

AGAINST POSITIVISM!

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ABSTRACT

The famous French philosopher and historian of science Emile Meyerson (1859-1933) was born in Poland and educated as a scientist in chemistry, who mainly wrote on philosophy of science, history of science and general epistemology. His main interest is the nature of thought as illustrated in its successful outcomes. As such, an analysis of the history of science would serve Meyerson's object for understanding reason and its works. Meyerson asserts that the history of science apprehended some of the finest examples of the powers and behaviours of human reason at work. He states that it must be recalled that an inquiry or a study is always governed by preconceived ideas, to wit, by assumptions, theories and hypotheses, which are essential to lead our progress. Hence, we are never completely free of them.

Keywords: *Preconceived ideas, theories and hypotheses, history of science, legal science, causal science*

POZİTİVİZME HAYIR!

ÖZET

Ünlü Fransız filozof ve bilim tarihçisi Emile Meyerson (1859-1933) Polonya'da doğmuş ve kimya eğitimi almıştır; esas olarak bilim felsefesi, bilim tarihi ve genel epistemoloji üzerine yaptığı çalışmalarla unlenmiştir. Meyerson'un ana ilgisini başarılı sonuçlarının sergilendiği düşüncenin doğası oluşturur. Bu bağlamda, bir bilim tarihi çözümlemesi Meyerson'un akli ve aklın eserlerini anlama gayesine hizmet edecektir. Meyerson'a göre, bilim tarihi insan aklının yetki ve davranışlarının en güzel örneklerini sergilemektedir. Meyerson için bir araştırma veya yapılan bir çalışmada her zaman peşin hükümler, eş deyişle, kabuller, kuramlar ve varsayımlar egemendir ve bunlar ilerlememizin olmazsa olmazlarıdır; bu nedenle, peşin hükümlerden asla tamamen azade değiliz.

Anahtar Kelimeler: *Peşin hükümler, kuramlar ve varsayımlar, bilim tarihi, yasalı bilim, nedensel bilim*

INTRODUCTION

As an anti-positivist, Emile Meyerson argued that scientific knowledge makes an attempt to reach beyond mere descriptive and predictive laws to an understanding of the nature of the reality beyond appearances. The human mind seeks the permanent behind phenomenal change, the identity within diversity as

exemplified in conservation laws such as the law of inertia and the law of conservation of energy. He puts forward that the explanations of science are ruled by two basic principles of reason, that is, the principle of legality or lawfulness and principle of causality. Meyerson goes on to say that while the contents of explanations change through history as the explanatory theories of science move from early atomism and qualitative theories to relativity physics and quantum mechanics, the form of thought remains the same. Thus, in his book *Identity & Reality* Meyerson sets to work by scrutinizing if it is true, as Auguste Comte and, later on, Mach put forth, that all science is established only for the purpose of action and prevision.

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Numbering himself as an anti-positivist, Meyerson starts with speaking of two different ideas of science: legal science and causal science (Boas, 1968: 2). So, legal science or law-explanations illustrate that phenomena are related in dependable patterns. In this connection, Meyerson first cites Berkeley's view and then that of Taine's as an example:

“For the laws of nature being once ascertained, it remains for the philosopher to show that each thing necessarily follows in conformity with these laws; that is, that every phenomenon necessarily results from these principles. Taine words it even more simply: a stone tends to fall because all objects tend to fall” (Meyerson, 1908: 16).

Thus, an adequate law-explanation, then, is yielded by displaying that some target phenomenon is a consequence of an accepted rule, or, best, of a well-established law of nature. Meyerson links causal science or cause-explanation to Leibniz's principles of sufficient reason. Thus, “the principle of causality, for Meyerson, is none other than the principle of identity applied to the existence of objects in time” (Meyerson, 1908: 43). An adequate cause-explanation necessarily entails an object or objects and describes how these objects keep relevant aspect of their identity throughout the change. Main examples of this type of explanation would include chemical equations exhibiting the conservation of mass and energy at the level of the atom, ion or molecule.

As a matter fact Meyerson's point of departure was Comte's well-known statement that the principle of lawfulness, i.e., legalism, governs the whole of thought. However, according to Meyerson, this was not the whole of thought, because, in his point of view, science represents an idea that its proportionality relationships, namely, the principle of lawfulness, are founded on an underlying structure, that is, the principle of causality or what Meyerson names “ontology”. Ontology is held traditionally as the study of the essence of things and of what there is. However, Meyerson employs the term ontology in reference to the “foundations” underlying and necessary for an understanding of the “relations” of observation. The distinction between “relation” and “foundation” originates from Meyerson's distinction between two principles of reason, namely, legality

and causality. Hence, lawfulness or description is not the only occupation of science. Meyerson is of the opinion that whenever the experimenter thinks, he is predisposed in advance of experimentation to stipulate ontology at any cost. As it is already mentioned, the description of phenomena is not the only pursuit of science since the ways of scientific reasoning are roads to ontology. With the words of Losee,

“according to Meyerson, an empirical law specifies how a system is altered when appropriate conditions are modified. Laws of this type enable us to predict the outcome of natural processes and to manipulate these processes to serve our ends. A causal law, by contrast, is an application of the Law of Identity to the existence of objects in time. It stipulates that there is something that remains the same throughout change” (Losee, 1993: 134).

