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SPECULATIVE METAPHYSICS AND THE FUTURE OF PHILOSOPHY:

THE CONTEMPORARY RELEVANCE OF WHITEHEAD'S DEFENCE OF

SPECULATIVE METAPHYSICS

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I. Introduction

The publication by Nicholas Rescher in 1996 of *Process Metaphysics* signalled a growing concern by some philosophers to revive the tradition of speculative metaphysics.[1] Speculative metaphysics has always had its diehard supporters, and they are becoming increasingly active, at least in USA.[2] But for three quarters of a century, they have been marginal figures within philosophy. Rescher's decision to enter the fray on their side is significant because of the respect he commands as a logician and an analytical philosopher. However, while being welcomed by proponents of speculative metaphysics, Rescher's book has produced scarcely a ripple among mainstream philosophers.

The attitude towards speculative metaphysics among most philosophers has not changed since the publication a decade ago of an anthology devoted to assessing the present state and future prospects of philosophy, *After Philosophy: End or Transformation.*[3] Containing the work and reflections on philosophy of the leading philosophers of North America, Britain, France and Germany, and representing 'postanalytic' philosophy, poststructuralism, critical theory and hermeneutics, the selection was justified by claiming that the debates on whether philosophy has come to an end or whether it can be transformed have centred on the

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[1] Nicholas Rescher, *Process Metaphysics* (New York: S.U.N.Y. Press, 1996).
[2] See for instance the series in systematic philosophy published by State University of New York Press. Representative of this is Robert C. Neville (ed.), *New Essays in Metaphysics* (New York: S.U.N.Y. Press, 1987).

questions of reason and truth and these are the traditions which have addressed these issues.[4]

The editors did not take speculative metaphysics seriously enough to allow even one voice to speak for it.

Why have 'reason' and 'truth' come to be seen as the central questions of present philosophy? The editors claimed that science has taken the place of philosophy in most domains of enquiry:

> The rise of the modern sciences of nature removed - forever, it seems - vast domains from the authority of philosophical reflection', the editors asserted, and '[t]he ensuing turn to the subject, appears now to have been only a temporary stopgap, which could remain effective only until the human sciences and the arts grew strong enough to claim their proper domains from philosophy as well.[5]

Nor has philosophy found a safe haven from science in its more recent linguistic turn. The question now confronting philosophers is whether there is still a niche independent of science where philosophers can say anything of importance. The questions of reason and truth may provide such a niche. However, philosophy in the grand manner of Plato, Aristotle, Aquinas, Descartes, Hobbes, Spinoza, Leibniz and Hegel, philosophy as metaphysics, apart from its pernicious influence on present culture, can no longer to be taken seriously.

This set of beliefs is clearly still the conventional view among mainstream philosophers. But it is by no means the conventional view among scientists and historians of science. Historians of science have argued that science emerged from and is built on metaphysics, and secondly, major scientific revolutions of the past were metaphysical revolutions; and some of the most

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[3] Kenneth Baynes, James Bohman, and Thomas McCarthy eds., *After Philosophy: End or Transformation?* (Cambridge: MIT Press, 1988).

[4] It contains papers by Rorty, Lyotard, Foucault, Derrida, Davidson, Dummett, Putnam, Apel, Habermas, Gadamer, Ricoeur, MacIntyre, Blumenberg and Taylor.

[5] 'General Introduction', *After Philosophy* p.1.

eminent scientists of the last half century have argued that metaphysics is central to all science. On this view, scientific research only became possible through the metaphysical speculation of the ancient Greeks where the major metaphysical theories were first promulgated. The form of science which originated in the seventeenth century began with a metaphysical revolution which provided a refined version of atomism to replace Aristotelian metaphysics. As the eminent historian of science, Alexandre Koyré, wrote of the seventeenth century scientific revolution in his influential work, *Newtonian Studies*: 'I am convinced that the rise and growth of experimental science is not the source, but, on the contrary, the result of the new *theoretical*, that is, the new *metaphysical* approach to nature that forms the content of the scientific revolution of the seventeenth century.'[6]

This 'new' metaphysical theory has dominated science up until the present. But science is undergoing a radical transformation. The old metaphysics is failing and a new metaphysics is required to advance science, a metaphysics which gives a central place to time, which allows for the irreducibility of complexity, and which makes intelligible the fact that we, as knowers, are part of the world to be understood.[7] It is these themes which have led to renewed interest in metaphysics by scientists. In summing up the conclusions of a discussion between theoretical biologists at a conference in 1968, the physicist David Bohm concluded:

> I think the most important aspect of the interchange is the emergence of a common
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> realization that metaphysics is fundamental to every branch of science. Metaphysics is ...

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[6] Alexandre Koyré, 'The Significance of the Newtonian Synthesis' (first published 1950) in *Newtonian Studies*, (Chicago: University of Chicago Press, 1968), p.6. The most thorough analyses of the relationship between metaphysics and modern science are Gerd Buchdahl, *Metaphysics and the Philosophy of Science* (Oxford: O.U.P., 1969), Ivor Leclerc's, *The Nature of Physical Existence* (London: Allen & Unwin, 1972), and John Randall Jr., *The Career of Philosophy* (3 volumes), (N.Y: Columbia University Press, 1962-65). For review of the present state of this argument, see Gary Hatfield, 'Metaphysics and the New Science' in David C. Lindberg and Robert S. Westman (eds.), *Reappraisals of the Scientific Revolution*, (Cambridge: Cambridge University Press, 1990) pp.93-166.
[7] See for example Ilya Prigogine and Isabelle Stengers, *Order out of Chaos* (N.Y.: Bantam Books, 1984).

something that pervades every field, that conditions each person's thinking in varied and subtle ways, of which we are not conscious. Metaphysics is a set of assumptions about the general order and structures of existence.

