

Portrait of a Philosopher of Science

I

Since the present volume directs critical attention to Bertrand Russell's work and also honors the memory of Grover Maxwell, whose published writings on Russell's philosophy of science are a vigorous defense of some rarely shared views on perception and empiricism, I will quote a paragraph from the only letter from Maxwell to Russell in the Russell Archives. This letter will serve to illustrate the ties between these two philosophers of science. Maxwell's letter begins with a little-known quotation from a letter in volume I of Russell's *Autobiography* (1967), so I will provide the context of that quotation. Russell is writing to Lucy Martin Donnelly in 1906 about the joys of philosophical research:

[A] thing I greatly value is the kind of communion with past and future discoverers. I often have imaginary conversations with Leibniz, in which I tell him how fruitful his ideas have proved, and how much more beautiful the result is than he could have foreseen; and in moments of self-confidence, I imagine students hereafter having similar thoughts about me. There is a "communion of philosophers" as well as a "communion of saints," and it is largely that that keeps me from feeling lonely. (pp. 183–84)

The result Russell refers to is the developing science of mathematical logic, as embodied in the then growing manuscript of *Principia Mathematica*.

Maxwell writes from the Minnesota Center of Philosophy of Science on January 25, 1968:

Dear Lord Russell:

The moving passage in your autobiography about the "communion of philosophers" has moved me to write you that my attitude toward you and many of your views is the same as the one you express there towards Leibniz – with the *exception* of the portion beginning, "and how much more . . ." and ending ". . . have foreseen." I should also like to say that there is at least one exception

to your comment on p. 15 of *My Philosophical Development* to the effect that no one has accepted the theory [of perception] that you outline in the following chapter, "My Present View of the World," and develop in detail in *Human Knowledge*. . . I must admit that, with the exception of a few of my better students, I have not been able wholly to persuade any other philosopher of its truth, in spite of prolonged and vigorous attempts. But there are encouraging signs that the current fads and fashions that comprise what passes as philosophy today and which I believe to be responsible for my failure in this enterprise are beginning to lose some of their hold. For my part I am at least as firmly convinced that your views on these matters are, in general, the closest thing we have to the truth today as I am that quantum mechanics and other current physical theories are today the closest things to the truth in their respective domains.

Although no reply is extant in the Archives, I imagine that Russell liked Maxwell's letter, which continues with a paragraph on confirmation theory in relation to Russell's postulates of scientific inference and then offers a word of praise for his "admirable efforts in behalf of world peace."¹ In the last sentence quoted from his letter, Maxwell expresses exactly the attitude of tentativeness that Russell both held and recommended toward current scientific theories and his own theories in the philosophy of science, and which he called the scientific method in philosophy. In this essay I shall focus on the value of science for Russell's philosophizing, with reference to his career as a philosopher of science, and to the ethic that he found exemplified in the best science and that he adopted in a general way.

II

In his 1914 paper, "On Scientific Method in Philosophy," Russell outlines the motivation of the most outstanding philosophers toward work in philosophy. "Plato, Spinoza, and Hegel," he says, "may be taken as typical of the philosophers whose interests are mainly religious and ethical, while Leibniz, Locke, and Hume may be taken as representatives of the scientific wing. In Aristotle, Descartes, Berkeley, and Kant we find both groups of motives strongly present" (1918a, p. 97). To this latter group we may add Russell's collaborator Whitehead, and Russell elsewhere recognized that, in coming to philosophy, he himself sought both religious satisfaction and knowledge (1956b, p. 19). In philosophy he wished to find justification for the religious and ethical views he could not (at the time) discard; and he also hoped to discover the certain basis for knowledge that his education so far had failed to provide him.

Russell's education was unusual for its time. Instead of an emphasis upon the classical languages and literatures, the focus was on science (including mathematics), with peripheral attention to history and modern languages and literatures. He records his youthful fascination with "billiard-ball" determinism

and what he called “the technological view of the road to human welfare” (1961, p. 45). Yet philosophy soon claimed him, through the dual routes of his work in the foundations of mathematics and his worry about religious beliefs.

