HOW DOES PHILOSOPHY HELP SCIENCE?

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Before taking up the main subject I wish to begin with two very serious misconceptions about both philosophy and science which are as under:-

1. That both philosophy and science are far removed from actual life;

2. That they have nothing in common, the two being so discreet and independent.

The ensuing discussion is intended to bring home at the very outset that the above views are based on a certain misconstruing of both philosophy and science themselves. It is, therefore, necessary first to alleviate these misconstructions and then to go to the topic of discussion for today. The first misconception can, to my mind, be resolved by explaining' the nature of both science and philosophy in the simplest terms understandable to all, the technical as well as the non-technical. Science in its commonest sense consists of those human activities which engage the mind in (i) explaining[1] the events and happenings taking place in the world around and (ii) predicting the future events and happenings in the light of the past 'explanations' and knowledge. A common man is most of the time trying to explain the events and happenings taking place around him, and also to make predictions about the similar future events. For instance, he daily observes the behaviour of the clouds, tries to explain the phenomena of raining, and also makes an attempt to make some predictions regarding the possibility of raining from the nature and direction, etc. of the clouds. There are a host of events which a common man with a minimum intelligence tries to understand and explain in his daily routine (though the standard of his explanation depending upon his degree of intelligence). During these spans of time, when he is trying to explain and also to predict on the basis of his personal understanding, he may be said to be in the realm of science (of course, without his being aware of it). One can safely say that it was from such crude and elementary observations and explanations in the past that science took its origination.

Philosophy, on the other hand, again in the commonest sense, comprises those human activities which engage the mind in (i) evaluative and critical reactions and (ii) prescriptive and recommendatory functions. Also, common man, in his day-to-day life, is showing and approving or disapproving reactions towards some character, person, principle, a beautiful face or painting and calling some argument valid or invalid, etc. He is assessing some deed or piece of conduct as good or wrong, some person or character as evil or virtuous, some piece of painting or sculpture as beautiful, and so on. He is not only making an assessment of some situation, but is also suggesting cures and remedies for the ills detected. While busy in these activities, he is in the field of philosophy and in this sense, arid to that extent, everybody is a philosopher. Thus, both philosophy and science are originally and basically normal activities which have their footings in the everyday normal life. These activities get removed from life when they rise above the normal experience into the realm of concepts, principles, models and theories; but they stem nonetheless from everyday normal experience and there is nothing weird about them. As soon as they rise into the conceptual. sphere they go beyond the comprehension of the common man who has yet to be initiated into philosophy or science.

As regards the second misconception, i.e., philosophy and science have nothing to do with each other. This question I faced. at the hands of a member of the Punjab Public Service Commission who put me the curt question, 'Should philosophy be studied alongwith the sciences keeping in view the great achievements of the modern science in the fields of discoveries and, in particular, inventions?' I could do no better than bringing home to the questioner the basic misconception present in his mind as generally present in the mind of the people (including the educated who are not initiated into science or philosophy). I told him, that the two activities, the scientific and the philosophical, were so closely welded together, and therefore of such a complementary nature, that it was wrong to put them into separate water-tight compartments; that a philosopher was a scientist when he was making his observation and collecting data thereby, while a scientist was a philosopher (a logician) in so far as he was organizing his data and drawing general conclusions from them. Thank God! he got my point and I could make a score. This is how for the first time the relation between science and philosophy so clearly dawned upon me as well, because at that

time I was inspired by the Active Intellect", to borrow a phrase from Muslim thought. Ever since I have been thinking on this relationship and am more and more convinced.. But my deeper study of Modern logic, particularly the Boolean logic, has greatly added to my conviction that both science and philosophy not only stem from the same experience, but also are complementary to the extent of inseparability. This has alleviated many a doubt from my own mind also.

