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ALFRED NORTH WHITEHEAD – AGAINST DUALISM

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> It is a matter of pure convention as to which of
> our experiential activities we term mental and which physical.
> *A.N. Whitehead*[1]

English-language philosophical debate about the relation of mind (or soul) and body, and in parallel, cultural debate about the relation of the humanities and the natural sciences in education, drew in the twentieth century, and draws again now, on the writings of Alfred North Whitehead (1861–1947). The paper explains this. To do so, it describes Whitehead's project in systematic metaphysics (or speculative cosmology), best known from *Science and the Modern World* (1926). Whitehead required metaphysics to be self-consistent, to be informed by and in turn to inform modern scientific knowledge (evolutionary theory, the theory of relativity), and to conform to the intuitions of everyday perception. Trained in mathematics, his style of precise expression requires special comment; the conclusion was a "philosophy of organism" or "process philosophy". He was a philosophical realist. His understanding of what this entailed led to a radical critique of "scientific materialism", with all its philosophical failings, which, in his judgment, had been dominant in Western culture since the scientific revolution of the seventeenth century. In four brief sections, the paper provides a background, describes the project in metaphysics, picks out the themes of causal efficacy in perception and of function for special discussion, and concludes with a summary of the importance of Whitehead to public debate about the direction of educated culture.

***Keywords*:** A.N. Whitehead, metaphysics, mind-body dualism, scientific revolution, organism, process, humanities-science

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[1] Whitehead, A.N. *Symbolism: Its Meaning and Effect*. Cambridge, 1958, p. 20.

Prologue

Twentieth-century Anglo-American philosophy has a reputation in Russia for very precise but philosophically unproductive analysis of the logic of language use. If this was indeed the dominant style in the mid-century, there was nevertheless considerable diversity, and, in the interwar years (the 1920s and 1930s), there was a significant continuation of synthetic, systematic philosophy. A number of philosophers educated in Victorian times continued at work, including, for example, G.F. Stout, the Editor (1892–1920) of the leading philosophical journal, *Mind*. F.H. Bradley continued to uphold absolute idealism, was respected for his penetrating logic and critical work, and his major book, *Appearance and Reality* was republished in 1930 and again in 1969 (many years after the first edition, 1893). Another of the philosophers whose name remained well known later, and who indeed at the beginning of the twenty-first century unexpectedly acquired a new audience, was Alfred North Whitehead (1861–1947)[2]. Moreover, Whitehead had a reputation in the university world in the humanities disciplines generally, rather than specifically in philosophy departments. There are reasons for this, which this paper will discuss. One large reason was that Whitehead provided an analysis of the mind-body question in the context of the scientific worldview which spoke to "the concern" that civilized culture had lost its way. Whitehead knowingly used a Quaker term, "concern", to express the manner in which individual feeling and purpose intuitively related to value transcending the particular moment[3]. In the words of later writers: "The Cartesian split between the mental and physical life of individuals has become a split in Western culture between scientific 'objectification' of a meaningless external world and a subjective and largely individualized world of meaning, sensibility, value, and action, to which the concepts of reality and truth have become almost inapplicable"[4]. This paper introduces this concern in Whitehead's influential writings.

The first section provides background information; the second links Whitehead's metaphysics to his analysis of the problem of knowledge and the mind-body question; the third section then takes this discussion a bit further in relation to the linked concepts of causality and of function; the concluding section explains the intellectual and cultural importance the philosophical arguments have had, and continue to have.

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2 There is an excellent guide to Whitehead's work and Whitehead scholarship: Desmet, R. & Irvine, A.D. "Alfred North Whitehead", *The Stanford Encyclopedia of Philosophy (Fall 2018 Edition)* [https://plato.stanford.edu/archives/fall2018/entries/whitehead/, accessed on 11.11.2019]. Also: *The Philosophy of Alfred North Whitehead*. La Salle, IL, 1941; a clear summary in Russian, Yulina, N.S. "Whitehead", *Novaya filosofskaya entsiklopediya* [New Philosophical Encyclopedia], [https://iphlib.ru/library/collection/newphilenc/document/HASH8a533695622572095c348a/, accessed on 11.11.2019]; biography in Lowe, V. *Alfred North Whitehead: The Man and His Work*, 2 Vols. Baltimore, 1985–1990. As his biographer observed, Whitehead's public reticence about what he judged private matters led him to make sure all his papers, letters and drafts were burned. He thought public philosophical discourse should be concerned with the logic of argument. He read extremely widely, in poetry in addition to philosophy and natural science, and he well appreciated the traditions of thought to which his arguments belonged.

3 Whitehead, A.N. *Nature and Life*. Cambridge, 1934, p. 93.

4 Arbib, M.A. & Hesse, M.B. *The Construction of Reality*. Cambridge, 1986, p. 160 (cited in Russian translation in Smith, R. *Byt chelobekom: istoricheskoe znanie i cotvorenie chelovecheskoi prirody* [Being Human: Historical Knowledge and the Creation of Human Nature]. Moscow, 2014, p. 313).

There is a personal dimension: when as a student I began to study the history and philosophy of science, I was told to read Whitehead – not because he provided a guide, let alone a textbook, but because it was he who had demonstrated in intellectual terms why the history and philosophy of science mattered and was not just another specialized subject area[5]. Expressed in the most general way, Whitehead's readers searched for philosophical reasons to believe human action had meaning in the kind of world revealed by advances in natural science. He utterly opposed the doctrine of "vacuous actuality", belief that science showed there was no meaning in concrete experience of life[6]. This I will explain. In conclusion, I will use this explanation to suggest reasons for recent interest in Whitehead.

Whitehead was a brilliant mathematician, and it was he, who as a tutor at Trinity College in Cambridge University, recognized the talent of his student and then colleague, Bertrand Russell. Appreciating the common direction of their projects to state the logical foundations of arithmetic, algebra and geometry, they worked on what became the *Principia Mathematica* (3 volumes, 1910, 1912, 1913). Even while completing this massive study, which aimed at comprehensive self-consistency, the authors became aware of the problems being raised by logicians about the very viability of such a project. Whitehead moved from Cambridge to London and became a senior academic administrator in London University and, during World War One, took part in policy debates about the future direction of higher education. He also served as professor of applied mathematics and studied both the special and general theories of relativity; he was one of very few non-physicists able to debate the mathematical and physical understanding of the theories. He published *An Enquiry Concerning the Principles of Natural Knowledge* (1919), given a more publicly accessible form in *The Concept of Nature* (1920). This marked a turn to full-time philosophical study, and in 1924, not wishing to retire, he accepted a professorship in philosophy at Harvard University and moved to Cambridge, Massachusetts. There he worked from first principles systematically constructing a metaphysics, publishing *Science and the Modern World* (1926), *Process and Reality* (1929) and *Adventures of*

