CAMBRIDGE PHILOSOPHERS IX

The ninth and last of a series of articles on Cambridge philosophers some of which were originally given as lectures in Cambridge in 1991.

Russell

RAY MONK

> ... all human knowledge is uncertain, inexact, and partial. To this doctrine we have not found any limitation whatever.[1]

So ends Russell's last major philosophical work, *Human Knowledge: Its Scope and Limits,* which was published in 1948, when Russell was 76. It is, at one and the same time, a summation of his epistemology and a confession of the forlorn hope upon which his philosophical career had been based. For when he says that he has found no limitation to the doctrine of the uncertainty, inexactitude and partiality of human knowledge, it should not be supposed that this was through any lack of trying. Philosophy, for Russell, simply *was* the search for certain and exact knowledge, and, though he found none and, though he concluded finally that there was none to be found, his search for it was long and thorough and has had a deep and lasting influence on the subject.

Philosophy, Russell writes in *Outline of Philosophy,* 'arises from an unusually obstinate attempt to arrive at real knowledge'[2]. Perhaps he ought to have said *for him* philosophy arises in this way. For others, of course, the impulse to philosophise has quite different roots; for Wittgenstein, philosophy arises from the bewitching influence exerted on our intelligence by means of language, and, for Moore, it arises from an exasperated bewilderment at the things said by philosophers. But, for Russell at least, it has its roots in the desire for well-grounded knowledge, *real* knowledge: 'What passes for knowledge in ordinary life suffers from three defects: it is cocksure, vague, and self-contradictory. The first step towards philosophy consists in becoming aware of these defects, not in order to rest content with a lazy scepticism, but in order to substitute an amended kind of knowledge'[3].

Russell's own first step towards philosophy came at the age of

[1] *Human Knowledge: Its Scope and Limits,* (London: George Allen & Unwin, 1948), p. 527.

[2] *Outline of Philosophy* (London: George Allen & Unwin, 1927), p. 1.

[3] Ibid.

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

eleven, when he was introduced to Euclidean geometry by his elder brother, Frank. The experience of discovering a body of knowledge that was *not* 'vague and self-contradictory' but, rather, precise, consistent and, above all, supported by *proofs,* was, he said 'as dazzling as first love'[4]. It aroused in him the hope that *all* knowledge could be like that: 'I liked to think of the applications of mathematics to the physical world, and I hoped that in time there would be a mathematics of human behaviour as precise as the mathematics of machines. I hoped this because I liked demonstrations, and at most times this motive outweighed the desire, which I also felt, to believe in free will'[5].

These days, when meaning has replaced knowledge as the central preoccupation of philosophers, and the intrinsic uncertainty of human knowledge that was Russell's finishing point has become our starting point, it requires an effort of the imagination to recreate the ecstatic mood of this hope of finding demonstrable knowledge. But, as Russell said over and over again, philosophy was, for him, fuelled by a certain ecstasy, something akin to mystical revelation but tempered always by the insistent demand to find reasons for belief. In *History of Western Philosophy,* this conception of philosophy is exemplified by the figure of Pythagoras, around whom Russell built a kind of myth that reveals much about his attitude to the subject. Pythagoreanism, on Russell's understanding, was a reformed version of Orphism, which was, in turn, a reformed version of the worship of Dionysus. Central to all three was the exaltation of ecstasy, but, in the cult of Pythagoras, this ecstasy is to be achieved, not by Bacchanalian revelries, but by the exercise of the intellect. The highest life, on this view, is that devoted to 'passionate sympathetic contemplation', which Russell (following F. M. Cornford) says was the original meaning of the word 'theory':

> For Pythagoras, the 'passionate sympathetic contemplation' was intellectual, and issued in mathematical knowledge. In this way, through Pythagoreanism, 'theory' gradually acquired its modern meaning; but for all who were inspired by Pythagoras, it retained an element of ecstatic revelation. To those who have reluctantly learnt a little mathematics in school this may seem strange; but to those who have experienced the intoxicating delight of sudden understanding that mathematics gives, from time to time, to

[4] *The Autobiography of Bertrand Russell* (London: George Allen & Unwin, 1967), p. 36.

