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PHILOSOPHICAL DEVELOPMENT¹

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My philosophical development may be divided into various stages according to the problems with which I have been concerned and the men whose work has influenced me. There is only one constant preoccupation: I have throughout been anxious to discover how much we can be said to know and with what degree of certainty or doubtfulness. There is one major division in my philosophical work: in the years 1899-1900 I adopted the philosophy of logical atomism and the technique of Peano in mathematical logic. This was so great a revolution as to make my previous work, except such as was purely mathematical, irrelevant to everything that I did later. The change in these years was a revolution; subsequent changes have been of the nature of an evolution.

My original interest in philosophy had two sources. On the one hand, I was anxious to discover whether philosophy would provide any defence for anything that could be called religious belief, however vague; on the other hand, I wished to persuade myself that something could be known, in pure mathematics if not elsewhere. I thought about both these problems during adolescence, in solitude and with little help from books. As regards religion, I came to disbelieve first in free will, then in immortality, and finally in God. As regards the foundations of mathematics, I got nowhere. In spite of strong bias towards empiricism, I could not believe that "two plus two equals four" is an inductive generalization from experience, but I remained in doubt as to everything beyond this purely negative conclusion.

At Cambridge I was indoctrinated with the philosophies of Kant and Hegel, but G. E. Moore and I together came to reject both these philosophies. I think that, although we agreed in our revolt, we had important differences of emphasis. What I think at first chiefly interested Moore was the independence of fact from knowledge and the rejection of the whole Kantian apparatus of *a priori* intuitions and

¹ This article consists of two chapters from Lord Russell's forthcoming book, *My Philosophical Development*, which will shortly be published by Messrs. Allen & Unwin Ltd.. Price 18s.

categories, moulding experience but not the outer world. I agreed enthusiastically with him in this respect, but I was more concerned than he was with certain purely logical matters. The most important of these, and the one which has dominated all my subsequent philosophy, was what I called 'the doctrine of external relations'. Monists had maintained that a relation between two terms is always, in reality, composed of properties of the two separate terms and of the whole which they compose, or, in ultimate strictness, only of this last. This view seemed to me to make mathematics inexplicable. I came to the conclusion that relatedness does not imply any corresponding complexity in the related terms and is, in general, not equivalent to any property of the whole which they compose. Just after developing this view in my book on *The Philosophy of Leibniz*, I became aware of Peano's work in mathematical logic which led me to a new technique and a new philosophy of mathematics. Hegel and his disciples had been in the habit of 'proving' the impossibility of space and time and matter, and generally everything that an ordinary man would believe in. Having become convinced that the Hegelian arguments against this and that were invalid, I reacted to the opposite extreme and began to believe in the reality of whatever could not be disproved—e.g. points and instants, and particles and Platonic universals.

When, however, after 1910, I had done all that I intended to do as regards pure mathematics, I began to think about the physical world and, largely under Whitehead's influence, I was led to new applications of Occam's razor to which I had become devoted by its usefulness in the philosophy of arithmetic. Whitehead persuaded me that one could do physics without supposing points and instants to be part of the stuff of the world. He considered—and in this I came to agree with him—that the stuff of the physical world could consist of events, each occupying a finite amount of space-time. As in all uses of Occam's razor, one was not obliged to deny the existence of the entities with which one dispensed, but one was enabled to abstain from asserting it. This had the advantage of diminishing the assumptions required for the interpretation of whatever branch of knowledge was in question. As regards the physical world, it is impossible to prove that there are not point-instants, but it is possible to prove that physics gives no reason whatever for supposing that there are such things.

At the same time, that is to say in the years from 1910 to 1914, I became interested, not only in what the physical world is, but in how we come to know it. The relation of perception to physics is a problem which has occupied me intermittently ever since that time. It is in relation to this problem that my philosophy underwent its last substantial change. I had regarded perception as a two-term relation of subject and object, as this had made it comparatively easy to understand how perception could give knowledge of something

other than the subject. But under the influence of William James, I came to think this view mistaken, or at any rate an undue simplification. Sensations, at least, even those that are visual or auditory, came to seem to me not in their own nature relational occurrences. I do not, of course, mean to say that when I see something there is no relation between me and what I see; but what I do mean to say is that the relation is much more indirect than I had supposed and that everything that happens in me when I see something could, so far as its logical structure is concerned, quite well occur without there being anything outside me for me to see. This change in my opinions greatly increased the difficulty of problems involved in connecting experience with the outer world.

There was another problem which began to interest me at about the same time—that is to say, about 1917. This was the problem of the relation of language to facts. This problem has two departments: the first concerned with vocabulary; the second, with syntax. The problem had been dealt with by various people before I became interested in it. Lady Welby wrote a book about it and F. C. S. Schiller was always urging its importance. But I had thought of language as transparent—that is to say, as a medium which could be employed without paying attention to it. As regards syntax, the inadequacy of this view was forced upon me by the contradictions arising in mathematical logic. As regards vocabulary, linguistic problems arose for me in investigating the extent to which a behaviouristic account of knowledge is possible. For these two reasons, I was led to place much more emphasis than I had previously done on the linguistic aspects of epistemology. But I have never been able to feel any sympathy with those who treat language as an autonomous province. The essential thing about language is that it has meaning—i.e. that it is related to something other than itself, which is, in general, non-linguistic.