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5 The Cambridge tutor who advised me to do this was Robert M. Young, in the second half of the 1960s newly appointed to teach the history of biology; he developed a new approach to Darwin studies which he integrated with a Marxian understanding of science: Young, R.M. *Darwin's Metaphor: Nature's Place in Victorian Culture*. Cambridge, 1985; Idem, "Persons, Organisms… and Primary Qualities", *History, Humanity and Evolution*. Cambridge, 1989, pp. 375–401; Idem, "The Mind-Body Problem", *Companion to the History of Modern Science*. London, 1990, pp. 702–711. Young went on to found in London a small press, called, alluding to Whitehead, Process Press; and much later I published, Smith, R. *The Sense of Movement: An Intellectual History*. London, 2019, with this press. (A Russian translation is in progress.) Discussing the sense of movement (kinaesthesia), I provided a broad intellectual background for understanding Whitehead's way of thinking in non-dualistic philosophies of mind in nature, and I draw on the book in this article. Young frequently alluded to Whitehead, along with the comparable criticism of the philosophical consequences of the scientific revolution in Burtt, E.A. *The Metaphysical Foundations of Modern Physical Science: A Historical and Critical Essay*, 2nd ed. London, 1932. Prefacing his major work, *Process and Reality* (New York, 1957, p. ix), Whitehead stated 'that all constructive thought, on the various special topics of scientific interest, is dominated by some such scheme [for the interpretation of experience], unacknowledged, but not less influential in guiding the imagination. The importance of philosophy lies in its sustained effort to make such schemes explicit, and thereby capable of criticism and improvement'. This might have served as a manifesto for the discipline of the history and philosophy of science as I was taught it when a student at Cambridge in the late 1960s.

6 Whitehead, A.N. *Process and Reality*, p. vii.

Ideas (1933)[7]. The first of these books reached a large audience across the natural science and humanities faculties alike, and it was this work that continued to be widely read and was an inspiration in the field of the history and philosophy of science. Whitehead called his philosophy "a philosophy of organism", or, alternatively, "process philosophy". As he stated, "the most concrete fact capable of separate discrimination is the event", not some thing, but *process*[8]. At Harvard, he gained the reputation and garnered the affection of a sage, a wise old gentleman; he was, for instance, never known to be discourteous, let alone to express anger.

This paper discusses the wider appeal of Whitehead's work. It outlines the nature of the project in metaphysics and not the earlier work in mathematics or the interpretation of the new physics. Nor do I assess his ventures into social commentary, which now appear the most dated aspect of his activity. Further, I do not include an assessment of the use theologians, influenced by the philosopher of religion and metaphysician Charles Hartshorne, made of Whitehead's metaphysics ("process theology"). Whitehead has been used in attempts to re-establish rational argument not so much for the existence, but for the coming-into-being of God in the coming-into-being in the self-constitution of the world[9]. Hartshorne kept alive a powerful discussion of Whitehead's work during the period when many analytic philosophers completely ignored it. I concentrate, however, on what Whitehead wrote about the philosophical consequences of the scientific revolution of the seventeenth century, especially those embedded in presuppositions about the conscious mind and its relation to the material world. This will explain Whitehead's appeal to people who are not specialist metaphysicians. He decisively rejected a mechanistic view of nature and laid the basis for rational thought about actual existence in terms that described mind (here we may also use the word "soul") as self-creating agency, participating with all the intuitively known qualitative values that went with being mind (or soul) in existence.

Whitehead categorically rejected the separation of mind and physical nature, and he instead worked out a constructive metaphysics in terms of which it was rational to understand sensuous, purposeful, moral, aesthetic and spiritual awareness as developments *in nature*. "It is a false dichotomy to think of Nature *and* Man. Mankind is that factor *in* Nature which exhibits in is most intense form the plasticity of nature. Plasticity is the introduction of novel law"[10]. He constructed an ontology in terms of which actions had living meaning and were not the epiphenomenal, contingent consequences of dead nature, the motions of particles and waves, without meaning. The ontology also stressed novelty in time. Whitehead emphatically declared it a "failure of science to endow its formulae for activity with any meaning. The divergence of the formulae about Nature from

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7 M.A. Kissel edited the Russian translation of the first and last of these books, along with two chapters, including the important introductory chapter, of *Process and Reality*, and also included *Essays in Science and Philosophy* (1947): Whitehead, A.N. *Izbrannye raboty po filosofii* [Selected Works on Philosophy]. Moscow, 1990; the editor contributed an introductory article. A.N. Tumanova also translated *Adventures of Ideas*: Whitehead, A.N. *Priklucheniya idei* [Adventures of Ideas]. Moscow, 2009.

8 Whitehead, A.N. *The Concept of Nature*. Cambridge, 2015, p. 120.

9 For Hartshorne (pronounced Harts-horne), Dombrowski, D. "Charles Hartshorne", *The Stanford Encyclopedia of Philosophy (Summer 2020 Edition)* [https://plato.stanford.edu/archives/sum2020/entries/hartshorne/, accessed on 11.08.2020].

10 Whitehead, A.N. *Adventures of Ideas*. New York, 1933, p. 99. I do not discuss the notion of "novel law", used in interpretations linking Whitehead to philosophies of emergence.

the appearance of Nature has robbed the formulae of any explanatory character"[11]. He indicted natural science for abstraction from the actual qualitatively rich world known to everyday intuition. Whitehead criticized the knowledge achieved in natural science, when ascribed the status of truth, for "misplaced concreteness". This was to be his most quoted and famous expression:

> The expression of more concrete facts under the guise of very abstract logical constructions… is an error… the accidental error of mistaking the abstract for the concrete. It is an example of what I will call the "Fallacy of Misplaced Concreteness". This fallacy is the occasion of great confusion in philosophy[12].

He supported this declaration with a historical account of the source of the fallacy in the scientific revolution of the seventeenth century. The achievement of the new science culminating in Newton's work, he argued, was a disaster for philosophy:

> The seventeenth century had finally produced a scheme of scientific thought framed by mathematicians, for the use of mathematicians. The great characteristic of the mathematical mind is its capacity for dealing with abstractions; and for eliciting from them clear-cut demonstrative trains of reasoning, entirely satisfactory so long as it is those abstractions which you want to think about… But this juggling with abstractions can never overcome the inherent confusion introduced by the ascription of *misplaced concreteness* to the scientific scheme of the seventeenth century[13].

This was an argument many scholars in the humanities wanted to hear: it appeared to raise the qualitative and evaluative subject matter of their fields of inquiry – literature, philosophy, history, Classics – to the status of *knowledge without abstraction*. It erected a rational justification for the humanities in the face of the increasing power and status of the natural sciences in the universities and in cultural life generally. It supported belief that the preoccupation in the humanities with *meaning*, and hence with interpretation, as opposed to empirical facts, was rationally legitimate. This was then used as a defence against a tendency in modernity to think that the humanities were the remnant of theistic worldviews and dependent on (outdated) sentiment not reason.