There are many relevant comments on mathematics and religion in his early writings. Presenting them in a critical edition is the object of an editing program at McMaster (Griffin, 1981; Blackwell, 1983). The *Collected Papers* project aims to collect and annotate as definitively and reliably as possible all the shorter writings of Russell, published and unpublished, including his diaries but excluding his letters. Five of us, with the help of a considerable staff funded by the Social Sciences and Humanities Research Council of Canada, finished editing the first volume in 1983. Volume 1 includes the first complete (and correct) text of the famous “Greek Exercises,” and also a newly discovered journal that Russell kept from 1890 to 1894. We christened the new journal “A Locked Diary” because Russell said he kept such a diary at this time (1967, vol. I, p. 82), and this one has a locked clasp. As an example of an early comment, it contains an entry from 1890 written probably within days of reading James Mill’s refutation of the first-cause argument for God’s necessary existence:

August 31st. Alas! the only shred of faith I had left in me is, for the time at least, gone. I did believe in a Deity, and if I did have to close my eyes to the fact that His moral qualities did not manifest themselves with the same clearness as His intellectual, still I derived immense comfort from the belief, and from the necessary deduction that a world governed by an all-wise and all-powerful Being must be tending to good always. But now!—I have begun to feel that the reasoning which always convinced me before, for a long time so as to preclude even comprehension of doubt, has lost its cogency. I began by seeing that the existence of evil really cannot, at least in the present state of knowledge, be reconciled by any straight-forward reasoning with the government of a perfectly beneficent and perfectly wise God; I was finally overturned by some passages in Mill’s *Autobiography*, in which he puts this argument very clearly. With regard to my old argument, a necessary prime Cause and Law-giver, I see that it affords no explanation of the mystery but merely offers one permanent unchangeable Mystery in the place of the many which Science now is unable to answer. This argument Mill puts clearly in speaking of the education he got from his father: “He told me that the question, Who made me? cannot be answered, because it immediately suggests the further question, Who made God?” I still think that the hypothesis of an almighty First Cause affords a consistent explanation of the Universe, and therefore has the same kind of probability as the theory of the Ether, but the degree of its probability must depend upon its explanation of a large number of particular facts, on which I am not qualified to give an opinion. — The loss of certainty, is however the great pain which results from the change. To feel that the universe may be hur-

rying blindly towards all that is bad, that humanity may any day cease its progressive development and may continually lose all its fine qualities, that Evolution has no necessarily progressive principle prompting it; these are thoughts which render life almost intolerable. Indeed I doubt whether, if I do not regain my old faith, I shall long be able to hold out against frightful thoughts that crowd in upon my mind. (Russell, 1983, 56)

Here we see the budding philosopher of science reasoning that the ether and first-cause theories are, in a sense, on the same level. This may be Russell's first effort in the subject. He was eighteen.

In the professional sphere, volume 1 of the *Collected Papers* (1983) publishes for the first time Russell's graduate essays in the history of philosophy and epistemology, and reprints his first published writings, all of which are devoted to philosophy of science, particularly to problems about physics and geometry. The latter papers, while essential to understanding Russell's development out of British idealism, have hitherto been virtually ignored. The only modern philosopher of science known to me who has examined any of these writings in print is Lakatos in his essay "Infinite Regress and the Foundations of Mathematics" (the title gives some hint of Lakatos's anti-Euclidean approach to foundations):

He [Russell] found mathematical proofs shockingly unreliable. "A great deal of the argumentation that I had been told to accept was obviously fallacious" ([Russell, 1959b], p. 209). And he was not quite happy about the certainty of the axioms – geometrical or arithmetical. He was aware of the sceptical criticism of intuition: the *leitmotiv* of his first-ever publication was to fight "the confusion between the psychologically subjective and the logically *a priori*" (Russell [1895], p. 245). How can one know that truth-injections at the top are justified beyond doubt? In pursuing the problem he analysed the axioms of geometry and arithmetic one by one and found that their justification was based on very different sorts of intuition. In his first published paper [1896] Russell analyses the axioms of Euclidean geometry from this point of view... (pp. 11–12)