It is because metaphysics is thought to be so central to thinking that developing metaphysical systems is regarded as so important. Bohm went on to argue for more metaphysical speculation:

It seems clear that everybody has got some kind of metaphysics, even if he thinks he hasn't got any.... [T]he practical 'hard-headed' individual has a very dangerous kind of metaphysics, i.e. the kind of which he is unaware... Such metaphysics is dangerous because, in it, assumptions and inferences are being mistaken for directly observed facts, with the result that they are effectively riveted in an almost unchangeable way into the structure of thought... [W]hat is needed is a the conscious criticism of one's own metaphysics, leading to changes where appropriate and, ultimately, to the continual creation of new and different kinds. In this way, metaphysics ceases to be the master of a human being and becomes his servant, helping to give an ever changing and evolving order to his overall thinking.[8]

These views are now widespread among leading scientists, and were echoed in a recent anthology, published in 1994, on new metaphysical foundations for science. One of its editors, Willis Harman, concluded his introduction to the anthology:

The overall thrust of this study is, thus, that a reconstitution of science on a different metaphysical foundation is *intellectually supportable*, potentially *fruitful* in terms of research questions and effective methodology, *desirable* in terms of the light it could shed

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[8] David Bohm, 'Further Remarks on Order' in C.H. Waddington (ed.), *Towards a Theoretical Biology: 2 Sketches* (Edinburgh: Edinburgh University Press, 1969), p.41f.

on some age-old scientific puzzles, and *timely* in terms of both a receptive climate and

need for a different understanding of our relationship to nature.[9]

This notion of metaphysics manifests the continued existence of a tradition of thought which

has survived and grown outside mainstream philosophy. However the nature and coherence

of this tradition is not easily discernible precisely because it has been marginalized within

philosophy. Its origins and development can be traced most easily through the influence of its

most outstanding exponent this century, Alfred North Whitehead, who is regarded by almost

all of those who hold speculative metaphysics to be central to philosophy as the greatest

metaphysician of the twentieth century.[10]. And it is through Whitehead's defence of this

tradition that it can be best evaluated.

II. Whitehead and the Tradition of Speculative Metaphysics

Whitehead's work is usually considered in relation to logic or to process theology.[11]

His contribution to science and the history and philosophy of science is less appreciated.

However it is here that the impact of Whitehead's work has been greatest. Whitehead's work

as a speculative metaphysician can be seen as a development within a broad tradition of

thought striving to identify and replace the assumptions of 'scientific materialism'. This

tradition had its roots in the work of Leibniz, Herder and Schelling, but largely through the

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[9] Harman, 'Introduction' in Willis Harman and Jane Clark (eds.), *New Metaphysical Foundations of Modern Science* (Sausalito, California: Institute of Noetic Sciences, 1994) p.xxviii.

[10] George Kline was merely expressing a consensual view among those symapthetic to metaphysics when he began a paper: 'G.W.F. Hegel, the major speculative philosopher of the nineteenth century, and A.N. Whitehead, the major speculative philosopher of the twentieth century thus far...', 'Concept and Concrescence' in George R. Lucas, Jr. (ed.), *Hegel and Whitehead: Contemporary Perspectives on Systematic Philosophy* (N.Y.: S.U.N.Y. Press, 1986) p.133.

[11] Through the work of Charles Hartshorne, John Cobb Jr., David Ray Griffin, Lewis Ford, Robert C. Neville and Donald W. Sherburne, among others.

influence of these philosophers, had become a major force by the early twentieth century. At this stage it included the Monists in Germany, Bergson in France, Bogdanov and the dialectical materialists in Russia, Peirce, James and Dewey in USA and Alexander in Britain, together with a number of practicing scientists.[12] Although a mathematician, Whitehead's Fellowship dissertation at Trinity had been on Clerk Maxwell's theory of electromagnetism, and he retained an interest in this throughout his life. His work on logic and the foundations of mathematics was meant to be a contribution to developing a new conception of nature. His philosophy stands out as the a high point of this anti-mechanist tradition not so much in the solutions proposed, but in the scope of his work and the sharpness with which he formulated the issues with which earlier philosophers had been grappling.

Philosophically literate scientists frequently acknowledge their indebtedness to Whitehead's metaphysics, and although this indebtedness has become increasingly evident with the publication of a series of anthologies by David Ray Griffin,[13] it is little appreciated in mainstream philosophy. What is even more significant is the influence Whitehead has had on our conception of science. Whitehead had a major influence on the history of science, and then through this, on the philosophy of science by effecting a fundamental transformation of our understanding of the seventeenth century scientific revolution as first and foremost a revolution in metaphysics.[14] Koyré, whose name is most commonly identified with this new view of senventeenth century science, was anticipated by Whitehead, referred to him and was

[12] On this whole tradition, see George R. Lucas Jr., *The Genesis of Modern Process Thought* (Metuchen. N.J.: Scarecrow Press, 1983) and Rescher, *Process Metaphysics*.
[13] See in particular John B. Cobb Jr. and David Ray Griffin (eds.), *Mind in Nature: Essays on the Interface of Science and Philosophy* (Washington: University Press of America, 1978) and David R. Griffin (ed.) *Physics and the Ultimate Significance of Time: Bohm, Prigogine, and Process Philosophy* (New York: S.U.N.Y. Press, 1986).
[14] In Alfred North Whitehead, *Science and the Modern World* [1925], (N.Y.: Mentor, 1948). Similar ideas were put forward at the same time by E.A. Burtt.

obviously familiar with his work.[15] Anti-positivist philosophers of science generally appear to be aware of Whitehead's work, and although few acknowledge him as a major source of their ideas, most of them have drawn on the work of historians of science influenced by Whitehead or by those influenced by him (including Koyré). For instance James Conant, who as president of Harvard where Whitehead was teaching, was strongly influenced by his ideas about science. He promoted the study of and set up and taught experimental courses on the history of science and published a number of historical studies. He exerted an enormous influence on the philosophy of science in USA through his influence on Thomas Kuhn. Kuhn wrote in the preface to *The Structure of Scientific Revolutions*, 'It was James B. Conant, then president of Harvard University, who first introduced me to the history of science and thus initiated the transformation in my conception of the nature of scientific advance.'[16] When people using Kuhn's language talk of new paradigms in science, they are merely echoing first, Conant's defence of speculative ideas and 'conceptual schemes',[17] and beyond that, Whitehead's call for more speculative philosophy to elaborate new schemes of ideas or metaphysics as the condition for scientific advance.