Whitehead's metaphysics, which he also called "speculative cosmology", and which he developed with logical rigour, described the relatedness of all things in coherent unity. The scheme, if successful, would have made it possible to derive from its principles the meaning of any particular "occasion" (a specially defined word) or actual, concrete moment of existence. By contrast, he argued, in modern culture the progressive assembly of scientific facts, assembled in the framework of demonstrably incoherent metaphysics, was leading civilization towards intellectual, moral and aesthetic meaninglessness. The argument was general in scope, but it applied specifically and pointedly to the sciences of mind-brain interaction – neurophysiology, psychology and, we would now add, neuroscience. The incoherence of the philosophical framework in terms of which scientists pursued knowledge in these disciplines, Whitehead argued, made it

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11 Whitehead, A.N. *Nature and Life*, p. 65.

12 Whitehead, A.N. *Science and the Modern World*. Cambridge, 1953, p. 64. The Russian translation (Whitehead, A.N. *Izbrannye raboty po filosofii* [Selected Works on Philosophy], p. 107) was "oshibkoi podmeny konkretnovo".

13 Whitehead, A.N. *Science and the Modern World*, p. 70. The Russian translation (Whitehead, A.N. *Izbrannye raboty po filosofii* [Selected Works on Philosophy], 1990, p. 113) was "neumestnoi konkretnosti".

impossible for these sciences to achieve meaningful knowledge of human experience. Human experience came with values, or "worth": "At the base of our existence is the sense of 'worth'… It is the sense of existence for its own sake, of existence which is its own justification"[14]. Any cosmology had to take account of "worth", but natural science had left values to poetry, to the arts, to expressions of moral and spiritual sensibility, and thereby left them without foundation. The natural sciences and the humanities, so to say, had drifted free of each other, and while the sciences were afloat because of their technological effectiveness, the humanities were threatening to drown, lacking any support[15].

One further introductory point: Whitehead's language was well known for it difficulty. Yet, as the quotations about misplaced concreteness suggest, he also made statements that were accessible and had broad appeal. Readers who were not philosophers were attracted to his work but then found that they could not understand, or did not choose to spend the time training to understand, the content of the metaphysics. Or they shook their heads in despair at chapters on mathematics and the theory of relativity. Whitehead's style in writing, I think, followed from his earlier work on the logical expression of the foundations of mathematics, and though he did not believe in the possibility of logical perfection, he went a great deal further in seeking it than most readers were prepared to follow. In his systematic work, especially in *Process and Reality*, he introduced a specialized vocabulary, defining words with the kind of precision that only a logician can manage, and then setting out his original arguments in these terms without further explanation. Richard Rorty even asserted that Whitehead's "critique of alternative cosmologies [to his own] is so radical as to transform systematically the meaning of almost every traditional philosophical term"[16]. The writing that resulted has perplexed readers. Whitehead combined accessible description of the failure of what he called "scientific materialism" to satisfy reason and emotion alike with a seemingly inaccessible new metaphysical language[17]. In some lectures and some sections of his books, Whitehead made what he thought were plain, common-sense observations and appealed to ordinary thought, or to the knowledge of the poet as opposed to the knowledge of the scientist, using conventional language. But elsewhere he referred, for instance, to "concrescence" (meaning the actualization of the potential of elements to combine as a unity) or to "creatures" (meaning actual entities of all kinds), adopting specialized language[18]. As a consequence, readers who wanted to use his work in order to criticize the natural science worldview did so selectively. At times, reference to his work was more emblematic of humanistic opposition to the scientific world-

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14 Whitehead, A.N. *Modes of Thought*. Cambridge, 1938, p. 149.

15 It was not Whitehead's argument, but it was an obvious step, taken by a number of cultural critics on the political Left (e.g. R.M. Young, see note 5), to argue that this led to all values being vulnerable to the capitalist pursuit of profit, to the translation of "occasions" deprived of meaning into reified commodities.

16 Rorty, R. "Matter and Event", *Explorations in Whitehead's Philosophy*. New York, 1983, p. 74. In Whitehead, A.N. *Process and Reality*, pp. 421–429, there is thus an index of terms, not an index of concepts.

17 Whitehead, A.N. *Science and the Modern World*, p. 22.

18 He held (Whitehead, A.N. *Process and Reality*, p. 27): "That the actual world is a process, and that the process is the becoming of actual entities. Thus actual entities are creatures… [I]n the becoming of an actual entity, the *potential* unity of many entities – actual and non-actual – acquires the *real* unity of the one actual entity; so that the actual entity is the real concrescence of many potentials".

view than appreciative of his cosmology. Nevertheless, his philosophy was, and is now again, cited for its authoritative account of the failure of natural science to accommodate mind (or soul), meaning and value in knowledge.

Metaphysics and the relation of mind and body

Whitehead thought that the purpose of "metaphysical science is not to explain knowledge, but exhibit in its utmost completeness our concept of reality"[19]. A system of metaphysics had to satisfy three general requirements. Metaphysical statements had, first, rigorously to conform to reason; second, fully take account of the empirically supported conclusions of modern science (evolutionary theory, relativity theory and quantum physics)[20]; and, third, do justice to, or conform to, the intuitions of reality of the ordinary person. The first requirement, which was equivalent to a principle of logical consistency, was clear (though whether, in the light of twentieth-century understanding of logic it was achievable is another matter). The second requirement established Whitehead's emphatic commitment to scientific understanding in general and to the place it necessarily had in philosophy. He thought that the empirical results of science had to be taken into account in philosophy and, conversely, that the rational procedures of the philosopher were necessary for the construction of science[21]. More particularly, he brought from biological knowledge into philosophy an intense appreciation of the nature of an organism and of organic relations, of nature constituted *in relations* rather than in terms of interacting entities. The study of life, which unlike physical theory included the study of "aim" (purpose) and "enjoyment" (the phenomenal feel of life, desire, emotion), Whitehead held, was inquiry into actual existence without abstraction. The last requirement is more complex to interpret; it is, however, I suggest, the key to understanding why Whitehead has had a broad range of readers. Whitehead was a *philosophical realist* who thought that ordinary experience, everyday phenomenal awareness, presented the data that a metaphysical scheme had to account for, or "conform to". The extreme distance between statements of knowledge in physical theory, especially in relativity theory and in quantum mechanics in the twentieth century, and statements about ordinary experience made this a central preoccupation of modern philosophy of science, pitching realist approaches, like Whitehead's, against instrumentalist epistemologies.

Whitehead argued that ordinary empirical experience demanded realism. This was central. Though his books were substantially devoid of footnoted references, he made clear that his main debts in modern philosophy were to realists and empiricists. Among his contemporaries, he picked out a group of English realists, especially his colleague in the philosophy of education in London, T.P. Nunn,

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19 Whitehead, A.N. *The Concept of Nature*, p. 22.