While geometry's foundations and their disentanglement from Kantian subjectivity were Russell's chief philosophical interest at the time, he continued to immerse himself in science. Indeed, he records his excitement at the rapid pace of fundamental discoveries in his twenties and thirties (1961, p. 41). His library contains many volumes of current science annotated by him in the margins. (By "his library" I do not mean just the major remnants in the Russell Archives; his science books are scattered far and wide, some as far as the Geophysical Institute at the University of Alaska.) An outstanding classic of science extensively annotated by Russell is William James's *Principles of Psychology*, the two volumes of which he read in 1894 and 1895.² Now, in many fields, Russell demonstrated a habit

of reading mainly the classics. How he determined in psychology it was worthwhile for him to read James's book (then only four years old) is a mystery, but perhaps it had been recommended by James Ward, his dissertation adviser and himself the author of a classic article on psychology. Russell went on to devote a chapter of his dissertation to James's view of space. Apparently the chapter was judged a disaster in an otherwise outstanding piece of research. The published version of the dissertation omits that chapter, which, with the bulk of the original dissertation, is lost to us. Some quotations from the marginalia of Russell's copy of the *Principles* will illustrate his interest in the philosophy of the new science of psychology.

James was well versed in philosophical issues and the history of philosophy, but he deliberately put them aside in order to produce a textbook in a struggling young science. There is a marked tendency in the book to overlook nice distinctions between categories. He often refers to finding physiological "explanations" of mental phenomena. Russell catches him up on this. On page 499 of volume 1 Russell notes: "Surely psychology is bound to seek a purely psychological solution." On page 594: "Surely this perpetual reference to the brain is a methodological error." And finally, in regard to a summary statement in volume 2, page 449, of the James-Lange theory of the emotions, "that *the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur IS the emotion*" (James's italics), Russell comments: "This involves the same materialistic tendency so often shewn before in J[ames]. Surely for psychology such an expl'n is inadequate." And Russell notes that often in experiencing an emotion of his own he is not conscious of bodily changes.

This use of introspective evidence by Russell is, however, entirely in keeping with James's methodology. Throughout the book Russell tests and compares his own reactions with James's reports of *his* reactions. Russell defends the use of introspection as late as *Human Knowledge* (1948), where he even proposes that psychology might be defined as "the science of those occurrences which, by their very nature, can only be observed by one person" (p. 58). The marginalia will be useful to future biographers of Russell. For example, James contrasts visualizers with those who think in auditory images, and Russell reveals that he belongs to the auditory type. James discusses attentiveness to a task and subsequent relief in the "breathing apparatus" upon the task's completion. Russell comments: "I have often found myself panting on getting a solution of a difficulty" (vol. 2, p. 472). Compare this early acknowledgment with his later statement (which I, for one, did not take literally before) that "I concentrated with such intensity that I sometimes forgot to breathe and emerged panting as from a trance" (1954, p. 194). Could James have had an influence here on the way Russell understood himself? Perhaps. There is an affinity in their writing styles, for James's book in many ways is a *History of Western Philosophy* style of textbook, including the constant personal references thrown in to enliven the matter. It is clear,

at any rate, that the young Russell was introduced to the use of the experimental method in a science where objectivity is especially difficult to attain as well as to the current state of physiological psychology. However, he admits that he read little psychology during the next twenty years, until he came to write the recently published manuscript, *Theory of Knowledge* (1913), now volume 7 of his *Collected Papers* (1984).

Despite his youthful interest in current science, he was more devoted to philosophy. In a short piece he published under a pseudonym in 1897, he declares: "Nature seldom speaks to me, though it used to very much. Metaphysics, not science, interest my soul" (1983, 1: p. 73). Still, it was philosophy of science above all other branches of philosophy that absorbed Russell in the late 1890s, since he was trying to fit current physics into a neo-Hegelian framework. In *My Philosophical Development* (1959b) he judges that his manuscripts of this period amount to "unmitigated rubbish" (p. 41), which one might think was sufficient reason for not editing them. However, McMaster is editing them. The development of a philosophy is not a simple story of stark contrasts, of one whole system being suddenly overthrown for another. We are editing the idealist manuscripts on philosophy of science because in them we expect scholars to be able to trace the arguments that overthrew monism in favor of what Russell usually calls "atomism" or "absolute pluralism" (1918a, p. 111). By using this latter term he emphasizes his new belief that, while there are many things, there is not an organic whole composed of those things (*ibid.*).

The next decade (following Russell's personal discovery of Peano and Frege) was devoted to *Principia Mathematica*. It was Peano who made the greatest difference to the form Russell's work took. In 1899 he had declined to write on symbolic logic for the *Encyclopaedia Britannica*. He did not know the subject well enough, he wrote, and suggested instead the author of *Universal Algebra*—Whitehead.³ It is hard to conceive of Russell so declining after his study of Peano.