The notions about philosophy and science promulgated by the logical positivists, and attacked by historically oriented philosophers of science influenced by Whitehead, had incorporated the ideas of Whitehead's one-time collaborator, the 'simple minded' Bertrand Russell.[18] Russell, along with G.E. Moore, was a progenitor of analytic philosophy which

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[15] See Koyré, *Newtonian Studies* p.3 and p.50. Koyré equated Bergson's *Creative Evolution* to Newton's *Principia* (*Newtonian Studies* p.17).

[16] Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962) p.xiii. Conant wrote the forward to Kuhn's first book, *The Copernican Revolution* (Cambridge: Harvard University Press, 1957).

[17] See James B. Conant, *Science and Common Sense* (New Haven and London: Yale University Press, 1951) p.47ff.

[18] Whitehead once said to Russell: 'Bertie, the world is divided into the simpleminded and the muddleheaded, and I shall leave it to you to decide which one you are.' Quoted without reference by Gerald Edelman, *Bright Air, Brilliant Fire* (London: Allen Lane, 1992) p.233.

subsequently came to dominate the Anglophone world, largely through its influence on logical positivism. While the main source of inspiration for logical positivism was Ernst Mach,[19] Rudolph Carnap, strongly influenced by Russell (along with Frege), had such an impact on logical positivism, that Mach's ideas subsequently came to be misrepresented.[20] Whitehead's metaphilosophy can be understood as a response to what he took to be the pernicious influence of Russell's early and highly influential conception of philosophy as logical analysis,[21] and the later debate between logical positivists and historically oriented philosophers of science simply reproduced this argument in more detailed but less comprehensive form. Consequently, the best way to understand and to evaluate speculative metaphysics is to examine Whitehead's defence of it against the influence of Russell's early metaphilosophy.

III. Russell's and Whitehead's Defences of Philosophy

The opposition between Russell and Whitehead is evident in their superficially similar, but fundamentally different, defences of philosophy. In a small but highly influential book, *The Problems of Philosophy*, published in 1912 at about the same time as he was beginning to make his first contributions to analytic philosophy, Russell wrote:

Philosophy, like other studies aims primarily at knowledge. The knowledge it aims at is the kind of knowledge which gives unity and system to the body of the sciences, and the

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[19] For the fullest account of this, see Gerald Holton, 'Ernst Mach and the Fortunes of Positivism' in *Science and Anti-Science* (Cambridge: Harvard University Press, 1993) pp.1-55.

[20] On Mach's actual ideas on science, see Paul Feyerabend, 'Mach's Theory of Research and its Relation to Einstein' in his *Farewell to Reason* (London and N.Y.: Verso, 1987) pp.192-218.

[21] As Russell matured his ideas about philosophy came closer to Whitehead's. On this see George R. Lucas Jr., *The Rehabilitation of Whitehead* (N.Y.: State University of New York Press, 1989) Ch.VII. There have been a number of efforts to contrast Whitehead and Russell

kind which results from a critical examination of the grounds of our convictions, prejudices, and beliefs. But it cannot be maintained that philosophy has had any great measure of success in its attempts to provide definite answers to its questions.... It is true that this is partly accounted for by the fact that, as soon as definite knowledge concerning any subject becomes possible, this subject ceases to be called philosophy, and becomes a separate science... Thus to a great extent, the uncertainty of philosophy is more apparent than real: those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy.[22]

So philosophy can be valued because it eventually gives rise to certain knowledge; but when knowledge has become certain it will come to be regarded as scientific. However Russell argued that philosophy also has a value because of its very uncertainty. It frees us from the tyranny of custom and suggests possibilities which enlarge our thoughts. More importantly, philosophy is to be valued for its effect on individuals who, in contemplating the non-Self, have the boundaries of their Selves enlarged. In contemplating the universe 'the mind is rendered great, and becomes capable of that union with the universe which constitutes its highest good.'[23]

Whitehead summarized his views on the value of philosophy in a brief epilogue to *Modes of Thought*, entitled 'The Aim of Philosophy', published in 1937, clearly opposing the way philosophy had developed in the preceding twenty years:

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and to show Whitehead's influence on Russell, but little attention to Whitehead's philosophy as a response to Russell and those influenced by him.

[22] Bertrand Russell, *The Problems of Philosophy* [1912] (Oxford: Oxford University Press, 1978) p.90. This passage is included in the first reading in the popular John Perry & Michael Bratman (eds.), *Introduction to Philosophy: Classical & Contemporary Readings* (New York: Oxford University Press, 1986).

[23] *The Problems of Philosophy*, p.93f.

The task of a university is the creation of the future, so far as rational thought, and civilized modes of appreciation, can affect the issue... Amid this scene of creative action, What is the special function of philosophy? ... In order to answer this question, we must first decide what constitutes the philosophic character of any particular doctrine. What makes a doctrine philosophical? No one truth, thoroughly understood in all the infinitude of its bearings, is more or less philosophical than any other truth. ... Philosophy is an attitude towards doctrines ignorantly entertained.... The philosophical attempt takes every word, and every phrase, in the verbal expression of thought, and asks, What does it mean? ... Of course you have to start somewhere for the purpose of discourse. But the philosopher, as he argues from his premises, has already marked down every word and phrase in them as topics for future enquiry. No philosopher is satisfied with the concurrence of sensible people, whether they be his colleagues, or even his own previous self. He is always assaulting the boundaries of finitude... [T]he scientist and the philosopher face in opposite directions. The scientist asks for the consequences, and seeks to observe the realization of such consequences in the universe. The philosopher asks for the meaning of these ideas in terms of the welter of characterizations which infest the world.... The fallacy of the perfect dictionary divides philosophy into two schools, namely, the 'Critical School,' which repudiates speculative philosophy, and the 'Speculative School' which includes it. The critical school confines itself to verbal analysis within the limits of the dictionary. The speculative school appeals to direct insight, and endeavours to indicate the meanings by further appeal to situations which promote such specific insights. It then enlarges the dictionary. ... The use of philosophy is to maintain an active novelty of fundamental ideas illuminating the social system.[24]

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[24] Alfred North Whitehead, *Modes of Thought* (N.Y.: The Free Press, 1938), pp.171-74.

From these brief statements, four fundamental, inter-related differences between Whitehead and Russell become evident: their views on knowledge, their conception of the relationship between philosophy and science, their conception of systematic thought and their conception of the relationship between philosophy and society. It is these differences which led them in fundamentally different directions.