As said above, science is not simply the formulation of 'explanations' models and theories'; it is also 'predictive' in so far as it seeks to predict regarding the similar future events and happenings. Popper puts this function of science thus:

Science creates 'a bold, predictive theory which is then put to,, strict tests and even negative results are acceptable'.[2]

Now, these tests have been the function of philosophy to provide. For example, the 'Verifiability Principle'[3] formulated by Logical Positivism can go a long way to help science in testing her 'predictive theory' as well as other theories which stand in need of testing and verification. Science starts with certain hypothetical propositions which are then put to tests and verification.

Prof. A.J. Ayer, who may be called the founder of Verification Principle, has proposed in his famous treatise Language, Truth and Logic[4] two kinds of verification procedures, viz., (i) direct verification which may also be called strict verification test, and (ii) indirect verification which is much more lenient and accommodating. This kind of verification is carried out on the consequences ensuing from the proposition to be verified. Philosophy is very useful in providing these checking-procedures for the scientific statements and truths. It helps science through its logical principles and. procedures of testing: even the scientific method, which a scientist employs for his discoveries, has to be analyzed and formulated by logic. Thus, scientific propositions, models and theories are in the lost resort to be checked and tested by the philosopher. Besides, the statements of science are themselves to be evaluated by philosophy which gives rise to the Philosophy of Science or the Philosophy of Sciences[5] according to terminology of A.C. Benjamin. In fact, philosophical statements are of two kinds: viz., (i) statements 'evaluating 'facts' and 'events' as they occur in nature; and (ii) statements

evaluating the 'statements of facts', i.e., scientific statements. Such statements may be called 'Second-Order Evaluative Statements' or Just 'Second-Order Statements', and the philosophy of science comprises these Second-Order Statements.

Again, which is very important, philosophy 'provides the scientist with a cover or over-.all shell within which to fit in his scientific findings. A scientist has to work against the background of an all-inclusive picture of the universe which provides him a foothold. Till sometime back, a scientist used to be a metaphysician which would help him in undertaking his specific avocation as a scientist. Take that great trio of the scientists, I mean, Albert Einstein, W. Heisenberg and Max Planck; they were basically metaphysicians as is obvious from their world-views. For instance, Einstein's theory of General Relativity, Heisenberg's Principle of Indeterminacy, and Planck's Quantum Theory are essentially metaphysical theories which can hardly be justified on purely scientific grounds. One has only to read Planck's 'Where is Science Going?[6] and The Universe in the Light of Modern Physics;[7] Heisenberg's Physics and Philosophy;[8] and the famous book Albert Einstein: Philosopher Scientist[9]--edited by I.A. P.A. Schilpp, to bear out my contention. Even Charles Darwin, who is known for his treatise on evolution The Origin of Species,[10] with his concepts of "Evolution", "natural selection" and "adaptation" was fundamentally a philosopher as there is no scientific proof for his basic hypothesis "the survival of the fittest". What is important, these scientists were known to everybody in the world, even to the layman who had some intelligence and education, alongwith their inventions and 'discoveries'. Today with growing specialization, the scientist has confined himself within the limits of his laboratory working on a very limited scope, and has ceased to bother to evince any metaphysical interest in the over-all world-view. This approach has very much restricted his vision and as a result his findings have little to attract the common man's interest, because the technical achievements of a scientist hardly influence his life deeply. The present-day scientific discoveries have been too technical to catch interest of the man in the street till they mature into some useful and startling inventions. However, the scientific ice was broken in the mid-1970s when Sir Norman Lovell, in his Presidential address to the International Scientific Conference in London, re-introduced the famous "Big Bang Theory" of the origin of the Universe which was in the' main a metaphysical hypothesis,

which could not be ascertained through experimentation. In our own times we have A.N. Whitehead[11] Henri Bergson[12] and Bertrand Russell[13] who presented a beautiful blend of a scientist/mathematician and a philosopher which reflected through their writings.

