



SCIENCE AND PHILOSOPHY

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[Part 1 of 2]

I

We live in a culture in which science, along with its applications in ever more powerful technology, predominates. That is, perhaps, the most distinctive mark of the twentieth century. The glorification and adulation of science give the word “scientific” its eulogistic connotation. Other forms of intellectual endeavor call themselves “scientific” when, in fact, their mode of inquiry, which may be investigative, is not scientific at all in method or aim. The adjective “scientific” has almost become a synonym for “excellent”—for “trustworthy” and “reliable.”

Under these pervasive cultural circumstances, philosophy takes a back seat. It either does not try to compete with scientific knowledge in the sphere of first-order questions, occupying itself with the processes of logical and linguistic analyses in the sphere of second-order questions; or it weakly claims for itself the eminence it once had in antiquity and the Middle Ages, an eminence that it no longer deserves in view of the numerous grave mistakes made by philosophers since the seventeenth century. A telling sign of philosophy's great disrepute at present is the fact that, of the 8,730 philanthropic foundations in the United States, not one lists philosophy among the guidelines for its giving.

In this chapter I am going to defend philosophy against the charges that are usually brought against it by those who unfairly compare it with the achievements of science since early modern times.

I am going to ignore the fact that, in this epoch in which science has advanced steadily, philosophy has declined steadily. I am going to proceed on the assumption that the ten or twelve grave errors made by modern philosophers can be and have been corrected; that philosophy has regained the courage to seek knowledge—both descriptive and prescriptive—about reality, returning from analytic work in the second order to metaphysical and moral philosophy in the first order; and that philosophy has a future in which its decline in the last three centuries can be reversed.

Even with these assumptions, it is necessary for us to consider the charges against philosophy that are currently rampant, not only in the academic mind, but in the popular mind as well. In my view, all or most of these charges overlook the differences between science and philosophy as distinct modes of inquiry. They remind one of the song of complaint in the musical comedy *My Fair Lady* in which the refrain is: “Why can't a woman be like me?”

Those infatuated with science are forever singing the same complaint: “Why can't philosophy be like science?”—in all those respects in which we admire the achievement of science. The answer, of course, is simply because philosophy differs remarkably from science in its mode of inquiry and in its noninvestigative method of thought. It has its own virtues, and they are different from the virtues of science.

To make this clear, I will first state the four generally acknowledged praiseworthy traits of scientific work. I will then try to explain why philosophers should never expect to emulate science in these respects, but instead should point out the quite different re-

spects in which philosophy can claim merit for itself, and even clear superiority over science in certain accomplishments.

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Here are the four praiseworthy traits of science.

- (i) Scientists are able to reach substantial agreement in the judgment of those regarded as competent to judge at a given time.
 - a. The major disagreements in the realm of science are those between scientists at a later period and scientists at an earlier period.
 - b. The resolution of these disagreements in favor of the later scientists involves steps in the advance of science from knowing less about reality to knowing more, or from knowing reality less accurately to knowing it more accurately.
- (ii) It follows from what has just been said that science can rightly claim to make progress in the course of time, and to make it more and more quickly as more individuals are engaged in scientific work.
- (iii) Science is useful in ways that enable it to claim that it showers great benefits upon human life and human society. The application of scientific knowledge in the production of technological devices to produce goods and services that are unrealizable without science is, perhaps, in many minds, the biggest feather in the hat of scientific success.
- (iv) Science has become in modern times a public enterprise; scientists cooperate with one another; they engage in teamwork; they interact. Numbers of scientists can pool their efforts in trying to solve the same problem. In this respect, scientific work stands at the opposite extreme to the painter, the composer, or the poet. The work of the individual artist is a private enterprise; rarely is this the case in science; and when it happens, it seldom remains that way.

In all of these four respects, the current attitude toward philosophy is generally negative.