IV. Russell's Metaphilosophy

To begin with, it is clear that Russell at this stage of his career took the goal of inquiry to be certain knowledge, and he assumed this to be attainable. Despite his initial defence of philosophy even though it does not achieve such knowledge, this defence is mounted on the assumption that the value of certain knowledge is obvious. He also asserted that mathematics and the sciences have gained and are continuing to accumulate such knowledge. A deeper assumption is that this knowledge can be gained piece by piece. What role can philosophy play if science and mathematics are steadily accumulating such knowledge? Apart from the proto-scientific activity preceding genuine science, philosophy can 'give unity and system to the body of the sciences'. How can philosophy achieve this? It is evident from Russell's work at this time that he believed philosophy could proceed by admitting only terms which can be clearly defined and are logically consistent, and through such terms, determining what is certain knowledge and showing how, through logic and mathematics, such knowledge can be ordered systematically.[25] And shortly thereafter, Russell concluded that philosophy itself does accumulate certain knowledge. With the development of his logical atomism, philosophy was

[25] See Russell's classic paper, 'On the Relations of Universals and Particulars' in *Proceedings of the Aristotelian Society*, 1911-1912; republished in Bertrand Russell, Robert Charles Marsh (ed.), *Logic and Knowledge* (London and New York: Routledge, 1992).

identified with logic. As Russell put it: 'every philosophical problem, when it is subjected to the necessary analysis and purification, is found either to be not really philosophical at all, or else to be, in the sense we are using the word, logical.'[26] By 'logical', Russell meant that it pertained to the forms of propositions and inferences.

Russell, unlike later analytic philosophers, was not opposed to metaphysics and was a political activist. But metaphysics was reduced to clarifying the meaning of terms and considering questions about the status of particulars, universals, relations, propositions and facts, including simple, composite and negative propositions and facts. Russell's 'metaphysics', logical atomism, was his conclusion that propositions, expressing logical relations between particulars, with the ultimate particulars being sensations, picture what is in reality. He assumed that the logic of relations which he and Whitehead had developed was final and complete. Despite his rhetoric about imagination and speculation, Russell not only confined himself to verbal analysis within the limits of the dictionary, he contracted the dictionary (dispensing with such terms as 'percept' and 'concept' as too pyschological)[27] paving the way for its further contraction by those inspired by him. And despite his political activism, Russell had remarkably little to say on the relationship between philosophy and society. All he could claim was that philosophy has a salutary effect on individuals. Philosophy opens people's minds, which are rendered great through contemplating what is great, enabling them to unite with the universe, the mind's highest good. This is good rhetoric but not an argument, and the rhetoric sits uneasily with Russell's deeper assumptions,

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[26] Bertrand Russell, *Our Knowledge of the External World* [1914] (London: Allen and Unwin, revised and reset, 1926) p.42. This is the introduction to Lecture II entitled 'Logic as the Essence of Philosophy'.

[27] 'On the Relations of Universals and Particulars' in *Our Knowledge of the External World* p.106.

assumptions eventually expressed in his logical atomism which hardly united minds with the universe. It was these assumptions which came to inform analytic philosophy.

V. Whitehead's Opposition to Russell's Conception of Knowledge

Whitehead totally rejected Russell's conception of knowledge, dismissing the assumption that only terms which can be precisely defined are important and denying the possibility of the piecemeal accumulation of certain knowledge. Whitehead not only affirmed the importance of terms which are as yet vague, but saw in the belief that terms are, or even can be clearly defined as an intellectual pathology. As he wrote elsewhere:

> The history of European thought, even to the present day, has been tainted by a fatal misunderstanding. It may be termed The Dogmatic Fallacy. The error consists in the persuasion that we are capable of producing notions which are adequately defined in respect to the complexity of relationship required for their illustration in the real world. ... Except perhaps for the simpler notions of arithmetic, even our more familiar ideas, seemingly obvious, are infected with this incurable vagueness.[28]

Philosophers must begin with vague notions and attempt to clarify these, but full clarity is an ideal which can never be realized.

Whitehead states even more forcefully his rejection of the assumption made by Russell that the goal of enquiry is the accumulation of certain knowledge. Every claim to knowledge, Whitehead argues, takes for granted a background of assumptions open to further question. It might appear that Whitehead was not entirely consistent on this, since he frequently invoked the word 'truth', a term usually associated with claims to certainty. However Whitehead did not accept that 'truth' implies certainty, and his use of the term highlights his opposition to the

fixation on centainty. He defined truth as 'the conformation of Appearance to Reality', but then went on: 'This confirmation may be more or less, also direct or indirect. Thus Truth is a generic quality with a variety of degrees and modes.'[29] Whitehead argued that 'the logicians' rigid alternative, 'true and false,' is ... largely irrelevant for the pursuit of knowledge.'[30] In fact, the existing formulated principles of any science considered as complex assertion must be held to be false. What is more important about ideas is that they be interesting rather than true.

The fixation on the quest for certain knowledge, on the logicians rigid understanding of truth, has blinded Russell and his epigones to the more important quest to make the world intelligible; that is, to 'the craving of reason that the facts discriminated in experience be understood.'[31] To emphasise these points, Whitehead used the term 'understanding' rather than 'knowledge' in discussing the aim of enquiry, and then attacked the value placed on acquired knowledge as something sterilizing imaginative thought and thereby blocking progress. Describing what is involved in the quest for understanding, Whitehead wrote:

> My point is that understanding is never a completed static state of mind. It always bears the character of a process of penetration, incomplete and partial.... Of course in a sense, there is a completion. But it is a completion presupposing relation to some given undefined environment, imposing a perspective and awaiting exploration.[32]

Whitehead's opposition to the idea of certain knowledge is further manifest in his estimation of his own work in logic. While Whitehead and Russell collaborated in their development of

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[28] Alfred North Whitehead, *Adventures of Ideas* [1933] (New York: The Free Press, 1933), p.144f.
[29] Ibid., p.241.
[30] Alfred North Whitehead, David Ray Griffin and Donald W. Sherburne (eds.), *Process and Reality* [1929] corrected edition (N.Y.: Free Press, 1978) p.11.
[31] *Adventures of Ideas* p.141.
[32] *Modes of Thought* p.43.

the new logic of relations, but at the time of its writing their attitudes towards this achievement diverged sharply. Like Russell, Whitehead believed that the transcendence of the subject-predicate logic of Aristotle had unfettered the mind. But unlike Russell, Whitehead did not believe that this logic reflects the relations within the world, that it was complete, or that it could solve all the problems of philosophy. According to Whitehead, logic is the highest form of abstraction, and abstractions abstract from and always presuppose a more complex environment. They are inevitably limited, and should eventually be transcended by less inadequate abstractions.[33] To take any set of abstractions as reality is to commit the fallacy of misplaced concreteness.[34] Rather, abstractions should be appreciated as means to comprehension.

