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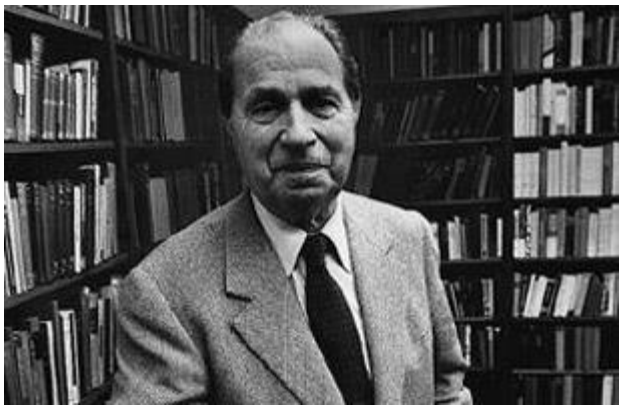

Part 1 of 2

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Questions Science Cannot Answer

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THE POSITION I am going to try to defend here is one which is shared by few, if any, contemporary secular philosophers. The reigning philosophical position with respect to the relation between science and philosophy is the one held by the positivists who relegate philosophy to a realm of opinion, totally precluding it from consideration as a valid kind of knowledge. The dominant school of English and American positivism dates back to David Hume. The contemporary positivists, or analytic philosophers, have a great deal of logistic and semantic apparatus, but in fact, their essential position is the same as Hume's. They claim that the only questions that are to be answered with verifiable or valid knowledge are the questions that science can answer. The ques-

tions that science cannot answer are either not answerable, or answerable only by opinion.

I grew up in the beginning of this century in the philosophical atmosphere of pragmatism. I studied at Columbia University under John Dewey and I had a great fondness for WiIliam James. I remember in my undergraduate career coming upon the last (unfinished) book that James wrote, *The Problems of Philosophy*, where he takes the position that philosophy is always working in the penumbra of science. James asserts that in every department of knowledge science is at the center, and out beyond the confines of established scientific knowledge there is a shadowy area called philosophy. Here philosophers are at work on questions or problems that science has not yet been able to solve. But as science advances it eventually solves those problems, and the philosopher gets pushed out further into the shadows again, to work desperately at matters that the scientist cannot presently handle.

Even when I was quite young, it seemed to me that if this is what philosophy is, it is hardly a respectable profession. Why should anyone waste his time today on the problems that science is going to solve tomorrow? Why not just wait until science gets there and solves them? Why should the philosopher be a kind of frustrated, futile worker in a field which science will eventually invade? (This by the way is the attitude of some Nobel-prize winners who are called to the lecture hall by virtue of their having been great scientists but who, in their old age and idle hours, have become speculative philosophers.) It is as if there is no special method and no special discipline which are philosophical, as if anyone who has achieved eminence in science then has the authority to speak loosely and freely about problems in other fields.

The consequences of this general atmosphere, where philosophy is in decline and science is in the ascendancy, are tremendous. Not only does philosophy get displaced in our culture, but religion does too. I am happy to say, however, that Catholic philosophers in general take an opposite position. They certainly take an opposite position with respect to the relation between science and philosophy. But unfortunately there are other positions taken by Catholics. I am thinking in particular of the work that is being done at the Albertus Magnus Lyceumin River Forest, Illinois, where the natural sciences are seen as continuous with the philosophy of nature. By various turns and tricks with Thomistic apparatus, the natural sciences are assimilated to philosophy and made continuous with it. I think this view is as wrong as the position taken by the positivists. Having sort of laid myself open, I will proceed to defend the position which I think is true. Let me state it for you quickly in three simple theses.

First, there are three quite distinct and discontinuous kinds, spheres, or domains of knowledge, for which I will use the words science, philosophy, and either religion or theology. I mean by theology, now, not natural theology but sacred theology. Each of these fields is distinguished by a characteristic method. Each method is adjusted to a certain object of study. According to each method there are answerable and unanswerable questions.

My second thesis is this: there are questions which the scientist can answer, but which the theologian and the philosopher cannot; there are questions which the philosopher can answer but which the scientist and the theologian cannot; and there are questions which the theologian can answer but which the scientist and the philosopher cannot. The reason for this diversification is that each has a method which makes him competent to answer only certain questions, and precludes him completely from answering with competence or validity the questions that lie beyond the scope of his method.

My third thesis is that the basic questions, both speculative and practical, are the questions that science cannot answer. The reason for calling this paper "The Questions Science Cannot Answer" is to make clear that the questions science can answer are the least important questions of all. The fact that science cannot answer the most important questions does not by itself establish the fact that philosophy and theology can answer them. One does not follow from the other. But I do want to establish what kind of questions science can answer and cannot answer, and I shall at least suggest the possibility I hat philosophy can answer some of these that remain unanswerable by science, and theology still others.