- (i) Philosophers at a given time do not reach agreement on the solution of problems. They do not resolve the issues on which they differ.
- (ii) Philosophy does not appear to make progress from epoch to epoch, or from century to century. The retirement of philosophy in recent times to the sphere of second-order questions may have been prudent in view of the failures of philosophers to reach agreement on first-order questions, but that can hardly be regarded as progress.
- (iii) Philosophy is not useful. It has no applications in technology. It bakes no bread and builds no bridges. If it is not at all useful, what good is it?
- (iv) Philosophy has seldom been carried on as a public enterprise in which philosophers interact and work together as a team to solve their problems. It is much more like the individual and private work of the creative artist than it is like the pooled contributions of many scientists working together on the same problem.

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What follows are responses to the foregoing challenges to the worth of philosophy. In my judgment these responses are quite satisfactory, though they are rarely given. They are sound because they stem from understanding the great difference between science and philosophy, a difference as great as that between mathematics and empirical science. I am going to deal with the question of progress first and then turn to the question of agreement and disagreement in philosophy.

With respect to progress in philosophy The history of science in the West and the history of philosophy do not run parallel courses, in which empirical science advances more and more rapidly as it uses more and more powerful instruments of observation and philosophy progresses, if at all, much more slowly from epoch to epoch. One should not expect in philosophy anything like the progress that has occurred in the history of science, in view of the fact that philosophy is noninvestigative, has its empirical base in common human experience, and is continuous with common sense.

Philosophy flowered at its birth in the fifth and fourth centuries B.C. The philosophical insights and wisdom it attained in those early centuries were preserved and passed on after the Dark Ages

in the mediaeval universities. The great teachers there were excellent students of Plato and Aristotle, and, as their followers, they made advances in detail, refinements in analysis, and here and there formulated new arguments for truths they received from antiquity.

Then, beginning in the seventeenth century, with the attempts by Descartes, Hobbes, Spinoza, and Locke, each trying to start philosophical thought anew, largely ignoring or rejecting the accumulated wisdom of the past, philosophy started its decline, which has continued to the present day. This decline was caused by making philosophical mistakes that could have been avoided had they been as docile students of antiquity as their predecessors in the Middle Ages. [1]

Two factors are mainly responsible for the progress that has been made in scientific knowledge. On the one hand, advances in observational techniques and their employment to explore new fields of phenomena result in the steady accumulation of more and more data of special experience. On the other, new theoretical insights are achieved by the development of better and more comprehensive theories. These two factors interact. The discovery of new data by investigation occasions or stimulates advances in theorizing; and new theoretical constructions often call forth experimental or investigative ingenuity in the search for supporting or refuting data. Furthermore, as we have seen, increasing specialization and ever more intensive division of labor occur in science; and this, in turn, is related to the ever-growing number of scientists at work which, in purely quantitative terms, accounts for cumulative progress at an accelerating rate.

In philosophy, there is no accumulation of new data; there are no advances in observational techniques and no new observational discoveries; there is no specialization and no division of labor. Since common experience at its core always remains the same, it does not by itself occasion or stimulate advances in theorizing. Since these things are impossible in philosophy, precisely because it is noninvestigative, it has made no progress, or less progress and at a much slower rate.

If the same kind, amount, or rate of progress could be expected of philosophy, then it would be fair to say that science is vastly superior to philosophy in making progress. It is clearly wrong, however, to expect the same kind of progress—or the same rate of progress—from a noninvestigative as from an investigative mode of inquiry, especially in view of the bearing of its investigative procedure on the main factor responsible for progress in science.

To say that philosophy is inferior to science in regard to progress is like saying that a fish is inferior to a bird in locomotion. Both can move forward to an objective, each with a certain velocity, but the difference in the manner and the rate of their movement reflects the difference in the media through which they move.

What I have just said should not be interpreted as condoning philosophy's failure to make greater progress than it has so far. Common experience being a constant factor, progress in philosophy must be made on the side of theorizing rather than on the empirical side—that is, in the development of new theoretical insights, improvements in analysis, the formulation of more precise questions, the construction of more comprehensive theories, and the removal of the inconsistencies, embarrassments, paradoxes, and puzzles that have long beset philosophical thought. Some progress of this sort has been made in the past, and some has occurred quite recently, but it must nevertheless be admitted that the total extent of it falls far short of what might be reasonably expected.