Comprehension cannot be achieved by simply representing the way the world is. Comprehension requires the ability to create contrasts to achieve a distance from habitual experience, to envisage what is not the case, what is merely possible or even impossible. So, as A.H. Johnson concluded, 'it would seem then, that [Whitehead] would accept as meaningful references to "round squares" and "the present King of France".'[35] Furthermore, to recognize abstractions as abstractions implies an appreciation of their limitations. Logic provides only one perspective on the world. We need to acknowledge other perspectives to which logic is irrelevant. As Whitehead put it: 'The terms *morality, logic, religion, art*, have each of them been claimed as exhausting the whole meaning of importance. ... But ... there are perspectives of the universe to which morality is irrelevant, to which logic is irrelevant, to

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[33] As George R. Lucas Jr. argued, Whitehead was clearly dissatisfied with a two valued logic and foreshadowed a sympathy for modal logic (The Rehabilitation of Whitehead p.141).

[34] On this, see *Science and the Modern World* p.52. Here Whitehead is concerned with the tendency to take the abstractions of science for reality, but the fallacy as formulated extends beyond this and is clearly applicable to Russell's logical atomism.

[35] A.H. Johnson, 'Whitehead on the Uses of Language' in Ivor Leclerc (ed.), *The Relevance of Whitehead* (London: Allen & Unwin, 1961) p.134.

which religion is irrelevant, to which art is irrelevant.'[36] No matter how far logic (or mathematics) is developed, it will never solve the most fundamental problems of philosophy. Logical reasoning, which proceeds by the use of the variable, presupposes two things: 'that the definite symbols of composition can retain the same meaning as the reasoning elaborates novel compositions', and 'that this self-identity of each variable can be preserved when the variable is replaced by some definite instance.'[37] Whether these presuppositions are valid at least for the purposes of the argument is a question unanswerable by logic. It is a metaphysical question. Logic presupposes metaphysics and is of little help in answering such metaphysical questions.

VI. Philosophy and Science

Whitehead was particularly concerned to attack the notion that science accumulates certain knowledge. Condemning medieval theologians as 'the chief sinners in respect of dogmatic finality', he suggested that: 'During the last three centuries, their bad preëminence in this habit passed to the men of science.'[38] Opposing this fallacy, Whitehead argued that there are no absolute starting points, nor any final end points in enquiry. Science is formed by the meeting of two orders of experience: the Observational Order, and the Conceptual Order. These are inseparable: 'We inherit an observational order, namely types of things which we do in fact discriminate; and we inherit a conceptual order, namely a rough system of ideas in terms of which we do in fact interpret. We can point to no epoch in human history, or even in animal history, at which this interplay began.'[39] Novel observations modify the conceptual order,

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[36] *Modes of Thought* p.11f.
[37] Ibid., p.107.
[38] *Adventures of Ideas* p.145.
[39] Ibid., p.155.

while novel concepts suggest novel possibilities of observational discrimination. They cannot be developed independently of each other, with scientists observing, classifying and inductively generalizing, and philosophers examining logical forms and defining what is knowledge. This conception of enquiry leaves out the role of logically disciplined imagination through which schemes of ideas are elaborated, and the process by which experience is elucidated through such schemes. Once this is taken into account, then science as the elucidation of experience through schemes of ideas, and philosophy as the elaboration of schemes of ideas generalized from elucidated experience, must be seen as indissociable. As Whitehead put it: 'Science and Philosophy are merely different aspects of one great enterprise of the human mind.'[40] Because science is ultimately based on the schemes of ideas elaborated by philosophers it is no more certain than philosophy:

> No science can be more secure than the unconscious metaphysics which tacitly it presupposes. The individual thing is necessarily a modification of its environment, and cannot be understood in disjunction. All reasoning, apart from some metaphysical reference, is vicious. Thus the Certainties of Science are a delusion. They are hedged around with unexplored limitations. Our handling of scientific doctrines is controlled by the diffused metaphysical concepts of our epoch. Even so, we are continually led into errors of expectation. Also, whenever some new mode of observational experience is obtained the old doctrines crumble into a fog of inaccuracies.[41]

One of the most important functions of philosophy is to expose the unconscious metaphysics presupposed by the sciences, to show the relationships between the particular sciences and to put these in perspective:

[40] Ibid., p.140.
[41] Ibid., p.154.

[O]ne aim of philosophy is to challenge the half-truths constituting the scientific first principles. The systematization of knowledge cannot be conducted in watertight compartments. All general truths condition each other; and the limits of their application cannot be adequately defined apart from their correlation by yet wider generalities. The criticism of principles must chiefly take the form of determining the proper meanings of the notions of the various sciences, when these notions are considered in respect to their status relatively to each other. The determination of this status requires a generality transcending any special subject-matter.[42]

And beyond this, philosophy is required to criticise and transcend the limitations of existing science, to make possible new lines of research:

Science and Philosophy mutually criticise each other, and provide imaginative material for each other. A philosophic system should present an elucidation of concrete fact from which the sciences abstract. Also the sciences should find their principles in the concrete facts which a philosophic system presents. The history of thought is the story of the measure of the failure and success in this joint enterprise.[43]

Metaphysics, dealing with the broadest generalities, is essential to science.

