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Dialectic of the Relationship between the Logic of Rupture and the Logic of Composition in the Thought of Gaston Bachelard

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Abstract:
This article aims to shed light on the idea of the dialectic of the relationship between rupture and composition in the thought of Gaston Bachelard, or what is called compositional epistemology, or inclusionary epistemology, or relativistic epistemology, where Bachelard reached his scientific and objective aim in bringing together rupture in its absolute and complete meaning, and relative rupture in its temporary, compositional, and inclusionary meaning, through a subjective psychological link.
Keywords: epistemological rupture – composition – absolutism – relativism – contemporary scientific thought.

Introduction:

Given the old readings of Bachelardian thought that were narrow and dogmatic on the other hand among readers, whether at the level of the mentality of secondary stage minds or at the level of academic minds, we considered correcting some Bachelardian concepts that require from us more openness rather than the logic of closure and the failure to adapt concepts according to the changes of the age. Among the Bachelardian philosophical concepts that have circulated in philosophical and scientific discourse we find epistemological rupture and the concept of Bachelardian cognitive composition. Some affirm that he spoke about rupture within the framework of cognitive separation between old knowledge and new knowledge, and it is known in the space of philosophy and science that Bachelard became famous for the idea of "epistemological rupture." However, due to the development of Bachelard's thought, the idea of epistemological rupture changed, especially since Bachelard spoke about the concept of expanded and open composition. This is what made us reread Bachelard's thought in a broader and more open way. Considering that some minds believe that Bachelardian studies have been exhausted and that there is nothing new in Bachelardian philosophy of science, within the misunderstanding of Bachelardian thought we want to ask strongly: Is rupture two ruptures or one rupture? If there are two ruptures in the dual sense, does this mean that he reached the logic of cognitive composition? Or what? And does rupture between sciences mean non-composition or what? And did Bachelard combine the logic of rupture and composition in the entire system of sciences?

First: The absolute meaning of epistemological rupture in the Bachelardian sense: In our in-depth reading of Bachelard in his encyclopedic books we realized that rupture has levels and not only one level. At the beginning we speak about epistemological rupture in the absolute and narrow sense, that is, the total and complete rupture between common knowledge and scientific knowledge. Bachelard affirmed the necessity of complete separation between them, especially since Bachelard was among the advocates of the separationist position in the history and epistemology of science. In Bachelard's book entitled "The Formation of the Scientific Mind" he affirms the complete separation between common knowledge and scientific knowledge, where he says: "…Like the struggle against error, negation and dialectic, separation shows us the universality of the revolutionary conception, and scientific progress becomes dependent on correcting subjective ideas. The spirit of science manifests itself in correcting knowledge and expanding its scope, and this is what is known as (the logic of self-correction)" (1). In order to reach scientific objectivity according to Bachelard, it is necessary to take a scientific rupture with subjective and common ideas so that science may progress further and further. Within the framework of the separationist theory in the development of science according to Gaston Bachelard he says: "Science does not emerge from ignorance as light emerges from darkness, because ignorance is not a structure, but it emerges from corrections invested in the previous cognitive construction, to the point that the structure of science and the recognition of its errors, and scientific truth is the correction of the first common illusion." (2) In light of this Bachelardian discourse we realize that the rupture between old knowledge and new knowledge is a total rupture and not a temporary one, meaning that science is known by a revolution of constant correction in order to reach precise scientific knowledge far from common illusions. Here we also fully realize the language of criticism and scrutiny of previous ideas and making them compatible with the objective and non-subjective proposition. If we speak about epistemological rupture we recall Bachelard in the development of science. Cognitive rupture means that scientific progress is based on cutting ties with the past. It is also a continuation of past illuminating methods that rely on ignition and combustion, but rather a rupture with all those methods. Scientific novelty is the revolution of progress, the reaction against the past of science, and the free genuine addition. (3) Here Bachelard confirms that the psychoanalysis of scientific knowledge can allow the person to free himself from preconceived ideas of his previous beliefs (4). Through the Bachelardian texts we affirm decisively the absolute and total nature of epistemological rupture. This is at the first level of the nature of rupture in the narrow sense in his declaration of the separationist proposition between old knowledge and new knowledge. But the question that arises within the Bachelardian epistemological rupture is: Does rupture have only one meaning or are there other meanings? What are they?