When Russell completed the logicist program he was, as he says, somewhat at loose ends as to what to do. Then the new developments in physics in the early teens of this century claimed his interest, and he embarked on a study of matter. There are several unpublished papers on matter in the Archives. One of them was revised at great length to please Wittgenstein. Since it was not published, it may be inferred that it never pleased Wittgenstein. Russell was teaching at Cambridge at this time, and would often invite science and mathematics students to his rooms to discuss issues in philosophy of science. He wrote to Lady Ottoline Morrell about the new physics:

I have been hearing more about the new physics—it is very exciting. The atmosphere of the Scientific world in this age is wonderfully exhilarating as compared to the world of culture—the people are tremendously alive feeling that it is for them to do great things, not at all dominated by past achievements,

tho' they know them thoroughly – all the best people have a tremendous sense of adventure, like the Renaissance mariners. They question everything that has been done, & are willing to pull down because they have enough energy & power to build up again. It is the thing in which our age excels – I am thankful to be able to have a part in it. (no. 873, September 20, 1913; Clark, 1975, p. 213)

The reference to the world of culture is significant. He did not have the science students over to infuse literary culture into them, but rather to build upon what they already had from their study of science.

In the spring of 1913, Russell wrote an essay called originally “Science as an Element in Culture” but retitled “The Place of Science in a Liberal Education” when published in *Mysticism and Logic*. In it he argues that science is not taught to its full cultural potential, there being too great an emphasis upon the merely useful consequences of scientific discoveries. Science’s full potential includes the “capacity of producing those habits of mind which constitute the highest mental excellence” (1918a, p. 35). On the intellectual side, those habits of mind make possible “the endeavour to make us see and imagine the world in an objective manner, as far as possible as it is in itself, and not merely through the distorting medium of personal desire” (1918a, p. 39). Later in the essay he expands on just what the scientific outlook is:

The kernel of the scientific outlook is a thing so simple, so obvious, so seemingly trivial, that the mention of it may almost excite derision. The kernel of the scientific outlook is the refusal to regard our own desires, tastes, and interests as affording a key to the understanding of the world. (1918a, p. 42)

And while Russell’s focus on “the kernel of the scientific outlook” may also seem so simple, obvious, and trivial, there is behind it a complex and systematic ethic that pervades and indeed unites much of his technical and nontechnical work, that is based on his early exposure to the neo-Hegelian concept of self, but with its roots further back in the history of philosophy in the *Ethics* of Spinoza. I will not go further into the Spinozistic connection here, except to note Rescher’s reference to Russell’s “prolonged flirtation with the philosophy of Spinoza, a marked feature of *Mysticism and Logic* and vividly at work in the splendid essay on ‘A Free Man’s Worship’ ” (Rescher, 1979, p. 140).⁴

We have now proceeded well into the initial period of Russell’s logical constructivism, and his attempt at systematizing epistemology through a concerted application of his principle of acquaintance. Maxwell’s well-known phrase, “[Russell’s] brief but notorious flirtation with phenomenalism” (Maxwell, 1972, p. 110), recognizes in this period the same sort of intellectual experimentation that Rescher remarks upon in relation to Spinoza. Those interested in clarifying Russell’s position on phenomenalism should examine his statement on the physi-

cal status of sense-data that he sent to the *Journal of Philosophy, Psychology and Scientific Methods* in 1915, in response to an inaccurate report of his remarks after hearing an Aristotelian Society paper on his alleged phenomenalism. If Russell did come close to solipsism in his exploration of phenomenalism as a method, it was uncharacteristic and temporary, for he always believed in the external world and in later writings insists that he accepts as a datum the view of the universe as presented by the physical sciences. Furthermore, a solipsistic interpretation of his position is ruled out by his postulation of the existence of unsensed sensibilia. (This term inspired at least one salacious limerick [see Clark, 1975, p. 215].) His problem was that of reconciling the fact that some knowledge is public with the fact that only individual knowers are actually acquainted with anything. The problem of perception was to occupy him well past *Human Knowledge*. There is an unpublished note in the Archives on the subject of perception written a decade later. The note is one that Russell sent to Ayer in 1957 with a letter that Maxwell cites (1970, p. 20; 1972, p. 134). Russell attempts again, in this four-page typescript, to explain his ideas on structural isomorphism between perceptual causes and their effects.