VII. Speculative Philosophy and Metaphysics

For Whitehead, the term 'philosophy' is used to cover all branches of philosophy: metaphysics, logic, epistemology, ethics, aesthetics etc., with each branch conceived of as interdependent aspects of one discipline, the foundation of which can only be metaphysics. Metaphysics is 'the science which seeks to discover the general ideas which are indispensably

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[42] *Process and Reality* p.10.
[43] *Adventures of Ideas* p.146.

relevant to the analysis of everything that happens.'[44] The elaboration of such general ideas is speculative philosophy, which Whitehead defined in *Process and Reality*:

> Speculative Philosophy is the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted. By this notion of 'interpretation' I mean that everything of which we are conscious, as enjoyed, perceived, willed, or thought, shall have the character of a particular instance of the general scheme. Thus the philosophical scheme should be coherent, logical, and in respect of interpretation, applicable and adequate. Here 'applicable' means that some items of experience are thus interpretable, and 'adequate' means that there are no items incapable of such interpretation.[45]

Speculative philosophy thus has its rational and its empirical side, the rational side expressed by the terms 'coherent', 'logical' and 'necessary', and the empirical side expressed by the terms 'applicable' and 'adequate'.

What is meant by 'logical' is unproblematic. It means lack of contradiction and logical precision in the definition of constructs. Where Whitehead is original is in down-playing the importance of logic. Logical contradictions, apart from temporary slips of the mind, are usually trivial, Whitehead argued. And it is a major fallacy of philosophy to overestimate logical procedure: 'Philosophy has been haunted by the unfortunate notion that its method is dogmatically to indicate premises which are severally clear, distinct, and certain; and to erect upon these premises a deductive system of thought.' Whitehead went on to argue that 'the accurate expression of the final generalities is the goal of discussion and not its origin.'[46] And further, he argued that because of the possible relevance of considerations from which

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[44] Alfred North Whitehead, *Religion in the Making* (Cambridge: Cambridge University Press, 1926) p.72n.
[45] *Process and Reality* p.3.

premises have been abstracted, 'deductive logic has not the coercive supremacy which is conventionally conceded to it. When applied to concrete instances, it is a tentative procedure, finally to be judged by the self-evidence of its issues.'[47]

What is more important than logical consistency is the demand for coherence, which Whitehead regards as 'the great preservative of rationalistic sanity.'[48] For Whitehead 'coherence':

> ... means that the fundamental ideas, in terms of which the scheme is developed, presuppose each other so that in isolation they are meaningless. ... In other words, it is presupposed that no entity can be conceived in complete abstraction from the system of the universe, and that it is the business of speculative philosophy to exhibit this truth. This character is its coherence.[49]

This is clarified by considering the nature of incoherence. 'Incoherence is the arbitrary disconnection of first principles.'[50] For example, Descartes' postulation of two kinds of substance, corporeal and mental, illustrate this incoherence, as does Spinoza's arbitrary introduction of the 'modes' of substance.

The demand that the system of general ideas be 'necessary' follows from the demand that they be logical and coherent. It is a consequence of their complete generality. Because they are universal, such general ideas are necessarily embodied everywhere; consequently it should be possible to interpret all elements of experience through them. As Whitehead put it, 'the philosophical scheme should be "necessary," in the sense of bearing in itself its own warrant

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[46] Ibid., p.8.
[47] *Modes of Thought* p.106.
[48] *Process and Reality* p.6.
[49] Ibid., p.3.
[50] Ibid., p.6.

of universality throughout all experience.'[51] Contingent ideas, by contrast, are of limited generality and are therefore not necessarily involved in the interpretation of all elements of experience.

A scheme of metaphysical ideas or categories must be 'applicable' in the sense that some items of experience, beyond the restricted locus from which the ideas originated, are interpretable through the scheme. For instance ideas generalized from physics are of no metaphysical significance unless they find application in fields beyond physics and enlighten observation in these remote fields. However to be empirically justified, a scheme must also be 'adequate'; that is, be able to interpret *every* item of experience - ideas, physical elements, life, society, the mind, harmony, mathematical relations, eros, the good, and so on. Interpretation involves doing justice to all these items; Whitehead charged that 'Philosophy destroys its usefulness when it indulges in brilliant feats of explaining away.'[52] Inadequacy and incoherence are the main reasons for rejecting a scheme of metaphysical ideas.

Whitehead also conceived metaphysics to be the attempt to find the generic features of an 'actual entity'. 'Actual entity' is the term used by Whitehead in place of 'substance', 'essence' and 'monad' to render the meaning of *ousia*. 'Actual' means 'existence' in the fullest sense of the term, and 'actual entities' are the truly and fully existent beings. Actual entities are defined by Whitehead as:

> the final real things of which the world is made up. There is no going behind actual entities to find anything more real. They differ among themselves ... But, though there are gradations of importance, and diversities of function, yet in the principles which actuality exemplifies all are on the same level.[53]

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[51] Ibid., p.4.
[52] Ibid., p.17.
[53] Ibid., p.18.

Whatever else exists, does so as an ingredient of, or is derivative from, actual entities. Apart from actual entities, 'there is nothing - nothing either in fact or in efficacy.'[54] This is the ontological principle, summarized by Whitehead as: 'no actual entity, then no reason.'[55] To characterize the universal features of actual entities <u>is</u> to provide the general ideas which are indispensably relevant to the analysis and explanation of everything that happens. Metaphysics as *ontologia generalis* and *scientia universalis*, to use the terms introduced by Christian Wolff to characterize what he took to be its different parts, are identical.

In characterizing metaphysics in this way, Whitehead combined the concerns and avoided the ambiguities which plagued Aristotle's characterization of metaphysics, the ambiguities which have led interpreters such as Jonathan Barnes to the conclusion that there is no such thing as Aristotelian metaphysics.[56] And by using the notion 'actual entity' Whitehead avoided connotations of the terms 'substance' and 'essence' which misrepresent Aristotle's work and confuse even further the nature of metaphysics.[57] Whitehead has redefined metaphysics, and given it a clear, unambiguous meaning.

VIII. The 'Method' of Speculative Philosophy

In defending metaphysics, Whitehead described a method for philosophy fundamentally at odds with the analytical method developed by Russell. According to Whitehead, science and philosophy 'are both concerned with the understanding of individual facts as illustrations of general principles. The principles are understood in the abstract, and the facts are understood

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[54] Ibid., p.40.

[55] Ibid., p.19.

[56] See Jonathon Barnes, 'Metaphysics' in Jonathon Barnes (ed.), *The Cambridge Companion to Aristotle* (Cambridge: Cambridge University Press, 1995).