20 Whitehead published a study of relativity and gravitational theory, arguing with Einstein; but while he was familiar with the early stages of the quantum revolution, which led him to accept a quantum view of the nature of substance, Whitehead did not publish on the implications of the later introduction of indeterminacy. In this essay, I attend only to what he took from broadly biological ways of thought.

21 He firmly opposed positivism as a theory of knowledge, and when positivist epistemology was generally agreed to be untenable, in the late 1950s and 1960s, Whitehead's work was seen to be prescient.

along with Henri Bergson, William James and John Dewey[22]. The appreciation of the last three is especially relevant, because each, examining "the givens" ("*les données*", Bergson's term) of conscious experience had strongly rejected a language describing atomistic elements in favour of a language recognizing actual continuity[23]. This was clearly exemplified in James's very much cited discussion of "streams of consciousness", later incorporated into what he called "radical empiricism"[24]. All this created discourse about the conscious world in terms of *process*. It is therefore all the more striking that Whitehead intensively studied the great empiricist essays of Locke and Hume, essays held responsible for the false analysis of the mental world in terms of atomistic elements. But what interested Whitehead in their inquiries was the way they had attempted to deal with real everyday experience (or, in Hume's term, "impressions"). He thought that their work (and especially Locke's discussion of power) could be used in a philosophy of organism, and he valued their work above the Kantian critical alternative[25]. One other philosopher to whom Whitehead repeatedly referred was Bradley, in spite of Bradley's absolute idealism, which Whitehead completely rejected, because of the penetrating manner in which Bradley understood the conditions necessary for coherence in thought.

In summary, Whitehead stated that a successful descriptive metaphysics would be evident:

> (I) in our direct knowledge of the actual occasions which compose our immediate experience, and (ii) in their [the descriptions] success as forming a basis for harmonising our systematised accounts of various types of experience, and (iii) in their success as providing the concepts in terms of which an epistemology can be framed. By (iii) I mean that an account of the general character of what we know must enable us to frame an account of how knowledge is possible as an adjunct within things known [that is, the knowing subject has to be shown to be participant in what is known in nature][26].

This third point was central to Whitehead's historical interpretation of the scientific revolution, as he thought the success of that revolution in physical mechanics and astronomy was bought at the expense of the failure of philosophy. The failure was evident in the incapacity of modern philosophy to say how the knowing subject could know the world, from which it was separated, and in philosophy's incoherence when it came to say how non-spatial mind (or soul)

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22 Thomas Percy Nunn was an educationist but also a realist philosopher who related experience, understood in terms of underlying scientific psychological principles, with scientific judgments, examining as carefully as possible the data of experience in order to find the principles which held the data together. Whitehead shared this interest and also sought to apply it in education (in essays collected in *The Aims of Education and Other Essays*, 1929). For the English realists, Passmore, J.A. *A Hundred Years of Philosophy*, 2nd ed. Harmondsworth, Middlesex, 1968.

23 Bergson, H. *Time and Freewill: An Essay on the Immediate Data of Consciousness*. London, 1913.

24 James, W. *The Principles of Psychology*, Vol. 1. New York, 1950, chapter 9.

25 Whitehead, when a young mathematician, intensively studied Kant's *Critique of Pure Reason*, but he came to think the critical project misguided. As for Hegel, Whitehead noted: "I have never been able to read Hegel", turned away by ignorant remarks on mathematics. See Whitehead, A.N. *Autobiographical Notes* (originally published 1941) [https://mathshistory.st-andrews.ac.uk/Extras/Whitehead_Autobiography.html/, accessed on 11.11.2019].

26 Whitehead, A.N. *Science and the Modern World*, p. 196.

related to body with material and spatial character. Whitehead referred to Descartes' "disastrous classification of substances into two species"[27].

As a result, Whitehead thought it a misapprehension to debate epistemology or the mind-body problem as specialist, bounded problems in philosophy. Only a new metaphysics, built from the ground up, would make it possible to overcome present philosophical blind-alleys. Importantly for the reception of his books, his understanding of the way the seventeenth-century "century of genius" had established incoherent "scientific materialism" as a worldview echoed the judgment of many writers (especially the Romantics) prominent in English-language literary culture[28]. Reading Whitehead, humanists found scientifically informed philosophy which shared their concerns. This encouraged reference to Whitehead for his criticisms of the limitations of the scientific worldview independently of the metaphysics for which, for Whitehead himself, these criticisms were a preliminary. The limitations Whitehead discerned were manifest to the ordinary person with a realist understanding of experience, the experience given voice in poetic and moral discourse (coming together in the work of great novelists like George Eliot) and made effective in common life.

The first limitation encompassed what Locke and his successors called "the secondary qualities", the qualities characterizing the sensuous feel of the experiential world – the colour, warmth, tactile character (smooth, rough, etc.), weight, flavour, smell and such like phenomenal modes seemingly intrinsic to the conscious world. To these qualities Whitehead significantly added "worth", the value existence has for its own sake. With this term he also drew attention to the way sensuous experience was not a neutral matter, not just a matter of having sensations, but intrinsically involved evaluation, interest, enjoyment, emotional colour and so forth. The elimination of these qualities as qualities in reality and their restriction to mind interacting with reality, in the writings of Galileo, Descartes and Newton, Whitehead argued, and the acceptance of mass, spatial position and change of motion as "the primary qualities", that is, the real qualities of nature, rendered the phenomenal world of human subjective experience alien to nature, detached, albeit in some way miraculously tied to nature[29]. It rendered scientific description of nature devoid of possible meaning, isolating meaning in the contingent activities of mind with no possible reference to the world. The result was a chronic existential emptiness. It was also, in consequence, impossible to say (as Hume profoundly demonstrated) how we could know anything for certain about the primary qualities and about the world.

The second limitation of the scientific worldview was evident in descriptions of the conscious or phenomenal world in atomistic terms, terms originating in analogy to descriptions of the corpuscular (or atomistic) nature of matter in motion

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27 Whitehead, A.N. *Process and Reality*, p. 90.

28 'Century of genius' was the title of chapter 3, in Whitehead, A.N. *Science and the Modern World* (with the central criticisms, pp. 181–184). Also, Whitehead, A.N. *The Concept of Nature*, pp. 18–32.