Before I get to the actual arguments for these positions, I would like to tell you the remote background for my present views. Many years ago, in the middle 1930's, I was asked by a lecture bureau to debate with Bertrand Russell whether there are universal principles of education. I took the affirmative. n the occasion of this debate we were in a large auditorium in Chicago. We arrived in our dinner jackets. I had worked hard, thinking of Lord Russell as an eminent philosopher—one to treat with respect—and I carefully prepared the statement of the affirmative position. But Mr. Russell obviously did not regard debating with me as an important occasion: he came with a white cuff on which he made notes as I talked. As I remember, his rejoinder was just a barrage of wit, without much arguing. He began with the remark, "I greatly admire Dr. Adler's rugged simplicity."

I must say that, since I take intellectual issues and debates very seriously, I did not think well of Lord Russell's manners and immediately resolved never to debate with him again. But this was a popular occasion, and the audience enjoyed it so enormously, that a year later I was asked again to meet Lord Russell in a debate. But this time I declined—unless Mr. Russell was willing to take the affirmative on an issue and let me take the negative. The negotiations went on and on; it took a little more than six months for Lord Russell to find anything he could affirm. Finally, we found the question on which he was willing to take an affirmative position. It was, "Is Science Enough for the Good Life and the Good Society?" Lord Russell was going to answer that question affirmatively, and I was glad to take the negative.

Lord Russell got up first and said something to the effect that science represents the only valid knowledge we have.

Knowledge, he averred, is incapable of solving any question of value, by which he meant that we cannot, by means of knowledge, answer any question about what is right or wrong, good or bad. "How are these questions solved?" asked Lord Russell. And he answered himself, "Well, clearly by feelings."

Notice at once how Lord Russell had contradicted himself: he started out to affirm that science is enough for the good life and the good society, and in the same breath said that science wasn't enough because it could not answer any questions about good or bad, right or wrong, or how one can conduct the good life in the good society. Such questions can only be answered by "feelings." Well, I got up for the rebuttal and said that, obviously, if questions of value were solved only by feelings, then one had to ask whether or not all feelings were equally good or bad, right or wrong. . . .

By this time I really had Mr. Russell on the run, because he had just come out publicly, for the first time, against Hitler. The German cause was wrong and the English cause was right. I read from his statement that had just appeared in the New York *Times*, and said, "Lord Russell, I gather that you have certain feelings and that Hitler has certain feelings; you said that your side of this matter is right, and that Hitler's is wrong. Then, what is the measure of the rightness of the feeling by which you have made these judgments or taken these positions, and of the wrongness of Hitler's? If, in regard to your feelings, there is no objective measure at all, if it is just a matter that you feel you are right, then Hitler is entitled to feel that he is right. And the only thing that could solve or settle any conflict that involves questions of right or wrong would be might or force, the force of numbers or the force of guns.

"If there is any objective solution to such problems," I continued, "objective in the sense that it is based on something other than one's feelings, then something must exist to measure feelings, as right or wrong, good or bad. And I submit to you that the only thing that could possibly measure feelings is knowledge. Hence, either you must submit to a complete subjectivism and relativism, or you must admit that there is knowledge other than science, because I'll agree with you that science cannot solve any questions of value." Lord Russell was quite willing to sink into the position of complete relativism and subjectivism.

A recent article on Heidegger in *Encounter* reported that Lord Russell, in an exchange of letters in the London *Observer*, said explicitly that his philosophical position would put his dislike for merciless cruelty and his liking for oysters exactly on a par. This indicates to me the seriousness of the question whether philosophy is a body of valid knowledge beyond the scope of science.

Let me illustrate my main thesis again by taking two closely related sciences, pure mathematics and experimental physics, which are joined in the mixed science of mathematical physics. We will designate pure mathematics as science X and experimental physics as science Y. I think it is perfectly clear that the problems the pure mathematician faces can in no way be solved by experimental work in the laboratory; it is equally clear that purely experimental problems cannot be solved by the methods available to the mathematician. Here are two closely relat-

ed sciences—fused in mathematical physics—yet absolutely distinct because the methods used in mathematics are totally unavailable for solving a purely experimental problem. Conversely, the methods of experimentation are totally unavailable, totally incompetent, for solving a purely mathematical problem.

Notice one further paradox: when the mathematician is unable to solve an experimental problem, he also cannot refute or criticize the experimental solutions of problems. That is, a mathematician cannot criticize an experimenter except by becoming an experimenter himself; and an experimenter cannot criticize a mathematician except by becoming a mathematician himself. In other words, if science X cannot answer, because of its limited methods, the questions which science Y can answer, then science X cannot refute or criticize the answers given by science Y. There is no dialogue between them.