[57] For a careful study of these issues, see Ivor Leclerc, *Whitehead's Metaphysics* (Lanham: University Press of America, 1986) Ch.II.

in respect to their embodiment of the principles.'[58] Consequently, 'the first step in science and philosophy has been taken when it is grasped that every routine exemplifies a principle which is capable of statement in abstraction from its particular exemplifications.'[59] Science and philosophy differ mainly in the scope of the principles with which they are concerned. The problem for both, although more emphatically for philosophy, is how to find such principles. They cannot be found through deduction. This is the point Whitehead makes when he argues that: 'Philosophy is the search for premises. It is not deduction. Such deductions as occur are for the purpose of testing the starting points by the evidence of the conclusions.'[60] Nor can they be found though induction. Whitehead also argued that before correlations between observations can be of importance, it is first necessary to have schemes of ideas into which such observations can be fitted. These schemes precede systematic observation, and can be of the greatest significance even when they fail to achieve contact with observation. Rationality, in its basic form, is neither deduction nor induction, but the search for principles or schemes of ideas.

How can this search be conducted? To begin with, Whitehead argued that there cannot be a method for this, since it is only through such schemes of ideas that methods are established. As he put it:

> The speculative Reason is in its essence untrammelled by method. Its function is to pierce into the general reasons beyond limited reasons, to understand all methods as coordinated in a nature of things only to be grasped by transcending all method.[61]

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[58] *Adventures of Ideas* p.140
[59] Ibid., p.141.
[60] *Modes of Thought* p.105.
[61] Alfred North Whitehead, *The Function of Reason* (Princeton: Princeton University Press, 1929) p.51.

However, he qualified this, arguing that there is a method of sorts involved in reaching beyond set bounds, including all existing methods. It was this 'method' which was discovered by the Greeks, and why we now talk of speculative reason rather than inspiration. This cannot be understood as the application of a rigid formula. There cannot be a fixed, definite procedure of speculative reason such as that of deductive logic.

What then is speculative reason? And in particular, How does speculation operate in philosophy? Essentially, speculative reason is, in the terminology of Peirce, abduction, the development of a working hypothesis to elucidate experience. Such working hypotheses are arrived at through the generalization of patterns experienced in particular domains. Although Whitehead seldom uses the terms, this is a matter of elaborating analogies or metaphors. How is speculation undertaken in philosophy? Here there are additional problems. As we have seen, the quest of metaphysics can be conceived as the quest for the generic features of actual entities. These features must be sought in the experience of those entities. The basic difficulty of metaphysical thinking lies with the nature of this experience. Whitehead points out that experience is not a clear-cut knowledge of clear-cut items with clear-cut connections with each other. There is a focus of attention with a few items clearly perceived, but these are connected vaguely, yet insistently, with a dimly apprehended background shading off into undiscriminated feeling. The usual way of elucidating experience, the method of difference whereby features of experience are discriminated by contrasting their presence and absence, cannot be utilized to elucidate metaphysical first principles since these features are always being exemplified. So 'the method of pinning down thought to the strict systematization of detailed discrimination, already effected by antecedent observation, breaks down.'[62] Metaphysical first principles operate as a constant aspect of the felt background.

[62] *Process and Reality* p.4.

What is required to overcome this problem is the construction of hypotheses through the 'free play of the imagination, controlled by the requirements of coherence and logic.'[63] Such imaginative thought is required to supply the differences which direct observation lacks. To ensure that such imaginative constructions have at least some application, 'this construction must have its origin in the generalization of particular factors discerned in particular topics of human interest.'[64] Only well developed areas of enquiry are likely to provide the requisite resources for metaphysical generalization. Along with physics, physiology, psychology and sociology, Whitehead allows that aesthetics, ethics and languages, conceived as storehouses of human experience, can be the source of metaphysical generalizations. This procedure is referred to by Whitehead as the method of 'descriptive generalization', meaning 'the utilization of specific notions, applying to a restricted group of facts, for the divination of the generic notions which apply to all facts.'[65].

The divination of generic notions involves a laborious process of elaboration to create a scheme of metaphysical categories. The notion that metaphysical categories are 'the dogmatic statement of the obvious' is rejected by Whitehead.[66] One of the main sources of such dogmatism is the 'fallacy of the perfect dictionary', the assumption that present language is completely adequate to reality. The words and phrases of old established metaphysical systems, having passed into current literature, are then assumed to have an unmerited air of sober obviousness and precision. The tool required of philosophy is language; but there does not yet exist the language to adequately express ultimate generalities. It is necessary to begin with verbal expressions which, given the current meaning of words, are ill-defined and ambiguous and to gradually sharpen their definition. Thus, as Whitehead put it, 'philosophy

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[63] Ibid., p.5.
[64] Loc.cit.
[65] Ibid., p.5 & p.10.

redesigns language in the same way that, in a physical science, pre-existing appliances are redesigned.'[67] Progress can only be made in the form of 'an asymptotic approach to a scheme of principles, only definable in terms of the ideal which they should satisfy.'[68] Elsewhere he wrote: 'It is a step by step process, achieving no triumphs of finality.'[69]

Metaphysical categories are 'tentative formulations of the ultimate generalities.'[70] And these formulations always will be tentative:

> Philosophers can never hope finally to formulate these metaphysical first principles. Weakness of insight and deficiencies of language stand in the way inexorably. Words and phrases must be stretched towards a generality foreign to their ordinary usage; and however such elements of language be stabilized as technicalities, they remain metaphors mutely appealing for an imaginative leap.[71]

Consequently, Whitehead called for the production of a diversity of metaphysical schemes. While 'we cannot produce that final adjustment of well-defined generalities which constitute a complete metaphysics... we can produce a variety of partial systems of limited generality.'[72] The resulting rival schemes, inconsistent with each other, but each with its own merits and its own failures, will then warn us of the limitations within which our intuitions are hedged. The impossibility of finality and the co-existence of incompatible metaphysical schemes does not mean that metaphysical thought does not progress. As in science, one idea after another is

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[66] Ibid., p.8.
[67] Ibid., p.11.
[68] Ibid., p.4.
[69] *Adventures of Ideas* p.145.
[70] *Process and Reality* p.8.
[71] Ibid., p.5.
[72] *Adventures of Ideas* p.145.