[5] *Portraits from Memory and Other Essays* (London: George Allen & Unwin, 1956), p. 20.

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

> those who love it, the Pythagorean view will seem completely natural, even if untrue.[6]

It is with such passages in mind that one should understand Russell's characterisation of his own philosophical development as a 'retreat from Pythagoras'.

From 1890 to 1893, Russell studied mathematics as an undergraduate at Trinity College, Cambridge. He did so for broadly philosophical reasons, hoping to find in mathematics satisfaction of his Pythagorean yearnings for apodictic certainties. In this he was disappointed. Mathematics at Cambridge at that time remained untouched by the movement for increased rigour that was then flourishing on the continent, and, to his disgust, Russell was taught the subject, not as a body of exact and demonstrable knowledge, but as a series of techniques. So disillusioned was he that, when he completed his Tripos, Russell made a vow never to look at a mathematical book again and 'plunged with wholehearted delight into the fantastic world of philosophy'.[7]

Within a year of switching to philosophy, Russell settled on the issue that had first aroused his enthusiasm for 'passionate sympathetic contemplation': the foundations of geometry, which became, in time, the subject of his first philosophical book. The problem Russell sought to solve was that of the epistemological implications of non-Euclidean geometries. In the middle decades of the nineteenth century, first Lobachevsky and then Riemann had demonstrated that consistent systems of geometry could be constructed that abandoned Euclid's fifth postulate (the one that ensures that parallel lines never meet). The space described by these systems is 'curved', and, as a result, the properties of geometrical figures differ from those in Euclid's system. The angles of a triangle, for example. no longer add up to 180 degrees, but either slightly more (in Riemannian geometry) or slightly less (in Lobachevskyan). The problem these systems present is this: if space *could* be as it is described in Riemann's or Lobachevsky's system, how do we know it is not? The thought that had intoxicated the eleven year old Russell, that Euclidean geometry gives us certain knowledge of the properties of space is thus threatened.

In *The Foundations of Geometry* (1897), Russell responded to this threat with a Kantian transcendental argument. We cannot, he conceded, know *a priori* that the axioms and theorems of Euclidean

[6] *History of Western Philosophy* (London: George Allen & Unwin, 1946), pp. 52–3.

[7] *My Philosophical Development* (London: George Allen & Unwin, 1959), p. 38.

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

geometry are true; whether physical space is Euclidean, Riemannian or Lobachevskyan is an empirical matter. However, all three types of geometry could be regarded as special cases of the more general subject of *projective geometry,* and the axioms of this latter *must* be true, since they are a necessary condition of our experience of externality. Russell specified three such axioms: 1. all parts of space are qualitatively similar, and are distinguished only by the fact that they lie outside one another, 2. space is continuous and infinitely divisible, the result of infinite division being a *point*, 3. any two points determine a line, any three points determine a plane, any four a three-dimensional figure, and so on (though this progression must, Russell argues, come to an end: the number of spatial dimensions cannot be infinite). These axioms, Russell claims, must be satisfied by *any* geometry that describes *a possible* space, and then the axioms that give Euclidean, Riemannian and Lobachevskyan spaces their particular characteristics must be regarded as empirical hypotheses. Whether space is curved or not, that is, cannot be known *a priori,* but what can be known *a priori* is that, if it is curved then its curvature is constant. This follows from the 'homogeneity' of space asserted by the first axiom.

A death-blow to this view was dealt by Einstein's Theory of Relativity, according to which physical space is Riemannian, four-dimensional *and* of varying curvature, but, by the time this became accepted, Russell had long lost faith in transcendental arguments of any kind.