Further, philosophy has a prerogative over science as over arts, religion, etc. As I said before, it can treat the science as one of its objects of study which results in the 'Philosophy of Science'. Allama Iqbal recognised this prerogative of philosophy in the very beginning of his Lectures [14] where he said in relation to religion, 'The spirit of philosophy is one of free activity. It suspects all authority. Its function is to trace the uncritical assumptions of human thought to their hiding places, and in this pursuit it may finally end in denial or a frank admission of the incapacity of pure reason to reach the ultimate reality,[15] (as in the case of Kant). I-Iere, what Iqbal said regarding religion is. equally, if not more, true of science, in my view. Today there is a philosophy of every subject--viz., Philosophy of Physics,. Philosophy of Culture, Philosophy of Law, Philosophy of Education, and so on, which goes a long way to prove the above position. A.C. Benjamin of the University of Missouri has classified the problems of science with which philosophy deals into three 'fairly well-defined fields', viz., (i) 'all problems related directly or indirectly to a consideration of the method of science.'[16] It is the task of the philosophy of sciences to examine such notions as axiom, proof, postulate, theorem, deduction, induction, data, hypothesis, etc. (ii) Problems which 'have to do with the analysis of the basic concepts and presuppositions of the sciences'.[17] There are three types of such concepts: (a) those peculiar to its subject-matter, e.g., force, matter and motion for the physicist, (b) concepts which are presupposed by a science but not analyzed by the science itself, e.g., number, order, quantity in physics; and (c) concepts which are presupposed by a science but not analyzed by any science, e.g., time as used in physics. And (iii) problems which 'may all be roughly described as concerned with the implications which science has, either in its content or in its method, for the other aspects of our lives' [18]e.g., determinism in science and freedom in ethics. There is no doubt that philosophers have been showing keen interest in the methodology of sciences since ancient times and logicians are still interested in the subject; but recent philosophers have shown keener interest in an analysis of the basic concepts and presuppositions of the sciences, and also in the implications which findings

of sciences have for the other aspects of the human life, i.e., the impact of the scientific discoveries and inventions on the life of man and this includes the most modern warfare techniques and equipments vis-a-vis life on this planet. The regulation and control of these techniques falls to the lot of philosophy which has always aimed at the benefit of mankind.

Notes and References

[1] M.M. Sharif (ed), History of Muslim Philosophy, 2 Vols., (Wiesbaden: Otto Harrassowitz

[2] A. Flew, ed.), A Dictionary of Philosophy (London: Victor Gollancz, 1964), p.5.

[3] A.J. Ayer, Language, Truth and Logic (London: Victor Gollancz, 1964), p.5.

[4] Ibid., p.13.

[5] V. Ferm (ed.), A History of Philosophical Systems (U.S.A., Littlefield Paperbacks, 1961), p. 542.

[6] Where Science, is Going? (New York, 1932; Eng. tr., 1933).

[7] The Universe in the Light of Modern Physics, (1937).

[8] Physics and Philosophy (London, 1959).

[9] Albert Einstein: Philosopher Scientist (ed.) (New York, 1951).

[10] The Origin of Species (1859), cf., The Descent of Man (1971).

[11] A.N. Whitehead (1861-1947), British Mathematician and Philosopher. He taught mathematics from 1884 to 1924, and philosophy since 1924.

[12] Henri Bergson (1859-1941), French philosopher and Nobel Prize Winner.

[13] Bertrand Russell (1872-1970), British philosopher who studied mathematics and philosophy at Trinity College, Cambridge. He wrote the

famous Principia Mathematics with Whitehead in 3 vols. (1910-1913), and The Principles of Mathematics (1903).

[14] Muhammad Iqbal, The Reconstruction of Religious Thought in Islam, (Lahore: Sh. Ashraf, rep. 1977).

[15] Ibid., p.l.

[16] Ferm, op. cit., p. 542.

[17] Ibid., pp. 544-45.

[18] Ibid., pp. 546-47.