29 It seems to me that the issues have been re-created in much contemporary discussion of "the problem of consciousness". If so, then everything that Whitehead wrote about the incoherence of debate about mind-body within the framework of the metaphysics of the scientific worldview is still highly relevant. For an accessible, critical study, based on the argument (an "enactment" approach) that the mind cannot be said to be "in" the brain, but is, rather, an expression of living action in the world, Noë, A. *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness*. New York, 2009.

given in the new science. Once again, Whitehead opposed scientific description with description of what he thought the real phenomenal awareness intuited by common sense, awareness of the organic relatedness of events. As already noticed, he unconditionally rejected analysis of psychic life in terms of "elements", "impressions" or "ideas" linked by association, the kind of analysis found in British writers from Hobbes to John Stuart Mill. Whitehead shared this critical position with Bergson, James, the Gestalt theorists and other psychological writers of his generation. In Whitehead's metaphysics, this rejection accompanied a root and branch rejection of Hume's account of causation, about which I comment further in the next section[30]. Whitehead understood the connectedness felt by a person perceiving and acting as a declaration of the ontologically real organic connectedness of all that exists. He intended this literally: "Finally therefore we are driven to admit that each object is in some sense ingredient throughout nature; though its ingression may be quantitatively irrelevant in the expression of our individual experiences"[31]. We are functionally related to distant galaxies; and though this is irrelevant for everyday life, it is relevant to truth. Overall, he supported a process ontology and totally opposed the Newtonian conception that there are particular objects occupying particular place in space and time, the conception natural scientists themselves were replacing with the theory of general relativity.

A third limitation, for Whitehead, was, very simply, the mind-body problem. Discussing this, Whitehead gave precise form to a chorus of condemnation of Descartes, and like-minded philosopher-scientists, for making a manifestly incoherent dualism common philosophical currency. Whitehead, moreover, demonstrated that mind-body dualism was not just a specific failing of Cartesian philosophy but a general failing of the metaphysics framing modern science. Whitehead's critical statements about dualism acquired almost canonical status in English-language humanistic culture. They also informed discussion among scientists and physicians whose interest, whether in neurophysiology, psychology, neurology, psychiatry or psychoanalysis, was the reality of living people rather than isolated minds or brains.

Causality and function

This section discusses in a little more detail Whitehead's approach to the related concepts of causation and function. This will help appreciate why he called his work a philosophy "of organism" and why this philosophy has inspired, and provided resources for, an escape from mind-body dualism.

Whitehead was convinced that "the current accounts of perception are the stronghold of modern metaphysical difficulties": scientists studying the senses confronted metaphysical questions whether they liked it or not[32]. In order to found "an analysis more concrete that that of the scientific scheme of thought",

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30 The importance of this to Whitehead is evident in the way he returned to discuss causality in a number of different places; but especially, Whitehead, A.N. *Symbolism: Its Meaning and Effect*, chapter II; *Process and Reality*, pp. 195–212.

31 Whitehead, A.N. *The Concept of Nature*, p. 93. "Ingredient" was another technical word, denoting the participatory relation of objects in events.

32 Whitehead, A.N. *Process and Reality*, p. 138.

he therefore "started from our own psychological field, as it stands for our cognition"[33]. Other British philosophers before Whitehead had stated that the "concrete… psychological field" known to common sense was the source of intuition that the causal relation is *real relation*, not merely succession or association. Somewhat earlier than Whitehead, the English philosophers James Ward and Samuel Alexander included this kind of argument in Gifford Lectures, the most significant English-language public intellectual forum at this time for debate about science and religion. Whitehead, in turn, wrote up his systematic study of metaphysics, *Process and Reality*, as a contribution to this lecture series. Alexander, for his part, had argued that the perception of an object changing or moving, or a person's self-perception of changing or moving, required something in the composition of the perception to carry over from one part of the perceptual field to another and from one moment to the next. "Causality is thus the spatio-temporal continuity of one substance with another; and the cause is the motion which precedes that into which, let us say, it passes or is transformed"[34]. The ordinary person knew causal relation in perceiving spatio-temporal endurance. Alexander directly stimulated Whitehead, and Whitehead, using Alexander's word, called this experiential continuity "conformation" of present to past. "Simple physical feelings embody the reproductive character of nature, and also the objective immortality of the past. In virtue of these feelings time is the conformation of the immediate present to the past"[35]. "Concretely", Whitehead held, "the psychological field" displayed the continuity of one event with another, that is, organic relation.

Taking a position which his philosophical contemporaries sometimes called "natural realism", it was essential for Whitehead closely to analyse experience. He wrote as a philosopher, not a psychologist, though the whole direction of his work was to seek constructive relations between logical and empirical research. Nowhere, he thought, was this more needed than in the analysis of experience that results in what was generally termed conscious perception. He distinguished two sensory "perceptive modes", along with the "conceptual analysis" that forms sensory experience into knowledge[36].

The first "perceptive mode" he called "presentational immediacy", which was "the experience of the immediate world around us, a world decorated by sense-data dependent on the immediate states of relevant parts of our own bodies". The mode of "presentational immediacy" disclosed the world, as everyday common sense maintained, just as Dr Johnson thought when he struck a stone with his foot in order to refute Berkeley's idealism. Whitehead used the language of "sense-data" to convey the feeling of particular concreteness involved, but he

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33 Whitehead, A.N. *Science and the Modern World*, p. 91.

34 Alexander, S. *Space, Time, and Deity*, Vol. 2. London, 1966, p. 281. Bergson (*Time and Free Will: An Essay on the Immediate Data of Consciousness*. London, 1913) had also rethought the conception of time, and he sharply distinguished qualitative duration, present in conscious life, from the quantified spatial dimensions articulated in physical theory. That the perceptual world has duration, and that it is not possible to analyse duration as a quantifiable dimension, like spatiality, was the heart of Bergson's understanding of time. Whitehead knew Bergson's work. For these philosophers, intellectual imagination about time originated with the actual perception of duration with direction in life.

35 Whitehead, A.N. *Process and Reality*, p. 278.

36 I do not discuss "conceptual analysis"; to do so would require a much more detailed account of Whitehead's metaphysics, in order to make sense of the self-constituting activity he argued was intrinsic to states of being in general and to human being in particular.

did not thereby refer to punctal or atomistic sensory elements. Rather, as he wrote: "There are no bare sensations which are first experienced and then 'projected' into our feet as their feelings, or onto the opposite wall as its colour. The projection is an integral part of the situation, quite as original as the sense-data"[37]. There were "relational elements" in the perception of objects – both objects and perceiver were secondary discriminations in a prior *relationship*. All the quality and value the perceptual field had in everyday life was everyday life was present present in the perceptual relationship, not superadded to a set of discrete and quantifiable elements. In "presentational immediacy" there was emotional, evaluative and symbolic content (warmth, colour, beauty, "worth", etc.). The qualitative *feel* of ordinary perceptions was not anthropomorphic projection, the attribution of human qualities to phenomena in a world of physical particles and waves where they did not belong, but intrinsic to perception[38]. This was a radical rejection of dualism.

The second mode of perception according to Whitehead's analysis was "the mode of causal efficacy". This mode was responsible for the perceived continuity of the experienced world, to which I have referred. There was, Whitehead wrote (using Alexander's word), an "overwhelming conformation of fact, in present action, to antecedent settled fact", that is, perception was a temporal process (Bergson would have said, exhibits duration) that disclosed the interdependency of past, present and future in terms of real, efficacious causal relations[39]. He strongly opposed this realist understanding of causality to the standard accounts derived on the one hand from Hume and on the other from Kant ("one school calls it a habit of thought; the other school calls it a category of thought")[40]. Like other realist critics of atomistic descriptions of mind, Whitehead analysed the causal relation as a species of relation given in phenomenal awareness: references to "cause" and "effect" were, philosophically speaking, examples of "misplaced concreteness", however concrete such references appeared in scientific inquiry.