When Moore reviewed *The Foundations of Geometry* in *Mind,* he criticised Russell severely for his reliance upon Kantian arguments, but even then, just a year or so after the book's publication, Moore was pushing at an open door. *The Foundations of Geometry*, became abandoned and rejected, not least by Russell himself, who dismissed it in later years as 'somewhat foolish'. In some important respects, however, it illustrates features of Russell's philosophical style that would remain characteristic of his work and of his legacy to the subject. For example, in *The Foundations of Geometry,* Russell, unlike most other philosophers writing at that time, insists on the philosophical relevance of technical advances in the sciences. Projective geometry is a relatively recent subject, and not one to which philosophers, either then or now, have devoted much attention. And yet, for Russell, a knowledge of it is essential to a philosophical understanding of space, since, though it is historically subsequent to, e.g., Euclidean geometry, it is *logically prior* to it. This notion of logical priority is central to almost all Russell's philosophical work and goes hand in hand with his deep-rooted conviction that the task of philosophy is a foundational one, consisting

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largely (since the axiomatic system is the ideal to which all knowledge aspires) in, so to speak, getting the axioms right.

For a short while after finishing *The Foundations of Geometry,* Russell conceived philosophy to have another, more ambitious task, namely that of resolving the contradictions inherent in scientific inquiry. The contradictions he had in mind were primarily the antinomies that bedevilled mathematics: those of continuity, infinity and the infinitesimal. In the wake of his disillusionment with the mathematics he had been taught as an undergraduate, Russell believed that, though these antinomies 'find their counterpart in mathematical fallacies'[8], they had been evaded, rather than solved, by mathematicians. It thus fell to philosophers to deal with them satisfactorily and thereby to provide mathematics—and, consequently, the whole of science—with an adequate intellectual framework. The framework in question was that provided by the Absolute Idealism of McTaggart's *Studies in the Hegelian Dialectic,* under the influence of which Russell adopted a scheme of writing a 'dialectic of the sciences' that would, by successively exposing the contradictions inherent in mathematics, physics and the other sciences, demonstrate the need for a series of transitions that led, ultimately, to the metaphysics of monistic Idealism. Central to this scheme was the view that analysis—which Russell always conceived as the identification of the parts from which wholes were made up is a falsification. Relations, on this view, are an illusion; what *appear* to be relations between discrete things are, in reality, attributes of the one thing that truly exists, the Absolute: 'Everything is really an adjective of the One, an intrinsic property of the Universe; the Universe is not validly analysable into simple elements at all'.[9]

In rebelling against this neo-Hegelianism, Russell has famously remarked, 'Moore led the way, but I followed closely in his footsteps'[10]. A study of Russell's work during the last few years of the nineteenth century, however, shows this to be a misleading overstatement of Moore's influence, one which has led many to think of Russell and Moore as working in some sort of philosophical partnership. In fact, Moore's influence on Russell was more or less confined to discussions the two had together in the summer of 1898, at a time when Moore was writing 'The Nature of Judgment'[11], a paper which Russell forever regarded as Moore's greatest contribu-

[8] *The Collected Papers of Bertrand Russell Volume 2,* (London: Unwin Hyman, 1990), p. 46.

[9] Ibid., p. 95.

[10] *My Philosophical Development*, op. cit., p. 54.

[11] Originally published in *Mind,* January 1899, reprinted in *G. E. Moore: Selected Writings,* edited by Thomas Baldwin, (London: Routledge, 1993).

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

tion to philosophy. What Russell took from this paper was a rather bizarre realist doctrine concerning propositions, according to which a proposition is a complex of what Moore called 'concepts', but which Russell called 'terms'. As Frege would later discover to his astonishment, the constituents of a proposition were, for Russell (following Moore), not linguistic entities, but the things of which the world is made. Thus, the proposition, 'Mont Blanc is more than 4000 metres high' contains Mont Blanc itself (not its name) as a component part. 'A proposition', Moore says, 'is not composed of words, nor yet of thoughts, but of concepts', and concepts are 'possible objects of thought'. It seems necessary, Moore writes, 'to regard the world as formed of concepts'. These concepts, naturally, stand in certain relations to one another ('A proposition is constituted by any number of concepts, together with a specific relation between them'), and so, understanding the world is largely a matter of discovering *which* concepts stand in *which* relations to each other, a process that demands *analysis:* 'A thing becomes intelligible first when it is analysed into its constituent concepts'.

