contiguist worldview. It is also crucial to emphasise the distinction between the extension, as defined here (with a limited number of properties and no metrics), and the common-sense or scientific notions of spatial and temporal extension, which are a contingent by-product of our cosmic epoch (cf. the multiple space-time systems introduced by *An Enquiry Concerning the Principles of Natural Knowledge*). Extension is derived insofar as it manifests the actual interconnection in the extensive continuum. The ex post occupied (or proper) region corresponds to the ex ante "basic region."

and nothing changes. Destiny has a new fatum; it shas acquired a new significance.

Consequently, it is pertinent to inquire whether, in processualising his cosmos, Heraclitus addressed only the kinetic and morphogenetic processes, and whether this constituted a partial engagement with the strong concept. It could be argued that Zeno's paradoxes, Plato's exaiphnes, Albertus Magnus's fluxus[6] and the Leibnizian fulguratio[7] are indicative of Greek and Medieval prescience of the aporia that is a closed world. A world in which solely kinetic and morphogenetic changes systematize flux is deemed to be absurd (epistemologically as well as existentially). However, as will be demonstrated in the following sections, it was Whitehead who first demonstrated the potency of the concept of percolation for understanding becoming. The purpose of this concept of percolation is threefold: firstly, to furnish a more intuitive nomenclature for the "epochal theory of time"[8]; secondly, to underscore the synergy that is frequently overlooked between Whitehead's concepts of concrescence and transition; and thirdly, to emphasise that the innovatory process occurs at the periphery of the World/God continuum, as delineated in section 3.

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[6] Albertus Magnus (1200–1280) sought to reconcile Plotinus's emanation (procession: "proodos") and Rome's "creatio ex nihilo" with his metaphysics of flowing or "fluxus." (Albert le Grand, *Le Traité du flux. Tractatus de fluxu causatorum a causa prima et causarum ordine*. Introduit, traduit et commenté par Sébastien Milazzo, Les Belles Lettres, 2013)

[7] For further insight, an examination of Lorenz's speculations is recommended: "When one attempts to describe the great process of organic growth, one finds oneself hampered by the fact that the language of culture was born at a time when ontogeny, i.e., the evolution of the individual creature, was the only form of development known. The etymological connotations of words such as "development" and "evolution" are such that they denote the unfolding of something that was previously in a compressed or confined state, as with a flower in its bud or a chicken in its egg. For ontogenic processes of this kind, such words are perfectly suitable. However, they are lamentably inadequate when one attempts to define the nature of an organic creative process through which something entirely new comes into existence, something that was simply not there before. Theistic philosophers and mystics of the Middle Ages coined the term fulguratio, "flash of lightning," to denote the act of creation, thereby conveying the notion of a sudden intervention from above, from God." (Konrad Zacharias Lorenz, Behind the mirror: a search for a natural history of human knowledge. Transl. by Ronald Taylor [Die Rückseite des Spiegels. Versuch einer Naturgeschichte menschlichen Erkennens, Munich-Zürich, Piper, 1973], London, Methuen & Co., 1977, p. 29.)

8 Cf. *Process and Reality*, pp. 68, 106, 125, 256, 280, 283 (although Whitehead toys with the proximity between the epochal theory and the cosmic epoch—the former being the "original sense" of the later—, they are distinct).

2. Creation

Whitehead's initial conceptualisation of the relationship contrasting (i.e., uniting and opposing) God and the World is largely Platonic. The Preface of *Religion in the Making* (his Lowell Lectures of 1926) emphasises that *Science and the Modern World* (comprising primarily the Lowell Lectures of 1925) and *Religion in the Making* are two independent yet complementary works. In both of these works, Whitehead's discussion of the concept of God occurs in a dispassionate context, i.e., independently of ethical and religious concerns, as he claims. This is especially evident in *Science and the Modern World*, which has no direct roots in these spheres and does not develop such consequences.

Whitehead's objective is to establish a speculative framework that can comprehend the interrelation between relative permanence and genuine flux, potentiality and actuality, uniformity and contingency. His fundamental intuition is dualistic: firstly, the "ontological priority" of flux over permanence; secondly, the grounding of actuality in a "sea" of general potentiality, depicted with the aid of the quasi-Platonic notion of eternal object. The analysis is regarded as transcendental in nature, as it seeks to identify the conditions that enable the transition from the possible to the actual, from being to becoming, and from the many to the one. Furthermore, Whitehead's concept of actualization as a process of restriction (or selection) of potentialities (1967, pp. 159, 178) gives rise to a threefold "principle of limitation". There is a limitation among available eternal objects (in a sense, pure potentials are ontologically prior); there is a limitation imposed by past events (what has happened gives the context for what will happen); and there is general restriction due to the cosmic epoch in question (the laws, or habits, of nature do matter). This "limitation of antecedent selection" (Whitehead 1967, p. 177) or "triple envisagement," strictly immanent to the World (i.e., performed by its actualities), constitutes the conditions of possibility of any mundane occurrence.