The monumental work on epistemology of which the *Theory of Knowledge* manuscript was to form a part was never completed. It was stopped by Wittgenstein's objections and the distraction of the First World War. After the war Russell was influenced by developments in two sciences: the behavioristic movement in psychology, and the acceptance of relativity theory in physics. He was called upon to write popular articles on relativity and even a book. He also wrote a book on the new developments in atomic theory. The less materialistic views of matter among physicists helped him in developing his new philosophy of neutral monism. It is often said that, as a neutral monist, Russell was a mind-body identity theorist, but that interpretation ignores a subtle distinction. Like Spinoza, he held that there is only one kind of substance, namely events, which are neutral as to matter and mind. This view is formulated by Russell in two books of 1927, *An Outline of Philosophy* and *The Analysis of Matter*. (It is at this time, in Maxwell's judgment (1972, p. 169), that the later Russell begins—at least the later philosopher of science.) In a later statement of his views, Russell explains that "if we had more knowledge, the physical and psychological statements would be seen to be merely different ways of saying the same thing" (1956b, pp. 148–49). Presumably, however, the two kinds of statements would still be linguistically independent, and not subject to the sort of mixing the young Russell objected to in William James.

The decade of the thirties was one of general political turmoil, and also personal turmoil for Russell. Aside from a mathematical paper "On Order in Time" (1935) and one on logical form (1938), Russell did not return to philosophy of science proper until he had finished first *An Inquiry into Meaning and Truth* (1940) and then *A History of Western Philosophy* (1945b), that is, until 1943,

when he gave a series of lectures at Bryn Mawr College entitled "Postulates of Scientific Method." It is true that, in the meantime, he had written at length on science, particularly in *The Scientific Outlook* (1931). There he discloses his valuation of pure science: it "belongs with religion and art and love, with the pursuit of the beatific vision, with the Promethean madness that leads the greatest men to strive to become gods. Perhaps the only ultimate value of human life is to be found in this Promethean madness. But it is a value that is religious, not political, or even moral" (p. 102). It is also true that he developed theories in the social sciences, as in *Power* (1938b); but the main effort left to Russell in philosophy of science took place in *Human Knowledge*. Characteristically he boasted of how little time it took him to work on the latter book—only five hours a day. But the manuscripts give a different impression of his effort. He continually shuffled and rewrote the chapters and, in preparing to write them, amassed a large, coherent quantity of notes that may someday be published. Indeed, he had them typed out a decade later for inclusion in *My Philosophical Development*, but dropped the idea on the advice of Allen and Unwin's editor. I do not know whether *Human Knowledge* is a major creative achievement of Russell's. Certainly he and Maxwell regarded it as such, and just as certainly contemporary philosophers in Britain do not so regard it. At any rate, to judge from the nearly two and a half feet of related manuscripts in the Archives, it was a major creative effort.

At the beginning of the chapter on nondemonstrative inference in *My Philosophical Development* (1959b), Russell says that he thinks he was mistaken in not mentioning in *Human Knowledge* "the various perplexities and tentative hypotheses through which I had arrived at my final conclusions . . . as it made the conclusions appear more slap-dash and less solid than, if fact, they were" (p. 190). In the unpublished portion of the manuscript he went on to say that he was collecting in an appendix various notes he made before reaching the final conclusions of *Human Knowledge*. If he had done so, quite a different book would have resulted. The notes amount to ninety-six pages of typescript and read like a philosophical diary (to adopt a phrase from Ivor Grattan-Guinness commenting on the *Principia* manuscripts). From my perusal I would think they would be extraordinarily interesting to work through. The notes for *Human Knowledge* are due to be edited in the 1990s.