Russell's adoption of Moore's theory of propositions presented him with at least as many problems as it solved. In particular, it left him with what Quine once described as a 'luxuriant ontology', according to which *anything* that could occur in a proposition had to have some kind of being, even if it did not exist. This included (to mention the things Russell himself would list in *The Principles of Mathematics)* numbers, chimeras, four-dimensional spaces, and Homeric gods. It also included relations, universals, and, most problematically of all, false propositions. (When it threatened also to commit him to *contradictory* propositions, Russell was forced to take action.) However, despite all these problems, Russell embraced the theory with a sense of liberation, because it freed him from what he later ridiculed as the 'jelly-like' world of Hegelianism and allowed him to abandon the view that analysis was falsification; so much so that he would later announce: 'The chief thesis I have to maintain is the legitimacy of analysis.'[12]

It would still, nevertheless, be wrong to over-emphasise Moore's role in persuading Russell to reject the Absolute Idealism that he had learned from McTaggart. A much bigger role in this was played by Russell's decision to break the vow he had made in 1893 not to read another mathematical book. Russell became a Hegelian out of a conviction that Hegelian metaphysics could best overcome the antinomies that beset mathematics, antinomies to which, he believed, mathematics itself could offer no solutions. He was shak-

[12] *The Philosophy of Logical Atomism,* (La Salle: Open Court), p. 49.

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

en out of this conviction primarily by reading the work of the German mathematicians, Weierstrass, Cantor and Dedekind, which addressed itself precisely to those antinomies. To his almost unbounded delight, Russell discovered that there were indeed *mathematical* solutions to the problems of infinity, continuity, incommensurables and the infinitesimal. Weierstrass, for example, had shown that, by defining continuity in terms of limits (the so-called 'epsilon-delta' method), there was no need to postulate the existence of infinitesimals (those 'ghosts of departed quantities' as Berkeley had scornfully called them) in using the differential calculus. Similarly, Dedekind had provided the notion of a 'real number' with a consistent definition that did away with the old worries about incommensurables. And Cantor, by developing a new subject of 'transfinite set theory' had shown how the notion of infinity could be treated arithmetically.

Admittedly, to accept the foundations of mathematics provided by this body of work, one has to abandon common sense at almost every point. One has to believe, for example, that there exist an infinite number of *different* infinities (so that, say, the number of points in a continuum is greater than the number of natural numbers, though both are infinite), and that in a continuous series of points there is no such thing as 'the next' point (so that, as Russell put it, Zeno's arrow 'at every moment of its flight is truly at rest'). But, for Russell, this was no great sacrifice (and here one can see how different his philosophical instincts are from those of Moore); common sense was, he was fond of saying, simply the 'metaphysics of savages'. Far more important to him was the thought that: 'Mathematics could be *quite* true, and not merely a stage in dialectic'[13]. His previous opinion about the relative virtues of philosophers and mathematicians in dealing with contradictions was completely over-turned: 'For the philosophers there is now nothing left but graceful acknowledgments'.[14] The achievement of Weierstrass, Dedekind and Cantor was, he claimed, 'probably the greatest of which our age has to boast'[15]. Not only did it advance mathematics, it put philosophy itself on a new footing, demonstrating the power of logical analysis over Hegelian synthesis. Strikingly, in the final chapter of *History of Western Philosophy,* in which Russell evangelises on behalf of 'the Philosophy of Logical Analysis', neither Moore nor Wittgenstein are mentioned. The work of Weierstrass,

[13] *The Philosophy of Bertrand Russell,* edited by Paul Schilpp, (Illinois: Open Court, 1944), p. 12.

[14] *The Collected Papers of Bertrand Russell Volume 3,* (London: Routledge, 1994), p. 366.

[15] Ibid., p. 370.

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Dedekind and Cantor, on the other hand, is applauded at length. 'The origin of this philosophy', Russell writes, 'is in the achievements of mathematicians who set to work to purge their subject of fallacies and slipshod reasoning'[16].

