

POSITIVISM AS PHILOSOPHY OF SCIENCE

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ABSTRACT

In this article on 'Positivism As Philosophy Of Science', we examined the positivist claim that the social world like the physical world must operate according to strict laws. The positivist thesis claimed that the natural and social sciences have a common logical and methodological foundation. We found out that positivism recognized only two forms of knowledge as having any legitimacy and authority namely empirical and logical knowledge. We discovered that positivism associated empirical knowledge with natural sciences and logical knowledge with logic and mathematics. By far the greater importance was attached to the empirical. This view depends heavily on a sensory interpretation that posits the independent existence of an external world, made known to us by its actions on our senses. We discovered that this conception was the bedrock on which science built its edifice and one that Comte and his followers wished to use as the foundation for the social sciences. We detected that the general tendencies of scientific knowledge which provide the epistemological background of positivism are mistaken. We discovered also that the positivist distinction between fact and value is equally mistaken. We argued that positivist insistence on deriving scientific concepts from the observable facts of social life rejects the possibility of any radical critique of the existing order. We maintained that philosophers of science and modern science in general are opposed to the positivist practice of absolutizing theory. And so, we rejected positivist epistemology per se, and positivist conception of social science methodology.

KEYWORDS: Positivism, Science, Social Science, Fact and Values

INTRODUCTION

The system of philosophy known as positivism was largely articulated by Auguste Comte (1798-1857). It holds that human knowledge is limited, as of necessity, to a description of the phenomena of experience and the manner in which they occur. Positivism is an extension of empiricism. Presenting empiricism in a precise form, a leading member of the positivist school, Rudolf Carnap (1966) says:

.....Science begins with direct observations of single facts. Nothing else is observable. Certainly a regularity is not directly observable. It is only when many observations are compared with one another that regularities are discovered (6).

Carnap made pronounced effort to solve some of the problems created for positivism by some contradictory elements found in earlier positivism.

It was Hume, the third of the famous British empiricist philosophers, who long before Carnap brought empiricism to its logical conclusion. Hume's empiricism alongside his radical criticism and rejection of metaphysics were whole heartedly accepted by positivism. Hume (1975) in reference to scholastic and other forms of metaphysics had said:

When we run over libraries, persuaded of these principles, what havoc must we make? If we take in our hand any volume of divinity or school metaphysics, for instance-let us ask, 'Does it contain any abstract reasoning concerning quantity or number?' No. 'Does it contain any experimental reasoning concerning matter of fact and experience?' No. Commit it then to the flames; for it can contain nothing but sophistry and illusion (xii(iii)).

This greatly excited the positivists and they took it completely, having no sympathy for metaphysics. So the positivists adopted a completely negative attitude towards metaphysics or traditional philosophy and they saw this attitude as both a characteristic feature of their concept of philosophy and a fundamental principle of positivism. As Schlick (1960) put it:

If one wishes to characterize every view which denies the possibility of metaphysics as positivistic, this is quite unobjectionable, as a mere definition, and I should in this sense call myself a strict positivist (83).

One man's meat is, at times, another man's poison. For Hume and the positivists, metaphysics should be committed to the flames. Positivists of all shades, maintain that objects of metaphysics namely transcendental realities are different from and independent of the sensual world. The claim that the transcendental realities determine the main features of the sensual world does not impress the positivists. Positivists maintain that since the metaphysician claims to deal with extra-empirical source of knowledge, only the method of apriori speculation can apply to him. This is largely the position of all positivists. Any thing that cannot be expressed in the language of observation is not worth bothering about. Positivists insist that only a strict scientific approach to knowledge is acceptable and they advocate the complete rejection of all apriori propositions in all scientific analysis.

POSITIVISTIC PHILOSOPHY OF SCIENCE

Positivism became prominent in modern times due to its development into logical positivism. The uniting principle and the most important and characteristic principle of positivism is the verification principle. This principle was first defined by Moritz Schlick and further generalized by Ludwig Wittgenstein. The principle of verification has it that the truth of every scientific statement must be ascertained by comparing it directly with the evidence of the senses. In other words, positivists maintain that the meaning of a proposition lies in its method of verification. This empirical verification was assigned the function of appraising the truth value of all statements without exception. The new element found in this later version of the verification principle was the division of all statements into two types: analytic and synthetic. This new element must have been borrowed from Kant's philosophy. The analytic and synthetic are terms introduced into philosophy by Immanuel Kant. A proposition is analytic, on Kant's view, if the predicate is covertly contained in the subject as in "Roses are flowers".