What I've just said about mathematics and experimental physics is illustrated more clearly by taking two bodies of knowledge like botany and history. Now, the methods of history are totally different from the methods of classificatory botany. Whatever the problems of the science of botany are, a historian with his methods must remain silent about their solution. Whatever the problems of historical research are—those which can be approached and solved by the methods of historical research — a botanist must stand on the sidelines and remain silent too. *Qua* historian and *qua* botanist, they cannot deal with each other's problems.

To take a more obvious example of the simple ordering of disciplines and fields : no one in his right mind who had a serious illness would call in a mechanical engineer, and no one in his right mind with the problem of building a bridge would call in a physician. The competence of the physician belongs at the bedside; the competence of the engineer belongs at the riverside where you are building the bridge. No one would make the mistake of supposing that either the engineer or the physician has omnicompetence. You know the limited competence of each.

Now, what I have just written about obvious cases applies to philosophy and science in general. Take all of the sciences, from astronomy to zoology, and compare them to the entire range of philosophical studies: my point is that the whole sphere of science consists of questions that the philosopher cannot touch or answer at all, and he should know he can't. Neither scientists nor philosophers can refute the answers given by the other. There have been, of course, confused questions during the long history of thought. One of the great misfortunes is that there have been many questions that philosophers have thought were philosophical questions when actually they were not. For example, it was naive of Aristotle and St. Thomas to think that the question of the material constitution of the heavenly bodies was a philosophical question. Their methods and their conditions of observation were inadequate to answer this question. Even today there are borderline questions on which scientists and philosophers get confused. With the progress of man's inquiry and knowledge, there is progress in the clarification of a question, in knowing where a question belongs and whether it is truly a scientific question, or truly a

philosophical one. And when the question is clarified, so that you know the kind of question it is, the kind of method that it calls for, or the kind of method that is competent to answer it, then the division of the fields of knowledge is going to be clear.

Having laid the groundwork, let me now get to my main job which is to say what the limitations of science are — that is, what questions its methods enable it to answer, what kind of questions belong to it, and what kind of questions it cannot answer because of the limitations of its methods. The particular sciences, of course, have particular differences in method. But I want to talk about science in general and say what is common to the method of science, or the sciences, despite the particular differences as between, let's say, work in an observatory which is not experimental, and work in a laboratory which is experimental. We know that in the field work of a sociologist and the laboratory work of the entomologist the methods are different, but what is common to all of them?

I have a relatively simple answer to that question, and I hope it is the right one. I want to avoid the words "empirical" and "experimental" because not all science is entirely experimental in the strict sense of the word, and empirical suggests that science will appeal to experience. But philosophers appeal to experience as much as scientists do. In my view, experience is just as important to philosophy as it is to science. Hence, I prefer to use the word "investigative." The fundamental characteristic of any science is that *it investigates.*

Every moment of our waking lives we reflect on the experience we have had. We experience and then we think. We do this as naturally and as regularly as breathing. It's a regular function. But we are not naturally investigators, because the data come to us without any design on our part. If you keep your eyes and ears open, you will see, listen, and then reflect. Our intelligence is functioning along with our senses and imagination.

By investigation I mean a deliberate, planned, devised way of getting data beyond the ordinary experience of men. Eskimos don't have quite the same experience as the Congolese, but by and large all men see things fall, see things live and die. These are the generic things of common experience. If no one went beyond this, if no one had any experience other than the ordinary, there would be no science whatsoever. Science begins by additions to ordinary experience and gradually moves farther and farther away from the field of general experience. Science uses deliberate, planned effort to observe and measure what men don't ordinarily see and hear. It gets the phenomena that do not come within the common experience of mankind.

I don't mean to imply that the development of science is not deeply dependent on analysis, on theoretical elaborations, on the development of hypothesis, on mathematical analysis and all of that. But the essence of science lies on the side of sense. I think I am borrowing from Maritain, who makes this point in *The Degrees of Knowledge.* All knowledge involves reason and sense, that is, all natural knowledge does. But in the case of science,

reason serves sense, not sense reason. The whole apparatus of scientific reflection, of analysis, and of theoretical development, is for the sake of handling what sense apprehends — the stubborn data, the phenomena, if you will. Every advance of science, no matter how extended the theories are, is dependent on sense confirmation. Mathematical physics today is probably fifty years ahead of the experimental, as was the case with Einstein. But as I understand science, the theories are all here begging for the test, and not until the test is made, not until the data are procured, does science really advance. Every real, established advance in science is made here, not in the realm of theory. I am not denying that the scientific theory is necessary, but I am saying that the critical point is on the side of observation. For science grows by adding to the ordinary experience of man the data procured by investigation.

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