Russell's euphoric reaction to the achievements of these mathematicians ('I know of no age (except perhaps the golden age of Greece) which has a more convincing proof to offer of the transcendent genius of its great men'[17]) had its roots in the renewal of faith with which they provided him, not only in analysis, but in mathematics itself. Mathematics *was*, as he had imagined at the age of eleven, a body of certain, exact and demonstrable truth. Nothing now seemed to be in the way of representing it as one big axiomatic system. The question (as always) was: what are its axioms? Peano had shown that arithmetic could be built on three basic notions (zero, number and 'successor of') and five initial axioms:

1. 0 is a number
2. If x is a number, the successor of x is a number
3. If two numbers have the same successor, the two numbers are identical
4. 0 is not the successor of any number
5. If S is a class containing 0 and the successor of every number belonging to, then S contains all numbers.

Russell was as fulsome in his praise for this as he had been for the achievements of Weierstrass, Cantor and Dedekind. And yet, philosophically, he considered it inadequate, for it failed to answer the question of what numbers *were*. From a formal point of view, Peano's axioms could be satisfied by assuming zero (and therefore all numbers) to be *anything*. What was required was a definition of number.

Still in ignorance of Frege's similar definition of numbers as classes of concepts, Russell developed, in 1900, his famous definition of numbers as classes of classes: zero, for example, was the class of empty classes, and 1 was the class of classes containing only a single member, etc. 'Class', as Russell understood it, was a purely logical notion, quite distinct from the notion of 'set'. A set is defined by enumeration, but a class is the extension of a propositional function. To grasp the notion of, e.g., the 'class of men', we do not need to know how many members the class has, nor whether the number of members is infinite, nor even if it has any members at all; we need only to know what the propositional function 'x is a man'

[16] *History of Western Philosophy,* op. cit., p. 783.

[17] *The Collected Papers of Bertrand Russell Volume 3,* London, Routledge, 1994, p. 370.

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

means. Thus, the notion of class is derived, not from mathematics, but from logic, from quite general considerations about propositions: every meaningful proposition has a form that can be expressed by a propositional function, and to every propositional function there corresponds a class. To show that numbers are classes, therefore, is to show that arithmetic—and, therefore, Russell believed, the whole of mathematics—is but a branch of logic. Russell's task in *The Principles of Mathematics* thus centred on showing that Peano's axioms could be derived from more fundamental axioms of class theory.

Intellectually, Russell said, the highest point of his life was his completion of the first draft of *The Principles of Mathematics* at the end of 1900. As he put it in a letter at the time to a friend: 'I invented a new subject, which turned out to be all of mathematics, for the first time treated in its essence'[18]. The following year, he discovered that the notion of class was plagued with paradox. At the time of writing the first draft of *The Principles of Mathematics,* Russell conceived of classes as a kind of object. Anticipating Quine's famous criterion ('to be is to be the value of a bound variable'), Russell considered that classes *had* to be a kind of object, since we can form classes *of* them. He abandoned this belief largely as a result of contemplating Cantor's proof that there exists no highest transfinite cardinal number. If classes were objects, Russell reasoned, then we could surely form the class of *all* classes, and, as numbers are classes, this class would contain *all* numbers and its cardinality would thus be greater than that of any other class: 'It is obvious that there cannot be a greater number than this, because, if everything has been taken, there is nothing left to add'[19].

In seeking to find a flaw in Cantor's proof, Russell hit upon his own, more famous, paradox of the class of all classes that are not members of themselves, and this, together with his failure to refute Cantor's proof, finally persuaded him that classes (and therefore numbers) *could not be* any kind of object. This struck at the very heart of Russell's Pythagoreanism and began the 'retreat from Pythagoras' that ended in Russell's conviction that mathematics was not, after all, a body of objective knowledge, but merely a series of linguistic rules: 'I have come to believe, though very reluctantly, that it consists of tautologies. I fear that, to a mind of sufficient intellectual power, the whole of mathematics would appear trivial, as trivial as the statement that a four-footed animal is an animal'[20]. Mathematical knowledge,

[18] BR to Helen Thomas, 31 December 1900

[19] *The Collected Papers of Bertrand Russell Volume 3*, (London: Routledge, 1994), p. 375

[20] *My Philosophical Development*, p. 211.