A proposition where the predicate is attached to the subject but not contained in it is synthetic, as in "Roses are red". The contradictory of a synthetic proposition is another synthetic proposition e.g. "Roses are not red". But the contradictory of an analytic proposition is called "analytically false". Kant defines an analytic judgment as one in which the idea of the predicate is contained in that of the subject, whereas in a synthetic judgment, the predicate adds something to the subject.

The analytic/synthetic distinction has been attacked by Willard V. O. Quine in his work *Two Dogmas of Empiricism*. He argues that any clear account of the implicitly analytic makes use of notions, like meaning, definition and synonym, which themselves presuppose the implicitly analytic. This is similar to proving the uniformity of the universe on the strength of such uniformity, which commits the fallacy of begging the question. Quine maintains that all statements are subject to revision in the light of experience. No statement, he emphasizes, is immune from such revision. He allows that the term analytic can only be applied as a matter of degree to those statements—such as the laws of logic—which we are least willing to revise, but maintains that the said revision, in the light of experience, is still possible even with the laws of logic. Quine's position can raise a lot of controversy, for it gives the impression that a statement which today expresses a logical truth may tomorrow change its meaning and cease to express the logical truth it once expressed.

The only two classes of propositions which the positivists recognized - the synthetic and analytic propositions, both satisfy, according to them, demands of the verification principle. The two are, first statements that are contingent, synthetic and verifiable in some form of experience. The second, are statements that are necessary, analytic and, in their opinion, verifiable by appeal to the meaning of words and symbols. The first which is synthetic, is known to be true or false only aposteriori; that is after experience; while the second is known to be true or false apriori, that is before or independent of experience. For them, propositions should not be accepted as meaningful unless they are verifiable in either or the above two ways. A proposition is defined as that which can be either true or false. So the scientific value of any form of human knowledge is determined inductively through verification or confirmation. An assertion can only be regarded as scientific if it can be confirmed by inductive method or inductive inference.

The weakness of empiricism and inductivism as methodological concepts was noticed by many. Even within their own framework, the positivists came face to face with the possibility of the verification principle destroying, not only metaphysics (which it was surely intended to destroy) but also the whole of science. The verification principle tended to rule out as meaningless all scientific laws in view of the fact that they cannot be conclusively verified. As Magee (1973) put it:

Whether or not singular statements were empirically verifiable, universal statements such as scientific laws were certainly not. So the verification principle eliminates not only metaphysical principles but the whole of natural science (47).

That the whole of science rests on foundations whose validity cannot be conclusively demonstrated poses a uniquely difficult problem. Rudolf Carnap agreed with the fact that ordinary statements like the laws of nature cannot be conclusively verified by any set of experience. A most significant attempt at finding a way out of the above problem was Carnap's inductive logic expounded by him in *Logical Foundations of Probability* (1951) and in *The Continuum of Inductive Methods* (1952) and then in an enlarged and elaborated form in *A Basic System of Inductive Logic* (1971). Carnap emphasized that his inductive

logic excluded any apriori synthetic principles. The logical development of Carnap's position regarding the laws of nature made him opt for a shift in emphasis from confirmation to decision making in the analysis of inductive logic's problems. Such a shift, in his opinion, would provide ways of ejecting universal laws from the whole of science, since such laws cannot be proved. Universal laws, for him should be rejected as part of metaphysics. Freeing science from universal laws would now, he maintained, enable science to operate with specific hypotheses. He developed a standard form of statement, one whose form was such that understanding its meaning would amount to seeing its truth. He referred to this kind of statement as "protocol statement." Here one does not need any set of experience. Such a statement is purely tautologous. Carnap (1949) goes on to talk about inorganic processes:

All laws of nature, including those which hold for organisms, human beings and human societies, are logical consequences of the physical laws i.e. of those laws, which are needed for the explanation of inorganic processes (883).

Carnap insists that all theoretical propositions must permit logical reduction to protocol statements, which can be confirmed by experiment. The positivists took it for granted that experiences verify propositions.