However, two issues remain to be addressed: value and order. On the one hand, it can be argued that all phenomena possess inherent value, given their limited existence; however, as Whitehead contends, the existence of value is contingent on the presence of "antecedent standards of value." (Whitehead 1967, p. 178).[9] Conversely, the limitation of antecedent selection does not provide the conditions of compossibility of events (the problem being that the coming into existence of new events necessarily occurs independently of each other). Hence, the introduction of a "Principle

[9] This development serves to reinforce the Kantian argument (cf. Whitehead 1974, 101 *et passim*).

of Concretion" that grounds the antecedent standards as well as the active compossibilization required. Although Whitehead referred to it as "God," the principle functions as a bare servo-mechanism, distinct from the World, yet operating within it.

Religion in the Making resumes the systematic task by naming the three "formative elements" implicit in *Science and the Modern World*: creativity or substantial activity, eternal objects or pure possibilities, and God or the Principle of Concretion. With the expression of these conditions of (com-)possibility of mundane eventfulness, the emphasis falls on the Principle of Concretion, factually obliterating the principle of limitation and thereby down valuing the strictly speaking mundane inner activity. This analysis underscores the enduring influence of Plato's theories, particularly the categories outlined in the *Timaeus*, on Whitehead's philosophical standpoint.

Further analysis would, of course, be required to do justice to both Plato and Whitehead, but time only allows for three brief observations: firstly, the status of the eternal objects, however challenging, cannot be reduced to the one Plato confers to his Ideas —the eternal objects, are, to use Whitehead's term, 'bare abstractions localized in God's primordial nature'. Secondly, the formative elements interconnections are only properly elucidated through the organic categories of *Process and Reality*. Thirdly, there here is a weak systematization of change.

3. Creativity

If creation fundamentally follows Plato's pattern of thought, creativity definitively bears Plotinus's ring. The question therefore arises as to how and why the shift occurred.

Although *Process and Reality* (1929) is widely regarded as Whitehead's magnum opus, the pinnacle of his philosophical endeavours, it was, and continues to be, met with skepticism and significant misinterpretation. Whitehead anticipated this reception, writing to his son North shortly after completing *Process and Reality*: "I do not expect a warm reception from professional philosophers."[10] Indeed, the Gifford Lectures proved to be a debacle, and the book itself is often fragmented, ostensibly to make it more manageable for hurried readers. However, when read in its entirety, it becomes evident that *Process and Reality* disrupts the early threefold Platonic framework by refocusing its ontological speculations around the concept of "creativity."

[10] Cf. (Lowe 1990, p. 252).

In the context of philosophical discourse, the notion of an "ultimate" — that which is considered to be real in its own right— is a fundamental tenet. This "ultimate" is said to be characterised by its "accidents", or more accurately, its embodied qualities. It is only in the context of these "accidents" that the "ultimate" can be said to be actual. Within the framework of the philosophy of organism, this "ultimate" is termed "creativity", with "God" being regarded as its primordial, nontemporal accident. (Whitehead 1978, p. 7)

In order to comprehend the redistribution of roles within the creative dialectic that unites the World and the Formative Elements, it is necessary to examine *Process and Reality*'s categoreal scheme. The enunciation of the "Category of the Ultimate" serves to rebalance Whitehead's ontology, as evidenced in Part V, which makes it clear that neither the World nor God are worthy of the term "Ultimate".

Those who have attempted to articulate, via writing or artistic representation, their experience or a priori understanding of the Ultimate have grappled with profound semantic challenges. The question arises: how does one convey something that does not typically reside within the realm of consciousness? In practice, philosophers often resort to the polysemy of words. In the context of *Process and Reality*, a comprehensive understanding of Whitehead's will-to-say is unattainable without the discernment of the manifold layers of meaning inherent in the concept of creativity and the subsequent reconstruction of their dynamic intertwinement.[11]

In its ultimate manifestation, creativity is all-embracing and omnipresent, with the capacity to encompass all aspects of existence. The concept's power of suggestiveness stems from the tight synergy created by its polychromatic facets, which can be organised into two main axes. Firstly, creativity is considered to be di-pulmonary (or dipneumonous) in nature, with the concept of God and the World representing the two mirror-image locations of the creative rhythm. These are regarded as the "contrasted opposites"[12] that are in constant flux with each other. Secondly, creativity is multifaceted in nature, more precisely bifunctional, functioning as both an agent and a fundamental inclination. On the one hand, it is agent, the driving force behind the process of creation; on the other hand, it is reticulated, the result of a complex network of interconnected processes. It

[11] See (Weber 2006).