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Russell came to think, 'is, in fact, merely verbal knowledge. "3" means "2+1", and "4" means "3+1". Hence it follows (though the proof is long) that "4" means the same as "2+2". Thus mathematical knowledge ceases to be mysterious. It is all of the same nature as the "great truth" that there are three feet in a yard'[21].

Between 1901, when he discovered the paradox, and 1910, when, together with Alfred North Whitehead, he finished the three volumes of *Principia Mathematica,* Russell's work pursued a twofold path: on the one hand, he was concerned with the technical question of how the definition of numbers in terms of classes—and therefore the entire programme of reducing mathematics to logic—could be rescued from the paradox; on the other, he was concerned with more directly philosophical questions of ontology. The two concerns, of course, interacted (perhaps, even, *interfered)* with each other, producing, in time, the monstrously complicated logical theory that lies at the heart of *Principia*. On general philosophical grounds, as we have seen, Russell was convinced that classes did not exist. They therefore had to be eliminated from the technical apparatus of *Principia,* where they were replaced by propositional functions. But this did not, by itself, remove the paradox (since an analogue to the 'class of all classes that do not belong to themselves' can easily be found in terms of propositional functions), so Russell felt compelled to add the Theory of Types, which made it ungrammatical to construct a propositional function that ranged over itself. Again, on general philosophical grounds, Russell came to believe that, contrary to what he had learned from Moore, propositions did not exist either; they, like classes and numbers, were 'logical fictions'. So, propositions were replaced by *judgments,* which were held to be multiple relations between a mind and the things in the world. The theory presented in *Principia* thus became multi-layered in a quite bewildering fashion: numbers were reduced to classes, which were, in turn, reduced to propositional functions, which were ordered by the Theory of Types, and were, finally, understood to be forms of judgment.

At this stage, Russell had not quite given up his belief in the objectivity of mathematical truth, for he still, in some sense, maintained a Platonic conception of logical form. He was talked out of this by Wittgenstein, and, by 1919 he was insisting that the laws of logic 'are concerned only with symbols; they give different ways of saying the same thing ... only an understanding of language is necessary in order to know a proposition of logic'[22]. The 'retreat from

[21] *History of Western Philosophy,* p. 786.

[22] *The Collected Papers of Bertrand Russell Volume 9* (London: Unwin Hyman, 1988), p. 405.

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

Pythagoras' was now complete, and the last vestiges of Russell's delight in *demonstrative* reason were removed. The only things capable of logical demonstration, he now believed, were linguistic trivialities; the Pythagorean world of sublime, eternal truths was an illusion.

In the wake of this disillusionment, Russell lost interest in both logic and mathematics. He produced second editions of both *Principia Mathematica* (in 1925) and *The Principles of Mathematics* (1937), but showed in neither a detailed engagement with the more recent developments in the subject. Not even Gödel's Incompleteness Proof of 1931 or Gödel's paper of 1944 on 'Russell's Mathematical Logic'[23] could rouse Russell's interest or cause him to reconsider his reasons for abandoning his Pythagorean faith. His last statement on the subject came in his 1951 paper, 'Is Mathematics Purely Linguistic', in which he reiterated his view that 'numbers are nothing but a verbal convenience, and disappear when the propositions that seem to contain them are fully written out'[24]. All the propositions of mathematics and logic, he claimed, 'are assertions as to the correct use of a small number of words', a conclusion that 'if valid, may be regarded as an epitaph on Pythagoras'[25].