Hence, Meyerson speaks of the principle of legality that it has to do with the “relations” rather than the “foundations” of observation. Legality or the rule of law affirms that there is a constant relationship between the conditions affecting the properties of a substance and the behavior of these properties. Given a knowledge of conditions, we can conjecture the behavior of the properties and as a matter of fact this is Comte’s rule of law.

“Science ... has an end, prevision. Its domain will thus include all that is capable of being foreseen, all of the facts subject to rules. Where there is no law, there is no science” (Meyerson, 1908: 24).

The reason why Meyerson judges Comte is that this could be regarded as being the only task of science. To begin with, the law is an ideal construction, which depicts not what happens, but what would happen if certain conditions were to be realized. Doubtless, if nature were not ordered, if it did not endow us with similar objects, capable of furnishing generalized concepts, we could not word laws. But these laws in themselves are only the picture of this ordering; they can only voice it in so far as a written word expresses the thing, for in both cases we must pass through the medium of our intelligence. Since time passes unceasingly, laws, if they are to be knowable, can only be so as a function of the changing of time. It will be sufficient, then, for nature to appear ordered to us, that we know the form of this function that, to wit, we know how laws are altered as time proceeds. Therefore, Meyerson’s starting-point is that action is not the only business of science as it is not the whole of reasoning (Boas, 1968: 74).

On the contrary, the substance being taken into account is always conceived of as conserving a certain identity in time. This is Meyerson’s portal to the ontology. If we are successful at conjecturing the occurrence of a constant relationship between the conditions affecting the properties of a substance and the behavior of its properties, it is ultimately because we succeed also in thinking that the phenomena of observation will hold a certain identity in time. Unless something of reality keeps throughout change, the success of prevision will be ill-founded. There can be no justification for a belief in the temporal recurrence

of things unless we also conceive, in advance of experimentation, of reality as being structured in some way. In a few words, a belief in legality is also a belief in regularity and structure.

“Nature seems to us ordered. Each new discovery, each realized anticipation confirms this opinion in us. So much so that nature itself seems to proclaim its own orderliness; this idea appears to enter our minds from the outside, as it were, without our doing anything, but receive it passively; in the end the orderliness appears to us as a purely empirical fact, and, the laws formulated by us appear as something belonging to nature, as the “laws of nature”, independent of our intelligence. This is to forget that we were convinced in advance of this orderliness, of the existence of these laws. All the acts of our daily life witness to it. This is to forget also how we arrived at these laws” (Meyerson, 1908: 29).

Hence, the ontological character of science is unavoidable. In addition to this, Meyerson asserts that description is not the only pursuit of science in that the structure of reasoning is such that a concern for ontology cannot stay foreign to science as perdurability in time is the ultimate guarantee of regularity and anticipations.

“In fact, we only attain laws by violating nature, by isolating more or less artificially a phenomenon from the whole ... Thus the law cannot directly Express reality... Experiments performed in academic lectures designed to illustrate certain laws, claim sometimes to show us pure phenomenon. We know with what minute care these experiments must be previously regulated in order to succeed. Even then they make the impression upon the spectator of something profoundly artificial; the professor appears as a sort of presdicator. Whoever has worked in a laboratory recalls how difficult it is to carry on the most simple experiments indicated in manuals. In time the habit is formed; precautions are taken with less and less consciousness, and we begin to believe that the experiments of verification are accomplished all by themselves without our having to coerce nature” (Meyerson, 1908: 30-31).

In other words, it appears to be that nature reveals itself in a great measure to be *plastic* which means that it is capable of being changed in accordance with the theory, assumptions and hypothesis, and it submits to this tendency of our reason mentioned above.

Meyerson goes on to state that as Duhem displayed the great scientific theories, notably the doctrines of the peripatetics, of the atomists, of Descartes, of Bosovich, were entirely dominated by metaphysical conceptions (Meyerson, 1908: 52). Let us hear what Meyerson says about it;

“Duhem establishes, with great exactness, that the theoretical interpretation to which phenomena are subjected by the physicist is only possible through the use of instruments. He concludes that between phenomena really observed and the result of an experiment formulated by a physicist a very complex intellectual elaboration intervenes. In a word, an experiment in physics is not simply the observation of a phenomenon; it is, in addition the theoretical interpretation of this phenomenon; and since it is impossible to give even an account of an experiment in physics without using theoretical language, the statement of the result of an experiment implies, in general, an act of faith concerning a whole group of theories” (Meyerson, 1908: 367).