Though meaningful, according to positivist criterion of meaning, Carnap's protocol statement cannot form part of science. So said the Austrian positivist Moritz Schlick. Here Schlick suggested that scientific laws be no more referred to as statements but as rules. No one can refer to a rule as false. Regarding this suggestion as an inadequate solution, Neurath and Carnap made it clear that in science scientific laws, though they are called laws, are never used as rules but always as statements. Otto Neurath went on to insist that protocol statement must form part of science and rest on positive experience. Positivists had taken it for granted that the ultimate content of scientific truth is private- the private experience of the individual verifies proposition but such findings must be subjected to objective and group verification by the scientific community. Carnap had said about protocol statement that it can also record a private experience which, he insisted, must be translated into protocol statements. Carnap, in his conception of protocol statement insists that the protocol statement which records private experiences must be translated into public language of physics, by translating it into the physical state of the body of the person who has the experience (Edwards, 55). This arrangement Schlick observes, leaves the possibility that the basic protocol statement may not be true. If such a basic protocol statement conflicts with a natural law, which is to be rejected?

INTELLECTUAL BACKGROUND

The intellectual background of positivist epistemology can be traced to the early Greek philosopher Aristotle. Its proximate historical origins lie in European thought of the sixteenth and seventeenth centuries. Natural philosophers like Sir Isaac Newton and others were skeptical about whether nature could be really explained by reference to the Bible or to religious dogma as the medieval philosophers had earlier postulated. Two figures stand out namely Bacon and Descartes. The former represents the Aristotelian legacy of empiricism as the source of human knowledge while the latter revived and strengthened the Platonic rationalistic tradition. Both were looking for an intellectual method which could overcome skepticism about nature. Bacon argued for the value of experience, experiment, induction and painstaking observation as the way towards providing a reliable basis for

scientific ideas rather than the *apriori* method of medieval scholasticism. Descartes, on the other hand, put his faith in the certainties of mathematics, as the fundamental instrument for scientific knowledge. For him, mathematical principles were timeless and unchanging and therefore the most suitable language for the expression of the laws of nature. Here, rationalism and empiricism had one thing in common, namely, the search for the foundation of human knowledge. Descartes and other rationalist philosophers such as Spinoza and Leibniz, while not denying the value of sensory experiences, stressed the role of logical deduction from self-evident premises. On the other hand, Bacon, Locke, Hume and other empiricist philosophers gave the pride of place to sensory experience.

Accurate observation and logical systematic theory were essential to the development of science, both during and after this period. However, positivism as a particular interpretation or philosophical account of scientific knowledge, placed rather more emphasis on the role of sensory experience as the sure foundation for human knowledge. In the social sciences, the first self-conscious voice proclaiming the positivist method, was to be heard through the writings of Auguste Comte in the early part of the nineteenth century. It was he who coined the terms "positive philosophy", "social physics" or "sociology". John Stuart Mill (1961) maintains that positivism was the general property of the age. That is to say that although Auguste Comte is called the founder of positive philosophy, what he did was to articulate a mode of thought that was already in existence. Comte's work was influenced by the major philosophical attacks on metaphysics made by Hume and others earlier in the eighteenth century. Comte's philosophical stance emphasized the need for a close attention to empirical reality, with precise and certain method basing natural laws on sound empirical observation. For him, the social sciences were kin to the natural sciences, sharing the same epistemological form and free from the speculative impurities or rubbish of metaphysics. The publication in 1859 of Darwin's *The Origin of species*, gave a systematic statement of the ideas that mankind was irretrievably part of nature and subject to the same laws of process, development and selection. It was not long before social sciences began to use these insights in developing theories of human society. By the end of the nineteenth century, the scientific deterministic view of positivism was firmly entrenched in the social sciences.