Russell's interest turned instead to science, both physical and psychological. In *The Analysis of Mind* (1921) he advanced a kind of behaviourism that, in later works, such as *An Inquiry into Meaning and Truth* (1940), he used as the basis for a rather crudely psychologistic theory of meaning ('propositions ... are to be defined as psychological occurrences of various sorts—complex images, expectations, etc. ... When two sentences have the same meaning that is because they express the same proposition'[26]). In *The Analysis of Matter* (1927), he advanced a 'structuralist' theory of physics that he quickly abandoned after it had been subjected to devastating criticism by the mathematician, M. H. Newman. Finally, in *Human Knowledge* (1949), he set out to identify the postulates of scientific knowledge, starting from the basis that, except in logic and mathematics, the essence of scientific reasoning was 'non-demonstrative inference'. None of this work received anything like the attention received by Russell's early work on mathematics and logic, and, by the nineteen-fifties, Russell discovered, much to

[23] In *The Philosophy of Bertrand Russell,* op. cit.

[24] *Essays in Anal*ysis, edited by Douglas Lackey, (London: George Allen & Unwin, 1973), p301

[25] Ibid. p. 306.

[26] *An Inquiry into Meaning and Truth* (London: George Allen & Unwin, 1940), p. 189.

https://doi.org/10.1017/S0031819199001072 Published online by Cambridge University Press

his chagrin, that he was considered out of date by his younger colleagues. He was particularly upset at Norman Malcolm's review of *Human Knowledge,* which described Russell's elegant prose style dismissively as the 'patter of a conjurer'.

In the nineteen-fifties, Russell widened the gulf between himself and the mainstream of British philosophers with a series of attacks on the linguistic philosophy then prevalent at Oxford. This was met with a certain degree of incomprehension, for Russell's Theory of Descriptions was, despite Strawson's criticisms of it, regarded as a central contribution to the 'linguistic turn' in philosophy. Had not Russell himself shown how metaphysical problems of existence could be recast as problems of linguistic analysis? And had he not provided in the Theory of Descriptions a 'paradigm' of such analysis? Such a view misunderstands Russell's motivations in writing 'On Denoting' (1905). His purpose in that paper was not to analyse *language,* but rather the world, to show that, in the world, there are —contrary to what he said in *The Principles of Mathematics*—no such 'things' as denoting concepts. When the propositions that *appear* to contain denoting concepts are 'fully written out', denoting concepts disappear, just as classes, numbers and propositions themselves disappear in the 'logically perfect language of' *Principia Mathematica*. To show this is not, on Russell's understanding, to illustrate how philosophical problems can be approached through the analysis of language, but rather to show one of the ways in which ordinary language disguises 'real' logical form and thus to illustrate the necessity for philosophers to construct and use artificial, technical languages of their own.

When combined with Russell's epistemology of 'knowledge by acquaintance', this notion of a logically perfect language produced, in his *Lectures on Logical Atomism* (1919), the extraordinary view that the semantics of such a language would be 'very largely private to one speaker', i.e.: 'all the names that it would use would be private to that speaker and could not enter into the language of another speaker'[27]. This is because, just as the analysis of language reaches its terminus in logically proper names, the analysis of facts reaches its terminus in particular sense-data. It is this view, I believe, that forms the immediate target of Wittgenstein's famous Private Language Argument. In any case, it is not one that has commanded much support.

Russell's affronted feeling that his work had become superseded by that of the later Wittgenstein is, however, only partially true. Mainstream analytical philosophy has, indeed, in recent years become more Russellian than Wittgensteinian. Its use of techniques

[27] *Lectures on Logical Atomism,* op. cit., p. 59.

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borrowed from mathematical logic, its concern with formal semantics, its insistence on some sort of continuity between philosophy and science, and, above all, its preoccupation with *theory* (whether or not this is understood as 'sympathetic passionate contemplation') distinguish it sharply from the spirit of Wittgenstein's work and show it to be, at bottom, a continuation of Russell's. Russell did not find certain knowledge, nor did he provide a credible philosophical foundation for either mathematics or science. What he did do, however, was invent analytical philosophy. Whether we should, on that account, regard ourselves as being in his debt, will depend upon whether we regard the analytic method as a new beginning or yet another dead end.

University of Southampton

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