Further, Whitehead argued that the perception of "causal efficacy" had "pragmatic appeal"[41]. The perceptual mode revealing real causal relations revealed human activity as part of those relations; the mode declared participation, and that participation was efficacious[42].

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37 Whitehead, A.N. *Symbolism: Its Meaning and Effect*, p. 14.

38 The position had affinities with James's "radical empiricism" (Whitehead was familiar with his work), and James also strongly argued for constructive relations between philosophical and psychological inquiry; see, Bordogna, F. *William James at the Boundaries*. Chicago, 2008. James wrote ("A World of Pure Experience" [1904], in *Pragmatism and Other Writings*. London, 2000, p. 315): "the relations that connect experiences must themselves be experienced relations, and any kind of relation experiences must be accounted as 'real' as anything else in the system". Belief that relations are indeed real was the basis of Whitehead's organicist ontology.

39 Whitehead, A.N. *Symbolism: Its Meaning and Effect*, p. 41.

40 Ibid., pp. 40–41; also, Whitehead, A.N. *Process and Reality*, pp. 195–212. James ("The Feeling of Activity" [1905], in *Essays in Radical Empiricism*. London, 1912, p. 185) similarly concluded "that real effectual causation as an ultimate nature, as a 'category,' if you like, of reality, is just what we feel it to be, just that kind of conjunction which our own activity-series reveal".

41 Whitehead, A.N. *Symbolism: Its Meaning and Effect*, p. 31.

42 Whitehead, A.N. *Adventures of Ideas*, pp. 289–290. Recent psychological argument for an "enactive" theory of perceptual processes has re-expressed something like this point. The argument severely criticizes the dominant "processing" account of perception: Noë, A. *Out of Our Heads*, p. 60.

Speaking in a psychological register, we can say that Whitehead understood that in sensed movement a person had a direct intuition of causal relation, of the process in which the particular person related to the world around (in biological terms, the environment) and, indeed, related to existence as a whole.

Whitehead therefore re-conceptualized the human, or the animal, and the environment together, or mind, body and society together, as "the organism": "In principle, the animal body is only the more highly organized and immediate part of the general environment for its dominant actual occasion, which is the ultimate percipient"[43]. Humans were not observers of, but participants in, the world of causal relations. That participation was the ground of knowledge of the reality of things and people as agents, agents of "functional activity": "But the conception of the world here adopted is that of functional activity. By this I mean that every actual thing is something by reason of its activity; whereby its nature consists in its relevance to other things, and its individuality consists in its synthesis of other things so far as they are relevant to it"[44]. That things were in relations was the source of meaning. The meaning was *in* the relations. In this way, Whitehead brought together a modern imagination, informed by biology, for the functional relations within organisms and between organisms and the environment, with ancient imagination for active process, rather than inert substance, as the being of the world. As I have discussed elsewhere, he thereby reworked a tradition of natural philosophy in which the perception of self-movement had served as a model, or starting point, for thinking about human participation in causal processes[45]. Whitehead was not at all concerned with the specific physiological or psychological facts of any particular sense, and he held, on logical grounds, that "so far as reality is concerned all our sense-perceptions are in the same boat", denying to the sense of movement any special epistemological status[46]. Nevertheless, other people, not so rigorous in logic, did think the modality of muscular sensation had a special immediacy.

Whitehead therefore replaced reference to various categories of things (atomic particles, stars, people, social institutions) by reference to organisms. His language clearly signaled that "occasions" (in conventional language, particular objects, events, people or whatever) were, like living organisms, first, phenomena in time with duration and with directional development (from birth to death), and second, composed of parts in functional relations. Perceptual awareness disclosed organic continuity of cause and effect: "If you start from the immediate facts of our psychological experience, as surely as empiricist should begin, you are at once led to the organic conception of nature"[47]. Whatever the "occasion", some thing or event had the character it did by virtue of its evolution from what had come before: there was organic relation. Moreover, what he thought true about any particular "occasion", he thought true about the cosmos as a whole, which, using Whitehead's language, was also an "organism". Indeed, he went on to argue that the universe as a whole exhibited development and functional relations. But I shall not here discuss this dimension of his philosophy and its arguments for a progressive coming into being of God, world and civilization.

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43 Whitehead, A.N. *Process and Reality*, p. 141.

44 Whitehead, A.N. *Symbolism: Its Meaning and Effect*, p. 26.

45 Smith, R. "The Sense of Movement", *Filosofskii zhurnal / Philosophy Journal*, 2018, Vol. 11, No. 3, pp. 33–46; Idem, *The Sense of Movement: An Intellectual History*, passim.

46 Whitehead, A.N. *The Concept of Nature*, p. 29.

47 Whitehead, A.N. *Science and the Modern World*, p. 92.

It is helpful to say something further about the concept of *function*. The language of function, then and now ubiquitous in the biological and social sciences as well as in everyday life, appears incompatible with the rigorous statement of scientific knowledge in terms of quantified physico-chemical properties. A statement of function states that something is *for* something, that something is a purpose or end, and purposes and ends, in the modern scientific worldview, exist in the minds of people, in moral principles, in social rules or in the creative being of God, but not in nature. Scholars like Whitehead and Alexandre Koyré distinguished precisely the exclusion of purpose from explanations of nature as the central feature of the scientific revolution and the rejection of Aristotelianism. Yet the language of function persisted. For Whitehead, this was not just a matter of convenience, the use of language that could in principle be translated into language of physico-chemical properties, but was another symptom of the metaphysical incoherence underlying mind-body dualism: "In between [the concepts of mind and body] there lie the concepts of life, organism, function, instantaneous reality, interaction, order of nature, which collectively form the Achilles heel of the whole system [of scientific materialism]"[48]. This was an important list of terms in everyday experience, and the argument was that the stubborn persistence of these terms showed that the metaphysics seemingly established at the time of the scientific revolution had not been generally accepted, and had certainly not been accepted in the affairs of everyday life.

Biological knowledge does not consist only of long lists of simultaneous and successive physico-chemical states. Biological knowledge describes what states are for, that is, it gives priority to statements about function. Biological language treats events in nature as doing something for an end: the heart, for example, circulates oxygenated blood and thereby maintains cell metabolism. The description specifies the *human significance* of the heart: it maintains life. The language conveys the meaning that "maintaining" and "life" count, have a place, a purpose, in the human world. It might appear, in principle, possible to list a series of physical and chemical changes and say, this is a heart beat. This, however, would not be knowledge but a list; moreover, by saying that the list describes "a heart beat", the speaker would re-engage discourse about what matters for human purposes, that is, discourse that life matters[49]. The continuing use of the language of function tacitly acknowledges this. Moreover, any reference to function, as well as referring to a purpose, also has "an underlying tendency to instill into every other meaning of the word an active principle of some sort, a 'doing', 'performing', 'fulfilling' principle", that is, the language perpetuates reference to active principles in the world[50]. Yet scientists do not dismiss the language of function as a remnant of primitive thought or as a pre-scientific, anthropomorphic figure of speech; the language is in everyday use, unremarked in science and ordinary life

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48 Whitehead, A.N. *Science and the Modern World*, p. 71.