Positivism was first of all negative in that it rejects the assumption that nature has some ultimate purpose or end. It sees as futile any attempt to discover either the essence or secret causes of things. On the positive side, positivism is characterized by its attempt to study facts by observing the constant relations between things and formulating the laws of science simply as the laws of constant relations between phenomena. Positivists observe that it was in this spirit that Newton described the phenomena of physics without going to ask questions about the essential nature of things. Asking such questions, for them, would amount to going beyond useful limits. According to Stumpf (1977), a corollary of this spirit of research and inquiry was the assumption that knowledge derived from positive philosophy or scientific investigations can be used in the material and social life. This was what made positivism so appealing. It promised an effective means of dealing with the disorders of physical reality, as for example, the disorders of the body which was the concern of medicine. It also promised an effective means of dealing with the disorders of body politic, which must become the concern of the scientist of society, the sociologist (343-344). The severity of positivism is easily and clearly seen in Comte's statement that propositions which do not admit of ultimate reduction to simple enunciation of facts, special or general, can have no real or intelligible sense. This was the

intellectual mood and spirit that Comte and his followers brought to the study of society. And they insisted that every subject must utilize the same approach to truth; only in that way could unity be achieved in thought as well as social life. This method was based on the assumption that there is an order in the nature of things, whose laws we can discover. Comte thought that we can transform the human brain into a perfect mirror of the external order. He and his followers argued then that the basis of science, physical and social alike, lies in a theoretically neutral observation language, which is both ontologically and epistemologically primary. That is, statements made in this privileged language are directly verified as true or false by simply looking at the facts of the world. It embodied what is termed a correspondence theory of truth, namely that the truth of statements is to be determined by its correspondence with facts. If it did correspond, then it was true; if not, then false.

Positivism recognized only two forms of knowledge as having any legitimacy and authority. These are the empirical and the logical. The former is represented by the natural sciences while the latter is represented by logic and mathematics. By far the greater importance was attached to the empirical. In this it took its inspiration from that philosophical tradition which claimed that all ideas come one way or another from experience. Any idea that cannot be said to be derived from experience was not a genuine idea. This view depends heavily on a sensory interpretation that posits the independent existence of an external world, made known to us by its actions on our senses. The knower contributes very little to the organization of such experience and the knowledge it provides of the external world. This conception was the bed-rock on which science built its edifice and one that Comte and his followers wished to use as the foundation for the social sciences. Beliefs about the external world were, in their opinion, worthy of the description 'knowledge' only if they could be put to the test of experience. There was no knowledge *apriori* of experience, which at the same time, was informative about the world. The terms *apriori* and *aposteriori* derive from pairs of Latin words meaning, respectively, from what comes before and from what comes after. The two words were introduced into English language by the British empiricist George Berkeley. An *apriori* proposition, argument or concept is one which is, in some appropriate way, independent of experience. Their *aposteriori* opposite members are, correspondingly dependent.

CONCLUSION

The general tendencies of scientific knowledge which provide the epistemological background of positivism are mistaken. Positivists have the tendency of limiting the subject matter of epistemology to purely logical problems and no more. Positivism had to overcome a distinction expressed in many number of different ways between 'things human' and 'things material'. The distinction held that the human, the spiritual, the mental was a different order of phenomena from the material and neither could be understood or explained in ways appropriate to the other. Many positivists claimed that human and social phenomena were every bit as real as material phenomena and therefore with the use of scientific method knowable in much the same way as the material world was knowable. The difficulties in the way of showing this were, however, manifold. Positivists believe that phenomena in the material world, as a matter of common sense are seen to have a nature and character independent of the observer, while so much of human phenomena seem due to whim, fancy and imagination. What is said about social phenomena depends according to them, on the personal bias and prejudice of the observer. Statements regarding the moon, stars, skeleton,

gases, chemical elements and so on, will certainly be more independent of the observer's personal bias than statements about religious beliefs, legal codes etc. Do the above two classes of statements possess the same attributes of permanence, durability, independence of human volition and perception? Is it really possible for scientific theories to be independent of human volition? This is one area where the positivists seriously need to reconsider their insistence that the social sciences, can only be science to the extent they approximate the natural sciences. As Alozie (1994) has correctly argued:

Since science is a human activity and therefore a cultural phenomenon, it is quite obvious that history and world-view of people engaging in science will shade or determine the meaning of science. It should be borne in mind that whatever definition of science we come across must be necessarily "theory-loaded" or "philosophy-loaded" and each methodological or philosophical trend will assume a definition of science as understood by that particular school of thought (4).

These are facts the positivists have to properly appreciate before they could successfully claim that the social world, like the physical world must operate according to strict laws.

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