The typescript itself is not a verbatim transcription of the handwritten notes made a decade or more earlier. Unusually for him, Russell revised and corrected the original notes (doing so with a pen he used only in the mid-1950s). Thus the version he thought of printing in *My Philosophical Development* is significantly different from the manuscript. This is particularly true of the section called "Inferences from a Logical Point of View."⁵ Most of the time Russell is merely putting into words what he expressed originally in symbols, but partly he is revising. The notes on "Non-Demonstrative Inference" lack his customary literary quality, but still they are laden with interesting points. There is a new and unexpected

recollection of D. H. Lawrence⁶ in a discussion of recognition through verbal, as opposed to image, memory, and there is a new anecdote about G. E. Moore.⁷ There are more extensive discussions of Bayes's theorem than in the book. There is discussion of that all-important topic, the cognitive status of the postulates of scientific inference, and much concerning the analysis of structure under the heading "Causal Laws and Concomitant Variation." The typescript, it must be emphasized, is a selection from the manuscript notes, of which a large portion was not typed. In the manuscript-only portion there is a great deal concerning the mathematical theory of probability and, on the versos of these leaves, extensive computations. It is unlikely that the computations will be included in the *Collected Papers*, but they are interesting as an indication of Russell's mathematical dexterity.

Russell's interest in science continued unabated into his old age. He was awarded the UNESCO Kalinga Prize for the popularization of science in 1957, and he welcomed two new editions of his *ABC of Relativity*, although his knowledge was not current enough to revise it himself. As new weapons systems were developed, his knowledge of physics served him well in the political sphere. Within a few days of the Hiroshima and Nagasaki bombings he published an article on their scientific and political consequences (1945a). He was horrified but not surprised at the vast threat scientific technique now posed, and wrote of it at length in *The Impact of Science on Society* (1951). Yet he never condemned scientists as such, and always ranked them on the same level of human genius as the most creative in other fields of endeavor. In science Russell found that impersonal detachment of inquiry that he so valued and tried to transfer as an ethic to other spheres of human activity.

III

The usual portrait of Russell as a philosopher of science is of one who enjoyed knowing things, both on the particular and the general levels; whose scientific education embraced several of the major sciences, enabling him to keep pace with current developments and to talk on a nearly professional level with practitioners of different sciences; whose methods in philosophy tended to the symbolic and who was given to offering strict proofs; and whose philosophical theories centered on problems of knowledge and were based upon the assumption that current science is more or less true. But there is another way in which Russell is a philosopher of science, a way not usually recognized because it concerns ethics. In what follows I do not mean by "ethics" the study also known as "metaethics," or the formal analysis of ethical concepts. I mean rather normative ethics, or the foundations for a creed of conduct—as Russell says, a doctrine "not of specific duties, but of a way of life, a manner of thinking and feeling, from which it will become plain, without the need of rules, what must be done on each occasion" (1938b, p. 243). There are chapters in several of his books in which Russell discourses

on "science and values." The most extraordinary of these is in *The Scientific Outlook* (1931). Although Russell never explicitly formulated his system of values, they nevertheless form a connected one.

While as an ethical philosopher his metaethical subjectivity prevented him from being able to say that there are values that one ought rationally to accept, still his own search for ultimate value was not discarded upon his adoption of emotivism. There are two main values to pure science, in Russell's view. There is first the pursuit of scientific knowledge as an end in itself, and then science as a mental outlook. "The sphere of values lies outside science," Russell says, "except in so far as science consists in the pursuit of knowledge" (1931, p. 275). This is the contemplative ideal of science, as distinguished from the manipulative ideal. The pure scientist keeps good company:

The mystic, the lover, and the poet are also seekers after knowledge—not perhaps very successful seekers, but none the less worthy of respect on that account. In all forms of love we wish to have knowledge of what is loved, not for purposes of power, but for the ecstasy of contemplation. . . . Wherever there is ecstasy or joy or delight derived from an object there is the desire to know that object—to know it not in the manipulative fashion that consists in turning it into something else, but to know it in the fashion of the beatific vision, because in and for itself it sheds happiness upon the lover. . . . Love which has value contains an impulse towards that kind of knowledge out of which the mystic union springs.

Science in its beginnings was due to men who were in love with the world. (1931, pp. 270–71)

The pursuit of scientific knowledge as an ultimate value is connected with the effect of that pursuit upon one's mental outlook. The phrase Russell uses, the "mystic union," is more than a powerful emotive chant. For him it has content. In *Marriage and Morals* he speaks of supreme personal and sexual love as resulting in the "mingling of personalities." By this phrase he means chiefly the temporary shedding of one's own ego and the escape into something larger. He means much the same thing by "the ecstasy of contemplation" in science, and by the impartiality or impersonality of outlook fostered by scientific inquiry. It is our passions that prevent us from seeing things as they are, and insofar as we can transcend our passions we attain "that submission to fact which is the essence of the scientific temper" (1918a, p. 109), or "the imaginative liberation from self which is necessary to such understanding of the world as man can hope to achieve" (*ibid.*).