49 For penetrating comment on the language of function dissolving the is/ought distinction, Barnes, B. *Understanding Agency: Social Theory and Responsible Action*. London, 2000, p. 131. Each step of the present argument raises questions. Structuralist modes of thought, for instance, proposed to eliminate reference to function because this language was indeed linked to human purposes, and the hope was instead to ground science on the formal structure of language and thought. Post-structuralist theory, though often perceived to be equally "anti-humanist", demonstrated the limits of structuralism.

50 Ruckmich, C.A. "The Use of the Word *Function* in English Textbooks of Psychology", *American Journal of Psychology*, 1913, Vol. 24, p. 122.

alike. For Whitehead, this usage followed naturally, and logically, from awareness of participation in relations in the doings of the world. Awareness was organically related to what went on, and thus what went on could legitimately be said to have a function.

For Whitehead, the language of function in living processes opened an alternative to the language of mind-body dualism. It was language of organic relations in "occasions". The referral of what took place *in life* to mind or to body was the contingent outcome of historical events, events the historian of science could trace in the history of studies of life since the seventeenth century. (This judgment I quoted in the epigram.) If the huge number of writers on the mind-body question, drawn to the question in the course of the development of physiology, psychology, and scientific medicine in the nineteenth and twentieth centuries thought they were doing philosophy, they were, ultimately, misguided. They were actors in a form of cultural life in which references to mind or to body symbolized historically embedded value judgments. For Whitehead, the development of a science overcoming historical contingency required a return to metaphysics.

Metaphysics and culture

The concluding section says something about the place of Whitehead's writing in public discussion of cultural life. His philosophy has been significant in the English-speaking world because of vociferous public debate about the relations of what are commonly known as "the arts" (humanities) and "the sciences" (natural sciences). There has recently also been some French-language reference to his metaphysics.

Modern physical science, Whitehead wrote, has abstracted from the awareness that ordinary people have of being in the world in all its qualitative plurality. The modern culture of science has thereby instituted an intolerable "bifurcation of nature", evident in discussion of "the human" separate from discussion of "nature"[51]. This separation has become embedded institutionally in the distinction between humanities and natural science disciplines – with the psychological and social sciences awkwardly placed in between and divided about their proper identity. This "bifurcation" has had major consequences. It has made it impossible to answer the basic question of a theory of knowledge: how is knowledge possible? It has produced a picture of nature grossly at odds with everyday perception of the reality of all kinds of qualities. It has burdened philosophy and science with the intractable mind-body problem. It has even called into question the future of civilized culture, because it has led to the isolation of the emotions from the intellect, dividing subjective feeling from objective reason, rendering feeling as an irrational force and intellect as a cold, purely utilitarian or instrumental tool. This was writing that resonated with critics concerned with the dehumanization of the modern world, and with critics of a perceived split between the aims of the humanities and the goals of the sciences in education. In *Science and the Modern World*, in essays published in *The Aims of Education* (1929), in his teaching and social

[51] Whitehead, A.N. *The Concept of Nature*, pp. 18–32. These lectures (1919), which argued for a realist understanding of physical knowledge (including the general theory of relativity), laid the basis for Whitehead's subsequent elaboration of his metaphysics. "Bifurcation" has been translated as "udvoenie": Yulina, N.S. *Op. cit.*

engagements in London and then at Harvard, Whitehead directly contributed to these debates. He gained a reputation as an intellectually innovative, profound and humane – one might say, wise – participant. His writings and sayings became linguistic resources for scholars asserting humanistic values in higher education.

It is important to recall that Whitehead had spent a decade contributing, if behind the scenes, to debates at the University of London on the future direction of national education. His social involvement had begun earlier, in Cambridge, where, for example, he promoted, unsuccessfully, the cause of academic equality for women. He helped maintain the momentum of a half-century of pressure to upgrade the position of the natural sciences in the teaching curriculum in schools and universities alike. This pressure relied on two arguments: science was needed in the national and imperial economic and political interest; and scientific education was well suited to creating the kind of informed and rational citizens needed in a democracy. Conservative opponents feared for the loss of the civilized qualities an education in the Classics was said to develop, and they feared the consequences of replacing gentlemanly virtues by utilitarian calculation. Speaking in broad terms, the resolution of this argument in the English-speaking world took the form of a slow enlargement of natural science education, along with the replacement of Classics by the more accessible study of English literature as the vehicle of education in moral and aesthetic culture. In the twentieth century, however, there was commonly a sharp divide in the actual education students received, and hence a divide in outlook among academics and professional people between those educated in the humanities and those educated in the sciences. Through the interwar years, and even into the 1950s, it was common for both senior scientists and senior humanists to pinpoint the split between the arts and the sciences as the central problem facing intellectual culture. The split, for instance, was one motive in the establishment of the history of science as a discipline. The advocates of this discipline believed that it would demonstrate the profound contribution of natural science to humanistic culture, thus healing the science-arts split[52]. Given all this, Whitehead's *Science and the Modern World*, and to a lesser extent his other writings, particularly *Modes of Thought* (1938), were highly valued over a long period of time.

In the late 1950s and early 1960s in Britain, the same issues were prominent once again, this time in relation to what everyone knew as "the two cultures" debate. This expression was the title of a lecture by a physicist, who was also a novelist and later a politician, C.P. Snow, in 1959[53]. The debate concerned the purposes of education in a society thought to be in need of modernization but also worried about preserving its moral culture. It was also the time of a major expansion of the university system. In this setting, Whitehead's critical discussion of science, and especially of the relation of "scientific materialism" to values, was

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[52] Mayer, A.-K. "Moralizing Science: The Uses of Science's Past in National Education in the 1920s", *British Journal for the History of Science*, 1997, Vol. 30 pp. 51–70; Idem, "Setting Up a Discipline: Conflicting Agendas of the Cambridge History of Science Committee, 1936–1950", *Studies in the History and Philosophy of Science*, 2000, Vol. 31, pp. 665–689; Idem, "When Things Don't Talk: Knowledge and Belief in the Inter-War Humanism of Charles Singer (1876–1960)", *British Journal for the History of Science*, 2005, Vol. 38, pp. 325–347.