Second: The relative meaning of Bachelardian epistemological rupture leading to the logic of composition:

Many scholars, researchers, and students in universities and institutes believe that rupture exists at only one level, that is, it is the complete and final rupture between common knowledge and scientific knowledge. However, the in-depth research in Bachelard's books reveals another

meaning of rupture different from rupture in the absolute sense. The question that arises is: What is the meaning that Bachelard presented regarding the nature of rupture? What are the levels of epistemological rupture in the Bachelardian sense? And how did Bachelard reach the achievement of the project of cognitive composition in contemporary scientific thought? All these questions we will examine through Bachelard's words in his profound texts that suggest the other meaning of epistemological rupture in the partial, relative, and probable sense. At the beginning, at the level of scientific thought, the matter differs from rupture in the narrow sense, where rupture in the broader sense is a rupture of inclusion, comprehensiveness, and composition between old science and new science, starting from the system of formal sciences as mathematical and logical sciences. Here Bachelard reached the idea of composition between Euclidean geometry and non-Euclidean geometry, meaning that there is composition between Euclidean geometric thought and non-Euclidean geometric thought without excluding one side over the other.

As Dr. Sahel Bouazza adds through his book entitled "The Science of Geometry," praising what Bachelard reached in achieving what is called relative or partial rupture, realizing what is called composition between Euclidean geometry and non-Euclidean geometries. Sahel Bouazza sees that the multiplicity of geometries constitutes a great revolution in geometry, a revolution of new concepts over old concepts, a revolution of new mathematical values over old mathematical values. This contemporary mathematics that came as a result of the crisis of mathematical foundations reached the point of epistemological rupture between the two conceptions: the Euclidean conception of space on the one hand and the conception of space by Riemann and Lobachevsky on the other hand, a rupture of inclusion. Thus Euclidean geometry became a part of non-Euclidean geometries. Before non-Euclidean geometries, scientific thought was faced with a single system, but with the postulates of Riemann and Lobachevsky the human mind became faced with three systems, with three spaces, which is a transition from one thought to another that is broader and more comprehensive. (5) On the other hand, we find the relative meaning of epistemological rupture as a composition between old science and new science concerning the system of formal sciences, especially the dialectic of composition between old logic and new logic. In this regard Bachelard says in his book entitled "The Philosophy of No" that the nature of proof is based on the cooperation of logic and experiment. When he showed that the principle of identity is the basis of Aristotelian logic, it has now become marginal because some scientific subjects can possess properties that are verified through opposite experimental patterns. In light of this difference concerning the concept of identity between Aristotle and the non-Aristotelians, Reiser gives us an example to clarify the meaning as follows:

The electron is a particle; the electron is a wave phenomenon. There is no doubt that these two definitions expressed in this manner, provided that these expressions are given their precise scientific meaning, are two definitions that exclude each other. They contradict each other because they have the same subject and predicates that completely contradict each other just as bone contradicts flesh and vertebrates contradict invertebrates. Yet in reality the very substantial and extremely real form produces the contradiction. Realist thought places the subject before the predicates whereas experimentation in microphysics starts from distant

predicates, that is only from the coordination between the various manifestations of the same predicate. (6)