Please note the term "imaginative liberation from self." Russell is not covertly positing a new ontological realm in which liberated scientists and lovers cavort and intermingle without regard for the findings of a level-headed logical empiricism. He is merely looking for ways of communicating an idea that lacks a fixed

terminology outside the mystics. He might have used the language of Spinoza, and indeed he often does, for Russell understands the concept of the intellectual love of God in just the way he describes the scientist as lover of knowledge. The root idea here is a kind of impersonal enlargement of the self to include not only the objects of knowledge but also the interests of other persons. In old age Russell wrote an article called “The Expanding Mental Universe” (1959a). He says there:

Seers and poets have long had visions of the kind of expansion of the ego which I am trying to adumbrate. . . . If a child develops into a man of science, his world comes to embrace those very distant portions of space and time of which I spoke earlier. If he is to achieve wisdom, his feelings must grow as his knowledge grows. Theologians tell us that God views the universe as one vast whole, without any here-and-now, without that partiality of sense and feeling to which we are, in a greater or less degree, inevitably condemned. (p. 397)

I had never before noticed that Russell might have felt envious of God (supposing that he exists), but of course he would have envied God’s impartiality.

The ethic sketched here is, to be sure, not without its difficulties. Russell frequently condemns our human (as opposed to individual) partiality, which is for him the sin of anthropocentrism. It is manifested principally in believing the universe to be attuned to our hopes and fears. He wrote “A Free Man’s Worship” partly to counter anthropomorphism’s denial of the “trampling march of unconscious power” (1918a, p. 57). We have seen that he wished to imitate in philosophy the modern scientist’s refraining from reading into his findings results that would be pleasing to him as a member of the human species. This raised one of the chief difficulties of the ethic. Its feature of impersonality does not allow us to distinguish between the good of those we know and the good of those we do not know – and, by extension, between the good of this and of that group of human beings. This may be what Russell wanted. I think that he had, however, such respect for the motive of individual and collective self-preservation that he did not fear that his ethic could lead to personal or collective self-sacrifice, despite the democratic favoring of all persons that his view inculcates. The ethic seems likely to be useful in promoting generosity (i.e., selflessness in feeling) and rationality (selflessness in thought). These are virtues we sorely need.

Notes

1. The remainder of the letter is as follows. Both portions are quoted with the permission of Mary Lou Maxwell.

Although I have some reservations about your final list of “Postulates of Scientific Inference,” I am convinced that you are correct in holding that much stronger principles than *simple induction* are necessary and, indeed, that the latter is not only not sufficient but is necessary *only* in the sense of being a rather unimportant special case – a rather trivial logical consequence – of the set of principles that *is* both necessary and sufficient. I have no intention of burdening you with details but only to remark that, starting from this point, I believe that I have developed a schema for a theory

of confirmation in which only the frequency interpretation of probability is needed and in which the "single case" probabilities are probabilities that a given hypothesis possesses a specified degree of *closeness* to the truth (verisimilitude, to use K. R. Popper's term) and *not* probabilities that they are true *simpliciter*. In it, your postulates of scientific inference, with the possible exception of *analogy*, would be treated in the same manner as are other laws of nature.

Please allow me to close by thanking you for your admirable efforts in behalf of world peace.

Sincerely yours,

Grover Maxwell

Professor of Philosophy

2. We know what he read from a notebook he kept of his reading from 1891 to 1902. There are 758 entries of monographs and major articles. See his *Collected Papers* (1983), appendix II.

3. Letter to Sir Joseph Larmor, November 20, 1899, Royal Society Archives.

4. See my *The Spinozistic Ethics of Bertrand Russell* (London and Boston: Allen & Unwin, 1985), p. 16.

5. Russell Archives, file 210.006748-F1, folios 9-27. The typescript is in files 210.006901-F6 and 7.

6. Typescript, p. 289.

7. *Ibid.*, p. 250.