My most recent work has been connected with the problem of non-demonstrative inference. It used to be supposed by empiricists that the justification of such inference rests upon induction. Unfortunately, it can be proved that induction by simple enumeration, if conducted without regard to common sense, leads very much more often to error than to truth. And if a principle needs common sense before it can be safely used, it is not the sort of principle that can satisfy a logician. We must, therefore, look for a principle other than induction if we are to accept the broad outlines of science, and of common sense in so far as it is not refutable. This is a very large problem and I cannot pretend to have done more than indicate lines along which a solution may be sought.

Ever since I abandoned the philosophy of Kant and Hegel, I have sought solutions of philosophical problems by means of analysis; and I remain firmly persuaded, in spite of some modern tendencies

to the contrary, that only by analysing is progress possible. I have found, to take an important example, that by analysing physics and perception the problem of the relation of mind and matter can be completely solved. It is true that nobody has accepted what seems to me the solution, but I believe and hope that this is only because my theory has not been understood.

THE RETREAT FROM PYTHAGORAS

My philosophical development, since the early years of the present century, may be broadly described as a gradual retreat from Pythagoras. The Pythagoreans had a peculiar form of mysticism which was bound up with mathematics. This form of mysticism greatly affected Plato and had, I think, more influence upon him than is generally acknowledged. I had, for a time, a very similar outlook and found in the nature of mathematical logic, as I then supposed its nature to be, something profoundly satisfying in some important emotional respects.

As a boy, my interest in mathematics was more simple and ordinary: it had more affinity with Thales than with Pythagoras. I was delighted when I found things in the real world obeying mathematical laws. I liked the lever and the pulley and the fact that falling bodies describe parabolas. Although I could not play billiards, I liked the mathematical theory of how billiard balls behave. On one occasion, when I had a new tutor, I spun a penny and he said, "Why does the penny spin?" I replied, "Because I make a couple with my fingers." He was surprised and remarked, "What do you know about couples?" I replied airily, "Oh, I know all about couples." When, on one occasion, I had to mark the tennis court myself, I used the theorem of Pythagoras to make sure that the lines were at right angles with each other. An uncle of mine took me to call on Tyndall, the eminent physicist. While they were talking to each other, I had to find my own amusement. I got hold of two walking-sticks, each with a crook. I balanced them on one finger, inclining them in opposite directions so that they crossed each other at a certain point. Tyndall looked round and asked what I was doing. I replied that I was thinking of a practical way of determining the centre of gravity, because the centre of gravity of each stick must be vertically below my finger and therefore at the point where the sticks crossed each other. Presumably in consequence of this remark, Tyndall gave me one of his books, *The Forms of Water*. I hoped, at that time, that all science could become mathematical, including psychology. The parallelogram of forces shows that a body acted on by two forces simultaneously will pursue a middle course, inclining more towards the stronger force. I hoped that there might be a similar 'parallelogram of motives'—a foolish idea, since a man who comes to a fork

in the road and is equally attracted to both roads does not go across the fields between them. Science had not then arrived at the 'all-or-nothing principle' of which the importance was only discovered during the present century. I thought, when I was young, that two divergent attractions would lead to a Whig compromise, whereas it has appeared since that very often one of them prevails completely. This has justified Dr. Johnson in the opinion that the Devil, not the Almighty, was the first Whig.

My interest in the applications of mathematics was gradually replaced by an interest in the principles upon which mathematics is based. This change came about through a wish to refute mathematical scepticism. A great deal of the argumentation that I had been told to accept was obviously fallacious, and I read whatever books I could find that seemed to offer a firmer foundation for mathematical beliefs. This kind of research led me gradually further and further from applied mathematics into more and more abstract regions, and finally into mathematical logic. I came to think of mathematics, not primarily as a tool for understanding and manipulating the sensible world, but as an abstract edifice subsisting in a Platonic heaven and only reaching the world of sense in an impure and degraded form. My general outlook, in the early years of this century, was profoundly ascetic. I disliked the real world and sought refuge in a timeless world, without change or decay or the will-o'-the-wisp of progress. Although this outlook was very serious and sincere, I sometimes expressed it in a frivolous manner. My brother-in-law, Logan Pearsall Smith, had a set of questions that he used to ask people. One of them was, "What do you particularly like?" I replied, "Mathematics and the sea, and theology and heraldry, the two former because they are inhuman, the two latter because they are absurd". This answer, however, took the form that it did from a desire to win the approval of the questioner.