In my judgment, the central reason for this lies in the fact that, for the most part, philosophical work has been carried on by thinkers working in isolation, and not as a public enterprise in which thinkers make serious efforts to cooperate with one another. A little earlier I pointed out that the ever-growing number of scientists at work accounted, in part, for accelerating, cumulative progress. The creation of departments of philosophy in our institutions of higher learning, it could be said, has greatly increased the number of philosophers at work. If this has not produced the same kind of result that the same phenomenon has produced in science—and certainly it has not—the reason, I submit, lies in the failure of the participants in the philosophical enterprise to cooperate as scientists do in their ventures.

What does this all come to? First, philosophy by its very nature cannot make the same kind and rate of progress that is made in science; to expect it to do so is to make a false demand; to denigrate philosophy for not doing so is unjustified. Second, because of the difference in the factors operative in the two disciplines, it is more difficult to make progress—and more difficult to make it steadily and at an ever-accelerating pace—in philosophy than in science. [2] Philosophy is inferior to science now not because it fails to make the same kind or rate of progress, but because it fails to advance in a way and at a pace that is as appropriate to its noninvestigative character as the manner and pace of scientific progress is appropriate to a discipline that is investigative in method. If philosophy were to do as well in its medium as science does in its, the correct statement of the case would not be that philosophy is infe-

rior to science in progress, but only that it is distinctly different in this respect.

With respect to agreement and disagreement in philosophy: One of the most common complaints about philosophy is that philosophers always disagree. This complaint is given added force by pointing out that, in contrast to philosophy, there is a large area of agreement among scientists. Furthermore, when scientists disagree, we expect them to work at and succeed in settling their differences. They have at their disposal and they employ effective implements of decision whereby they can resolve their disagreements and obtain a concurrence of opinion among those qualified to judge the matters under dispute.

Philosophical disagreements persist; or, to speak more accurately, since there is so little genuine disagreement or joining of issues in philosophy, differences of opinion remain unclarified, undebated, and unresolved. It is frequently far from clear that philosophers who appear to differ are even addressing themselves to the same subject or trying to answer the same question.

This state of affairs gives rise to the widely prevalent judgment that, in this matter of agreement and disagreement, philosophy is plainly inferior to science. Nevertheless, as in the matter of progress, the comparison of science and philosophy with respect to agreement is falsely drawn and the judgment based on it is unfairly made.

One difference between science and philosophy, already pointed out, helps us to rectify the erroneous impression that agreement generally obtains in science while disagreement is rife in philosophy. Because philosophy relies solely on common experience in dealing with first-order questions, philosophers widely separated in time can be treated as contemporaries, whereas with the ever-changing state of the data acquired by ongoing investigation, only scientists working at the same time can function as contemporaries. This basic difference between science and philosophy results in a different temporal pattern of agreement and disagreement in each, to whatever extent genuine agreements and disagreements do, in fact, exist.

The scientists of a given century or time tend to disagree with and reject the formulations of earlier scientists, largely because the latter are based on insufficient data. Disagreement in science occurs vertically across the centuries; and most of the agreements in science occur along the same horizontal time line among scientists at work during the same period. By contrast, there is considerable and

often unnoticed agreement across the centuries among philosophers living at different times; the striking disagreements—or differences of opinion—occur mainly among philosophers alive at the same time. In short, we find some measure of agreement and of disagreement in both science and philosophy, but we find the temporal pattern of it quite different in each case.

The judgment that philosophy is inferior to science with respect to agreement focuses entirely on the horizontal time line, where we find the maximum degree of agreement among scientists and the minimum degree of it among philosophers. If we shift our attention to the vertical time line, there is some ground for the opposite judgment. Looking at the opinions of scientists in an earlier century, we come away with the impression of substantial and extensive disagreement, whereas we find a considerable measure of agreement among philosophers across the centuries.