tried out, its limitations defined, and its core of truth elicited. As Whitehead noted: 'Philosophy never reverts to its old position after the shock of a great philosopher.'[73]

IX. Philosophy and Society

Conceiving of philosophy in such terms implies an importance to society of philosophy unappreciated by the early Russell, and even less appreciated by those he influenced. To begin with, a function of philosophy is to criticise prevailing, refashion old, and create new cosmologies. As such philosophy is essential to understanding the limitations of, and for the development of the specialist sciences. It is this role which Whitehead promotes in the introductory chapter to *Process and Reality*:

> The useful function of philosophy is to promote the most general systematization of civilized thought. There is a constant reaction between specialism and common sense. It is the part of the special sciences to modify common sense. Philosophy is the welding of the imagination and common sense into a restraint upon specialists, and also into an enlargement of their imaginations. By providing the generic notions philosophy should make it easier to conceive the infinite variety of specific instances which rest unrealized in the womb of nature.[74]

This is not only important for intellectual life. It is vital to civilization. Philosophies are the foundations upon which civilizations are built:

> ... a philosophic outlook is the very foundation of thought and of life. The sort of ideas we attend to, and the sort of ideas which we push into the negligible background, govern our hopes, our fears, our control of behaviour. As we think, we live. This is why the

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[73] *Process and Reality* p.11.

assemblage of philosophic ideas is more than a specialist study. It moulds our type of civilization.[75]

Philosophy involves the highest development of abstract thinking, and these abstractions both facilitate and limit the achievements of a civilization. Philosophy is required to criticise old and to create new abstractions:

> You cannot think without abstractions; accordingly, it is of the utmost importance to be vigilant in critically revising your *modes* of abstraction. It is here that philosophy finds its niche as essential to the healthy progress of society. It is the critic of abstractions. A civilization which cannot burst through its current abstractions is doomed to sterility after a very limited period of progress.[76]

Considering all this, there is no intellectual endeavour more important than philosophy:

> [Philosophy] is the most effective of all the intellectual pursuits.... It is the architect of the buildings of the spirit, and it is also their solvent:- and the spiritual precedes the material. Philosophy works slowly. Thoughts lie dormant for ages; and then, almost suddenly as it were, mankind finds that they have embodied themselves in institutions.[77]

It is for this reason Whitehead begins defining the aims of philosophy by posing the question: What is the function of philosophy in the creation of the future?

X. Conclusion

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[74] Ibid., p.17.
[75] *Modes of Thought* p.63.
[76] *Science and the Modern World* p.58. See also p.52 and p.179.
[77] Ibid., p.viif.

In contrast to Whitehead's ideas and the tradition of thought he represents, present efforts to defend philosophy appear extraordinarily modest.[78] They accept the relative trivialization of philosophy before they begin. But the consensual view among mainstream philosophers that the cognitive claims of philosophy must retreat before the advances of science is clearly based on a misunderstanding of science, a misunderstanding which is quite extraordinary given the work of historians and historically oriented philosophers of science in demolishing the image of science on which this conventional view is based. More broadly philosophers have failed to appreciate how radically indebted current civilization is to the ideas of past philosophers, and what present philosophy could contribute to overcoming the deficiencies of this civilization. The dismissal or even antagonism towards speculative metaphysics is based on a misunderstanding of what it is. All these misunderstandings are attributable to the failure of mainstream philosophers to consider the ideas of the outstanding speculative metaphysician of the twentieth century, Alfred North Whitehead, or to recognize and acknowledge the achievements of the tradition of thought of which he is part. Only this can account for how metaphysics has been represented as unverifiable or unfalsifiable speculation about a reality transcending appearances, as foundationalist, as claiming a privileged access to reality, as upholding idealism in opposition to naturalism, and as speculation divorced from practice. None of these are true of speculative metaphysics as characterized and defended by Whitehead.[79]

Once these misunderstandings are appreciated, the efforts of philosophers to find a niche for themselves beyond science can only appear bizarre. Unless Whitehead's construal of the nature of philosophy and its relation to science and society are mistaken, and so far

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[78] See for example John Passmore, 'The End of Philosophy? The "End-of" Syndrome' in *Australasian Journal of Philosophy* 74 (1996) pp.1-19.

Whitehead's views have been justified by further research rather than undermined, what is required for philosophy to regain its proper stature is a return to grand philosophy. What is required is a rejuvenation of speculative metaphysics uncowered by the achievements of the sciences.[80] As Whitehead argued: 'Philosophy will not regain its proper status until the gradual elaboration of categorial schemes, definitely stated at each stage of progress, is recognized as its proper objective.'[81] Such categorial schemes are needed to provide new inspiration and new directions for the sciences. Only through the conjunction of such work with science can we hope to gain a deeper understanding of the cosmos, of humanity and the place of humanity in the cosmos. From the perspective of the proponents of speculative metaphysics, this is what is required to overcome the major philosophical problems of the era - to understand the relationship between mind and body, knowledge and the known, appearance and reality, freedom and determinism and the individual and society.[82] These problems will never be resolved within the framework of received abstractions, the intellectual realm, dominated by seventeenth century speculative metaphysics, to which we are condemned if we confine our thinking to analysis within the limits of the dictionary. More importantly, the elaboration of new categorial schemes is required to provide a more adequate ethics, political philosophy and aesthetics. Philosophy regaining its proper status as Whitehead conceived it is then not merely a matter of upholding the status of philosophy within universities and within society. It is of vital importance for the future of society.

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[79] It could be argued that Whitehead did not entirely practice what he preached. On this see David Weissman, 'The Spiral of Reflection' in *New Essays in Metaphysics* pp.275-310.

[80] For a recent example of immodest philosophy in this sense, see Arran Gare, *Nihilism Inc.: Environmental Destruction and the Metaphysics of Sustainability* (Sydney: Eco-Logical Press, 1996).

[81] *Process and Reality* p.8.

[82] As philosopher/scientists such as Joseph Needham, C.H. Waddington, David Bohm, Brian Goodwin, Mae-Wan Ho, Gerald Edelman and Ilya Prigogine among others have been arguing for the last fifty years.

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