My attitude to mathematics at this time was expressed in an article called "The Study of Mathematics," which was printed in *The New Quarterly* in 1907, and reprinted in *Philosophical Essays* (1910). Some quotations from this essay illustrate what I then felt:

Mathematics, rightly viewed, possesses not only truth, but supreme beauty—a beauty cold and austere, like that of sculpture, without appeal to any part of our weaker nature, without the gorgeous trappings of painting or music, yet sublimely pure, and capable of a stern perfection such as only the greatest art can show. The true spirit of delight, the exaltation, the sense of being more than man, which is the touchstone of the highest excellence, is to be found in mathematics as surely as in poetry. What is best in mathematics deserves not merely to be learnt as a task, but to be assimilated as a part of daily thought, and brought again and again before the mind with ever-renewed encouragement. Real life is, to most men, a long second-best, a perpetual compromise between the ideal and the possible; but the world

of pure reason knows no compromise, no practical limitations, no barrier to the creative activity embodying in splendid edifices the passionate aspiration after the perfect from which all great work springs. Remote from human passions, remote even from the pitiful facts of nature, the generations have gradually created an ordered cosmos, where pure thought can dwell as in its natural home, and where one, at least, of our nobler impulses can escape from the dreary exile of the actual world.

The contemplation of what is non-human, the discovery that our minds are capable of dealing with material not created by them, above all, the realization that beauty belongs to the outer world as to the inner, are the chief means of overcoming the terrible sense of impotence, of weakness, of exile amid hostile powers, which is too apt to result from acknowledging the all-but omnipotence of alien forces. To reconcile us, by the exhibition of its awful beauty, to the reign of Fate—which is merely the literary personification of these forces—is the task of tragedy. But mathematics takes us still further from what is human, into the region of absolute necessity, to which not only the actual world, but every possible world must conform; and even here it builds a habitation, or rather finds a habitation eternally standing, where our ideals are fully satisfied and our best hopes are not thwarted.

In a world so full of evil and suffering, retirement into the cloister of contemplation, to the enjoyment of delights which, however noble, must always be for the few only, cannot but appear as a somewhat selfish refusal to share the burden imposed upon others by accidents in which justice plays no part. Have any of us the right, we ask, to withdraw from present evils, to leave our fellow-men unaided, while we live a life which, though arduous and austere, is yet plainly good in its own nature?

All this, though I still remember the pleasure of believing it, has come to seem to me largely nonsense, partly for technical reasons and partly from a change in my general outlook upon the world. Mathematics has ceased to seem to me non-human in its subject matter. 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. I think that the timelessness of mathematics has none of the sublimity that it once seemed to me to have, but consists merely in the fact that the pure mathematician is not talking about time. I cannot any longer find any mystical satisfaction in the contemplation of mathematical truth.

The aesthetic pleasure to be derived from an elegant piece of mathematical reasoning remains. But here, too, there were disappointments. The solution of the contradictions seemed to be only possible by adopting theories which might be true but were not beautiful. I felt about the contradictions much as an earnest Catholic must feel about wicked Popes. And the splendid certainty which I had always hoped to find in mathematics was lost in a bewildering

maze. All this would have made me sad but for the fact that the ascetic mood had begun to fade. It had had so strong a hold upon me that Dante's *Vita Nuova* appeared to me psychologically quite natural, and its strange symbolism appealed to me as emotionally satisfying. But this mood began to pass, and was finally dispelled by the First World War.

One effect of that War was to make it impossible for me to go on living in a world of abstraction. I used to watch young men embarking in troop trains to be slaughtered on the Somme because generals were stupid. I felt an aching compassion for these young men, and found myself united to the actual world in a strange marriage of pain. All the high-flown thoughts that I had had about the abstract world of ideas seemed to me thin and rather trivial in view of the vast suffering that surrounded me. The non-human world remained as an occasional refuge, but not as a country in which to build one's permanent habitation.

In this change of mood, something was lost, though something also was gained. What was lost was the hope of finding perfection and finality and certainty. What was gained was a new submission to some truths which were to me repugnant. My abandonment of former beliefs was, however, never complete. Some things remained with me, and still remain: I still think that truth depends upon a relation to fact, and that facts in general are non-human; I still think that man is cosmically unimportant, and that a Being, if there were one, who could view the universe impartially, without the bias of *here* and *now*, would hardly mention man, except perhaps in a footnote near the end of the volume; but I no longer have the wish to thrust out human elements from regions where they belong; I have no longer the feeling that intellect is superior to sense, and that only Plato's world of ideas gives access to the 'real' world. I used to think of sense, and of thought which is built on sense, as a prison from which we can be freed by thought which is emancipated from sense. I now have no such feelings. I think of sense, and of thoughts built on sense, as windows, not as prison bars. I think we can, however imperfectly, mirror the world, like Leibniz's monads; and I think it is the duty of the philosopher to make himself as undistorting a mirror as he can. But it is also his duty to recognize such distortions as are inevitable from our very nature. Of these, the most fundamental is that we view the world from the point of view of the *here* and *now*, not with that large impartiality which theists attribute to the Deity. To achieve such impartiality is impossible for us, but we can travel a certain distance towards it. To show the road to this end is the supreme duty of the philosopher.