To judge philosophy inferior by expecting or demanding that its pattern of agreement and disagreement should conform to the pattern exhibited by science is to judge it by reference to a model or standard that is as inapplicable as the model of scientific progress is inapplicable to philosophy. To dismiss this judgment as wrongly made, however, is not to condone philosophy for its failure to achieve what might be reasonably expected of it on its own terms.

The most crucial failure of philosophy so far is the failure of philosophers to face each other in clear and genuine disagreements, to join issue and engage in the debate of disputed questions. Only when this defect is overcome will philosophers be able to settle their differences by rational means and achieve the measure of agreement that can be reasonably expected of them.

Here, as with respect to progress, the difficulties are greater for philosophy. The decision between competing scientific formulations by reference to crucial data obtained by investigation is easier than the resolution of philosophical issues by rational debate. Nevertheless, the difficulties that confront philosophy with respect to agreement and disagreement can be surmounted in the same way that the difficulties it faces with respect to progress can be overcome—namely, by the conduct of philosophy as a public, rather than a private enterprise.

When philosophy is properly conducted as a public enterprise and philosophers work cooperatively, they will succeed to a much greater extent than they do now in addressing themselves to the same problems, clearly joining issue where they differ in their an-

swers, and carrying on rational debate of the issues in a way that holds some promise of their eventual resolution. [3]

It is, therefore, fair to say that philosophy is at present inferior to science with respect to agreement and disagreement, but only if one means that philosophy has not yet achieved what can reasonably be expected of it—a measure and a pattern of agreement and disagreement appropriate to its character as a noninvestigative discipline and hence distinctly different from the measure and pattern of these things in science.

I reiterate that philosophy, like science, can be conducted as a public enterprise, wherein philosophers work cooperatively. In the very nature of the case that is possible, even though little has been done to move philosophy in that direction. Nevertheless, should philosophy ever fully realize what is inherently possible, its achievement with respect to agreement and disagreement will be as commendable as the achievement of science in the same respect, for each will then have done all it can do within the limitations of its method as a mode of inquiry and appropriate to its character as a type of knowledge.

With respect to the use of philosophy: Knowledge is useful. What is known may not always be put to use in the management or conduct of human affairs or in the control of man's environment, but it always can be. If it is not, its latent usefulness remains to be exploited in the future. Intrinsically useless knowledge is a contradiction in terms.

We often speak of knowledge in use as applied knowledge. The Greek philosophers laid down a basic division in the use or application of knowledge, which is worth recalling. In the sphere of the practical they distinguished between production and action—between the sphere of man's efforts to make things or to control the forces of nature in order to achieve certain results, and the sphere of human conduct, both individual and social. They also distinguished between knowledge itself, as capable of being used or applied, and a special type of knowledge which they said must be added in order to put knowledge to use.

NOTES

1 See my book *Ten Philosophical Mistakes*, especially the Epilogue, “Modern Science and Ancient Wisdom,” which, I think, explains the decline of philosophical thought in modern times.

2 In the mid-nineteenth century, William Whewell, head of Trinity College, Cambridge University, and himself an eminent philosopher of science, proposed a reform in the curriculum for the undergraduate degree. One of its guiding prin-

ciples was his distinction between permanent and progressive studies. In the category of permanent studies, Whewell placed portions of science and mathematics, but it mainly comprised the classics of imaginative literature and philosophy. In his view, the category of progressive studies consisted largely of science and mathematics.

3 For a discussion of the propaedeutic service performed for philosophy by dialectical work, which cannot be done except as a public and cooperative enterprise, see my book *The Idea of Freedom*, Vol. I, Part III, especially Chapter 8. Such work should help philosophers to agree about the issues on which they differ and to argue more relevantly with one another, thus increasing the degree to which they cooperate and interact. This was the point of Professor Arthur Lovejoy's presidential address in 1916 before the American Philosophical Association on some conditions of progress in philosophy.

Chapter 7 from his book *The Four Dimensions of Philosophy*.

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