[53] Snow, C.P. *The Two Cultures*. Cambridge, 1993. For the cultural history of the debate: Collini, S. *Public Moralists: Political Thought and Intellectual Life in Britain 1850–1930*. Oxford, 1991; Idem, *Absent Minds: Intellectuals in Britain*. Oxford, 2006; Ortolano, G. *The Two Cultures: Science, Literature and Cultural Politics in Postwar Britain*. Cambridge, 2009.

perceived to be highly relevant. Indeed, Whitehead appeared the most serious philosophical resource available in addressing the issues raised in "the two cultures" debate. Whatever the difficulties of his language, Whitehead also gave expression to the ordinary person's experience – much vaunted in the culture of the individual in which he wrote – of being active, of being an agent with value.

Whitehead's work was therefore cited by scholars engaged in studies of science, including its history, in order to critique mechanistic or scientistic thought about human nature, of the kind found in forms of behaviourist psychology, or sociobiology, or "vulgar" materialism, or naïve positivism, limiting human possibilities to genetic endowment, environmental or economic conditions, the laws of history, or "the facts" crudely understood. A reference to Whitehead signaled hope that it would become possible to integrate human agency and causal events, the qualities of the life of the mind and the functioning of the embodied brain, the history of moral and aesthetic culture and the evolutionary history of the human species. Citing Whitehead was a way of asserting the rationality of belief that the values present in everyday awareness, such as the value of a loved person, were immediately real, and indeed more real than the referents of scientific statements displaying "the fallacy of misplaced concreteness".

Writing this article in Russia, it is natural to ask whether there are constructive ways to relate Whitehead's process metaphysics to the history of dialectical philosophy. These philosophies, after all, both derived the significance of particulars, or individuals, from the whole of which the particulars were held to be part. Both represented this whole as a teleological process in time, however much understandings of this differed. Both ways of thought criticized "vulgar" materialist views of human nature and understood human agency in a temporally unfolding process. In terms of philosophical style, both ways of thought were sympathetic to the search for systematic metaphysics, though in the official Soviet case this took the form of a denial of metaphysics and its replacement by a realist account of scientific knowledge. Both opposed the Anglo-American trend towards analytic philosophy. Both philosophies turned to relational processes as the root of meaning. Yet, all these points are very general, and it might be thought that they do little to illuminate the great differences that divided the philosophies and the political cultures of which they were part.

There is a somewhat unexpected contemporary rise of interest in Whitehead's work in the French-speaking intellectual world. I write "unexpected" because there was for many decades a marked contrast, at times amounting to mutual suspicion, between English-language analytic philosophy (which the French liked to mock as "Anglo-Saxon") and the much more openly performative practice, concerned with the aesthetics of philosophical statements in French (which critics liked to dismiss as "French theory") associated with figures like Foucault, Derrida, Baudrillard, Lacan, and so on. (Of course, there were large exceptions to this generalization.) The situation has changed in the last couple of decades. One interesting element in this is the impact of the philosophical writings of Gilles Deleuze, and the thought, especially in the work of Isabelle Stengers, that his work in metaphysics had much in common with Whitehead's project[54]. This is

[54] For Deleuze: Smith, D. & Protevi, J. "Gilles Deleuze", *The Stanford Encyclopedia of Philosophy (Spring 2020 edition)* [https://plato.stanford.edu/archives/spr2020/entries/deleuze/, accessed on 11.06.2020]; Stengers, I. *Thinking with Whitehead: A Free and Wild Creation of Concepts*. Cambridge, MA, 2011.

not the place to go into this but only to note that Deleuze's work in metaphysics gained him the reputation as the philosopher of an ontology of open-endedness, flux and the participatory continuity of what was human in nature. While there is perhaps an element of comedy in reading Whitehead, who was quintessentially Edwardian in philosophical style and personal reserve, in the light of a philosopher whose work was taken up in the theatrical street politics of *les événements* of the late 1960s, their ontologies of process, inspired in part by the imagery they both drew from the life of organisms, can indeed be compared.

In conclusion, Whitehead argued persuasively that perception and action were one process and not a succession of independent events. He constructed a system of metaphysics to demonstrate the rationality of this argument in terms of consistency of statement, in terms of conformity to natural science knowledge and in terms of conformity to ordinary intuitions of the real. He opposed his metaphysics to the incoherent and untenable metaphysics he found in "scientific materialism" since the seventeenth century. In doing this, he radically rejected dualisms of all kinds, the dualisms separating subject and object in knowledge and mind and body in human nature, and proposed an alternative "philosophy of organism". The metaphysics, he intended, would guarantee the rationality of thought responsive to human intuitions, judgment of the "worth" of life and appreciation of the historically developed culture, including religion, sustained in the humanities. At times, this appeared like a defence of civilization, *tout court*. Developments in natural science – evolutionary theory and relativity – Whitehead maintained, were leading scientists themselves to re-examine the metaphysical assumptions of "scientific materialism". The same re-examination seemed to be called for in the domain where physiology and psychology met, and, we might add, where they continue to meet in the neurosciences.

Whitehead thought there was reason to write: "No one ever says, Here am I, and I have brought my body with me"[55]. Adopting a more modern idiom, we might turn this around: "No one ever says, Here the brain is, and it has brought me with it". Yet, I fear someone might thus speak, in which case I would reach for Whitehead.

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[55] Whitehead, A.N. *Modes of Thought*, p. 156.

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Альфред Норт Уайтхед: против дуализма

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Спор в англоязычной философии о соотношении сознания (или души) и тела и параллельный ему спор о соотношении наук о духе и наук о природе в области образования опирался на протяжении всего XX в. и опирается сейчас на работы А.Н. Уайтхеда (1861–1947). Это обстоятельство объясняется в предлагаемой работе. Конкретно, в работе описывается проект систематической метафизики (или спекулятивной космологии) Уайтхеда, представленный в наиболее известной форме в его работе «Наука и современный мир» (1925). Согласно позиции Уайтхеда, метафизика должна быть внутренне непротиворечивой, просвещенной, но также и просвещающей современную науку (в частности, эволюционную теорию и теорию относительности), согласуясь при этом с интуициями обыденного восприятия. Поскольку Уайтхед был по образованию математиком, его рассуждения требовали пояснений. Как бы то ни было, из этих рассуждений следовала «философия организма» или «философия процесса». Как философ, Уайтхед был реалистом. Его понимание реализма порождало радикальную критику «научного материализма» и всех его философских недостатков, которые, по мнению Уайтхеда, преобладали в европейской культуре со времен научной революции XVII в. Данная работа состоит из четырех разделов, представляющих тот контекст, в котором разрабатывался метафизический проект Уайтхеда, его основные характеристики с отдельным рассмотрением причинной эффективности в области восприятия и проблемы функционирования, и, наконец, заключение, в котором резюмируется проект Уайтхеда и его значимость для общественной дискуссии о направлении развития просвещенной культуры.

Ключевые слова: А.Н. Уайтхед, метафизика, дуализма сознания и тела, научная революция, организм, процесс, науки о духе и науки о природе

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