[12] "[…] It is as true to say that God creates the World, as that the World creates God. God and the World are the contrasted opposites in terms of which Creativity achieves its supreme task of transforming disjoined multiplicity, with its diversities in opposition, into concrescent unity, with its diversities in contrast." (Whitehead 1978, p. 348)

is important to note that neither creativity nor its factors function in addition to the actual entities —Whitehead's "windowed monads"— but through the contrasted opposites, whose osmotic co-belonging and symmetric bifunctionality it ensures. It is only the intertwining of these two threads that can approximate Whitehead's intuition.

The assertion that creativity is dipneumonous aims to emphasise three complementary points: firstly, although there are significant differences between the "World" and "God," there is neither ontological primacy nor bifurcation between them; secondly, Whitehead does not replace the strict hierarchy classical theism exploits by a panentheism (this is Hartshorne's use of Whitehead to postmodernise Plato); and thirdly, the concept of contiguism is introduced, signifying that God and World are so to speak shoulder to shoulder in the extensive continuum, they conspire together at the emergence of new actualities.

The bifunctionality of creativity is characterised by a nuanced duality. In its capacity as an agent, it signifies the inherent spontaneity that permeates the Whole, representing a principle of unrest that is pushed to its limits. This principle not only accounts for the perpetual flux of "things" and the constant renewal of features with which Nature is familiar, but also designates the radical novelty that defines genuine eventfulness. To differentiate between mere repetition and the bursting forth of the unprecedented, one can speak of novation versus innovation. The process of creative advancement is the result of the interplay between these two fundamental processes. From a technical standpoint, Whitehead aligns the principle of novation with the (mundane) principle of limitation, and the principle of innovation with the (divine) principle of concretion. This position, which contradicts his own intuition of creativity as a form of rebalanced creation, ultimately led him to argue that "innovation" originates solely and directly from God. The ensuing argument shall henceforth employ the conceptual framework of "subjective initial aim" as elucidated in *Process and Reality*, a notion that will be expounded upon in the following segments. It is now opportune to delineate the ontological atomism that governs the intricate web of creativity.

Qua reticulated, creativity is either instantiated or characterised.

Actual entities-subjects are the "instances" of creativity, and this is the metaphysical question par excellence: what is the process by which events come into existence, i.e., how do totally new mundane (or divine) features occur? Whitehead's atomic eventful ontology, influenced by Zeno, Peirce, James and the nascent quantum mechanics, is posited as a means to accommodate the empirical facts of experience. Creative advancement, predicated on the possibility of innovative occurrences within a novative —

or continuous— cosmic structure, necessitates the allowance for such "elbow-room" and the generation of discontinuity. The emergence of a new actuality unfolds in a bud-like manner for two additional reasons, both of which are associated with this innovatory dimension: it entails an *atemporal* process characterised by a *free* decision. The subsequent section will delve further into this durational existence; for the moment, it is sufficient to note that the actuality-subject is a drop of subjective experience.

However, it is important to emphasise that the subjectivity involved here must be taken with a considerable degree of circumspection. By virtue of the 'reformed subjectivist principle', Whitehead allows himself (simply because we have no other choice, as he repeatedly states) to generalise the main characteristics of his own experience to all possible experiences. It has been argued that his system is a panexperientialism: everything that *exists* or *is* is constituted by experiences. This speculative insight is not associated with any form of panpsychism to be subject is to experience in the deep, primordial sense of the word, i.e., to enjoy the immediacy of one's own prehensions of the world, not to be animated in the etymological sense. It is imperative to introduce a dual distinction: every actual entity-subject can be analysed in two poles, the physical pole —that names the causal impact on the past on the actuality in the making (Whitehead says "in concrescence")— and the mental pole —that names the moment of self-determination of the concrescence. When analysed, the emergence of a new entity demonstrates the influence of its past state and of God's "initial subjective aim"; it also exhibits an autonomous position of itself for itself ("immanent decision") and for others ("transcendent decision"). The first decision determines what the entity prehends; the second determines how it "plans" to influence its successors.

From the perspective of the world, the actuality-subject only exists during its concrescence when it has reached its synthetic goal, after which it topples into objectivity, i.e., it loses the vivid immediacy that is its prehensive enjoyment. The concept of "character" refers to actualities-object; they no longer "exist", but "are". To be object is to be experienced, to exert causal efficacy on actualities-subject. The actualities-object are said to sediment, to become intertwined, so to speak, with layers of reticular (or "ashy") creativity. However, this is not the conclusion of the narrative. The vanishing of the actuality's emotional core has a twofold creative impact. On the one hand, as previously discussed, there is an objective immortality embodying the power of determination of the past. Conversely, there is a subjective immortality that necessitates, for its proper introduction, a concise exposition of the development of the concept of God in *Process and Reality*; it will serve as an appropriate link with our concluding section on