In order to grasp the relative meaning of epistemological rupture in the open compositional Bachelardian sense, we must support this discourse with a Bachelardian text stating: "A concern thus appears to us in mathematical physics and geometry that they always fear that a new proposition might suddenly join science and create duplication within it, and that maintaining a kind of hidden doubt open to the past of pure knowledge is also a position that goes beyond, extends and enlarges (Cartesian) caution, and this caution deserves to be called (non-Cartesian) in the same sense that (non-Cartesianism) is always a complementary Cartesianism." (7) This is what is truly called the relative inclusive rupture between Cartesian thought and non-Cartesian thought, where non-Cartesianism in its novelty is always a completion, addition, enrichment, and enrichment of old Cartesian ideas and not a deletion and absolute negation of previous ideas. To confirm the relativity and inclusiveness of Bachelardian epistemological rupture we must deepen philosophical reflection on the dialectic of composition in the system of physical sciences, especially focusing on the relative rupture between the role of reason and experiment in building knowledge and developing it forward according to the Bachelardian understanding known as "applied rationalism." This represents the ultimate inclusive compositional understanding between the logic of reason and the logic of experiment in building and developing human knowledge. In this regard Bachelard says: "Experience without clear laws and without consistent and deductive laws cannot be invented nor taught, and a rationalism without sensory evidence cannot convince us completely." (8) Bachelard shows that empiricism alone equals nothing and that rationalism has no cognitive value without the existence of experiment. The value of each in relation to the other is the basis of the development of science. Here we perceive the relative or inclusive rupture in the sense of cognitive composition in physical thought concerning the nature of the scientific method used to reach the truth of science. According to Bachelard, truth has no limits but is open widely as long as crises are generated in the field of science, considering that science is linked to the development of our tools and cognitive methods.

Third: The concept of rupture and composition according to the logic of difference and similarity in the Bachelardian perspective understood psychologically:

Through our presentation of the concept of rupture in the absolute sense and rupture in the partial or relative sense, or what is called cognitive composition in understanding Bachelardian epistemology, it became clear to us that there are aspects of difference and distinction between the concept of complete rupture and relative rupture in the sense of composition. We noticed the clear difference in Bachelard's affirmation that the reality of absolute rupture concerns the separation between common knowledge and scientific knowledge. There are many Bachelardian texts that suggest the logic of this wide difference between them. In light of this difference Bachelard says: "Scientific thought must be objective and must be as general as possible whenever reality allows it." (9) What is meant by the general here is not the general in the common subjective sense, but what is meant is precise scientific generalization, so that objectivity is founded upon the complete separation between what is common and what is

scientific. There is a large and clear difference between absolute rupture and relative rupture in the sense of composition. He shows that the history of knowledge is characterized by rupture and does not know stoppage just as there is transformation in the life of the individual. It is a leap and a revolution. The history of knowledge and science indicates that there is no continuous epistemology because scientific thought experiences unexpected pulses in its history and trajectory (10). This made us understand that relative rupture or composition in the history of contemporary scientific thought is continuous and subject to revision, unlike what we saw in the absolute rupture between common knowledge and scientific knowledge. Likewise Bachelard, within the close and connective relationship between absolute rupture and relative compositional rupture, explained that the psychoanalysis of scientific thought is a dialectical analysis. In this regard Bachelard says: "After the psychoanalysis of objective knowledge, we can now know the extent of the deep joy arising from the recognition of objective errors." (11) The link and interconnection between the logic of absolute rupture and relative compositional rupture is manifested in the psychological aspect, which plays a great role in bringing knowledge together, correcting it, and making it objective after psychological readings of scientific thought as a whole according to what we reached in our contemporary reading of the ever-open Bachelardian thought.

Conclusion:

In conclusion, we reached that the idea of the dialectic of the relationship between rupture and composition in the thought of Gaston Bachelard came on the basis of the logic of correcting the narrow view of the concept of epistemological rupture, by expanding its concept from the logic of absolutism and totality to the logic of relativity and partiality. We found that the concept of epistemological rupture in the Bachelardian sense has broad meanings and not narrow ones, where the first meaning is manifested in the complete separation between common knowledge and scientific knowledge, while the second meaning is manifested in the relative or partial separation between scientific knowledges without excluding one scientific knowledge over another. This led Bachelard to speak about the logic of cognitive composition. Through this broad and open concept of epistemological rupture, Bachelard established a psychological link between rupture and composition, and even if there was a difference between them, this difference established the logic of the complementary relationship between them without the elimination of one side over another.

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