That is to say, Duhem spelled out the close dependence of experiments on scientific theories. In this connection, Meyerson also sets forth that Berthollet utters that one must have an objective and be directed by a theory or hypothesis to do an experiment. And Humphry Davy affirms that it is only in forming theories and in comparing them with facts that we can hope to discover the true system of nature. Besides, after having declared that between experiments in Bacon’s sense and true scientific study or research there is the same relationship as between the noise a child produces by striking on a drum and music. At this point, Liebig puts in words that it is the scientific imagination that plays the most important role in discoveries and that experiment like the calculus only helps in the process of thought. Poincaré, too, put forward that to ask for experimenting without preconceived ideas would be to perform all experiment sterile, and that it is out of the question to free oneself from ideas of this kind (Meyerson, 1908: 390-391).

“As interchangeable terms, as Meyerson has it, interpreted without theories and hypotheses, the experimental results strike us as something definite, finished, without our having seen the way which has led us to them, nor the way which can lead us farther; for science is not Baconian and without the help of theories and hypotheses experiment alone cannot lead far” (Meyerson, 1908: 405).

At this point, Kelly speaks for Meyerson by stating that “we must ask science, not the scientist, what is sought. The scientist, trained in dealing with microscopes or electrons may give an amateurish reply or some ready-made answer which does not rest upon the same thoroughgoing investigation as do his scientific discoveries” (Kelly, 1937: 13). According to Meyerson, scientific reasoning especially scientific explanation, is not different in kind from reasoning in ordinary common affairs. Reason’s activities were then, are now, and will always be the same. Laws, for sure, are part of a scientific theory, but they are not the important part. The positivistic interpretation of science claims to exhaust the content or significance of scientific laws by reference the

phenomena or relations and operations which describe, predict and control phenomena. On the contrary, Meyerson's causalism imputes to scientific concepts and laws and an ontological reference. That's why, Meyerson argues that science in its essence is only a further stage of the natural metaphysics, whereby common sense assumes the existence of permanent substances underlying the appearances of things. Thus, practice is only one of the phases of the life of mind. Going deeper than practice is the craving of the mind for discovering rationality in the world and for finding itself at home in what presents itself as a foreign material. In Meyerson's view, as to refraining from all metaphysics that would be a vain pretence indeed. As a matter of fact metaphysics penetrates all science, for the very simple reason that it is contained in its point of departure. It is not true that the sole purpose of science is action, nor that it is solely governed by the desire for economy in this action, because science also wishes to make us understand nature.

In a nut shell, as seen above, in Meyerson's opinion, legal science is concerned with the discovery of the laws in accordance with which natural events come about, while causal or explanatory science has for its function the explanation of the laws which legal science discovers. Meyerson affirms that legal science owes its root to our need and consequent desire to forecast the behavior of our environment. However, he also argues that the explanatory science owes nothing to this source. It has no practical ground since it comes solely out of the desire of the human mind that is not satisfied simply with knowing how natural events take place; that is all that legal science let us know. Yet, human mind yearns for figuring out why natural events happen as they do. Accordingly, Meyerson has advanced and defended the opinion that scientific explanation is composed of transforming empirically discovered natural laws into statements of identity in time. For him, to explain an event is to spell out its necessity. Consequently, Meyerson sets forth two sharply opposed forms of explanation, namely, the form of law and the form of cause. To repeat, for Boas, underlying Meyerson's distinction between the two types of explanation is his analysis of the objectives of science. For him, science has two separate and distinct goals. The first is a practical and utilitarian one; that is to say, science is of use to make our lives easier, or better, or, in some cases possible at all. This it does through prediction and anticipation. Thus, foresight is indispensable for action and action for any organism of the animal kingdom is an absolute necessity. For that reason, according to associates of law-explanations, science is nothing less than a lovely means to satisfy this necessity. In this case, science is a rule of action which succeeds. And followers of law-explanations justify their choice by arguing that the sole purpose of science is prediction alone (Boas, 1968: 3). The second, he is also of the opinion that underlying cause-explanations is the deeply human need to understand. Hence, knowledge is the end, and action is the means and, after all, Aristotle had already asserted that all men by nature are induced by the desire

for knowledge. At this point Meyerson utters that man is by nature a metaphysician, i.e., it is due to the nature of our minds that we want to understand (La Lumia 1966: 35). It appears to me that Meyerson remarks also, by referring to Leibniz's version of the principle of cause-explanation, that wherever we secure it, the phenomenon becomes rational, adequate to our reason; we figure it out and we can unpack it. That's why, this thirst for knowledge to understand is felt by each human being.

In the final analysis, Meyerson argues that science is not positive and does not even contain positive data in the precise meaning which August Comte and his followers have given to this term, that is, data "stripped of all ontology". In fact, ontology is of a piece with science itself and cannot be separated from it. Those pretending to separate them are unconsciously using a current metaphysical system, a common sense more or less transformed by science of the past, which is familiar to them. As a result, the positivist project is purely mythical since the ontological character of scientific explanation is ineffaceable and the root of the positivist fault seems to lie in the confusion between law and cause. In a word, Meyerson's critique of positivism, in a sense, depends on his insistence on the ontological and the metaphysical nature of explanation and I think, by doing so, he provides a conclusive refutation of the positivistic conception of science.

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