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# INTERACTING LEARNING BETWEEN THE PHILOSOPHY OF SCIENCE AND THE HISTORY OF SCIENCE

## INTERACTUACIÓN DEL APRENDIZAJE ENTRE LA FILOSOFÍA DE LA CIENCIA Y LA HISTORIA DE LA CIENCIA

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### Abstract

*This document aims to critically address the reflection of the paraphrase that Lakatos makes about Kant "the philosophy of science without the history of science is empty; the history of science without the philosophy of science is blind. The documentary analysis of the literature related to the subject of this document is based on*

*a literature review raised from scientific materials such as: books, theses, free texts on Internet sites and articles. The results show us that from the approach of the history of science and the philosophy of science we recover fundamental and methodical elements within the learning process.*

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### Introduction

Lakatos's paraphrase of Kant, " *The philosophy of science without the history of science is empty; the history of science without the philosophy*



*of science is blind*”<sup>5</sup>, generates an urgent provocation to address, to the extreme, that if this dialectic and holistic is dispensed with, the philosophy of science without the history of science overflows into the void and the history of science without the philosophy of science plunges into blindness. Thus, the philosophy of history without the history of science and vice versa are isolated, two dramatic situations that have a fateful end, emptiness and blindness, two tragic concepts, where life beats intensely when almost saying goodbye.

It is this disturbing beat then that allows Lakatos to give way, significantly, to the dialectic between the philosophy of science and the history of science, by placing both in the field of interacting learning: “in what way the history of science should learn from the philosophy of science and vice versa.”<sup>6</sup>In this sense, for Lakatos, (<sup>7</sup>) the philosophy of science does nothing more than provide methodologies or normative paths (paradigms) through terms, which the historian then reconstructs as <<internal history>> (intellectual history), with in order to rationally explain the development of objective knowledge.

In this part, it is well worth remembering that the philosophy of science abstracts from natural phenomena, from the theoretical and experimental elaborations of scientists in this case and, the history of science, elaborates a language from the real and the concrete, separating from itself the <<external history>> (social history) for what it adduces to the facts, that is to say, to an element that constitutes its essence and that is objective.

This is where the philosophy of science without the history of science is empty, because the philosophy of science in its eternal ethereal condition of flyby<sup>8</sup> cannot touch down; However, the

history of science can touch it through the facts and thus avoid the vacuum in which the philosophy of science would fall without the history of science, the lady of the earth. That is why in this first relationship that Lakatos proposes, we can see this dynamic relationship between the philosophy of science and the history of science where one learns from the other and thus the first does not fall into a vacuum.

### Philosophy of Sciences “VS” History of sciences

In this order of ideas, the philosophy of science provides the history of science with four optical instruments, modern methods or logic of discovery, namely: inductivism, conventionalism, methodological falsificationism and the methodology of scientific research programs. With these modern lenses, the historian of science will not do anything other than rationally explain how objective knowledge develops.

With the inductive method according to Lakatos, (<sup>9</sup>) the historian of science firstly seeks two things: that the propositions that he is going to use are proven by the facts, that is, he seeks factual propositions and also inductive generalizations, to begin to elaborate his internal rationality.

However, his critical position does not stop falling over and over again into external or socio-psychological history, since he cannot say that an unproven proposition is false, since the only thing he can say about it is that it is false. pseudoscientific, that is why when a revolution unmasks an error, what this historian does is banish it from the history of science, towards the history of beliefs.

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*ration of concepts- is to suspend or hover over the absolute, performing the effect of lightning, briefly illuminating the land that he flies over; that is why the concepts or terms are the eyes of the mind. See in DELEUZE and GUATTARI. What is philosophy? Spain: Anagrama, 1993. In this way, when Lakatos speaks of terms referring to the philosophy of science, we can read concepts instead.*

<sup>9</sup> LAKATOS, Imre. *Op. Cit.*, Pages 13, 14, 15 and 16

<sup>5</sup> LAKATOS, Imre. *History of science and its rational reconstructions*. Madrid: Tecnos, 1987. P. 11

<sup>6</sup> *ibid.*

<sup>7</sup> *ibid.*

<sup>8</sup> *The look of the overflight is initially philosophical, since the reflective action of the philosopher -from the elabo-*



Lakatos states that conventionalism ( <sup>10</sup> ) is a method where the organization of the facts prevails to form a coherent whole, thus accepting the construction of any system, where these are “true” not by proof but by convention; Hence, “conventionality rests on the recognition that false assumptions can bring true consequences and, therefore, false theories can have a predictive value” <sup>11</sup>, this is oriented so that the historian can replace complex cell systems with simpler ones.

Methodological falsificationism expresses Lakatos, ( <sup>12</sup> ) is a criticism of the two previous methods and is part of the revolutionary conventionalism, which accepts as a scientific theory that which helps the historian of science to predict new facts in the light of previous knowledge.

The methodology of scientific research programs proposes a new rational reconstruction of science, where the discoveries are the research programs which the historian will evaluate in terms of progressive and stagnant problems, where one research program replaces another. , progressively overcoming it, presenting here a certain continuity of scientific development with a “firm center” and a “positive heuristic”:

A research program is said to be progressive as long as its theoretical development anticipates its empirical development, that is, as long as it continues to predict new facts with some success (‘progressive problematics’); is stagnant if its theoretical development lags behind its empirical development...<sup>13</sup>

These are four theoretical systems to carry out the rational reconstruction of the history of science, which go from the most logically and epistemologically limited to the most open that allows the history of science to play with risk, learn with risk. Thus, the historian has the possibility of experiencing rationality under certain rules, that is

10 *Ibid.*, p. 17  
 11 *Ibid.*, p. 18  
 12 *Ibid.*, p. 21  
 13 *Ibid.*, p. 28

to say, the game of science is played with rules, which are all oriented towards an <<internal history>>, intellectual, to that extent the history of science with Lakatos, becomes philosophy.

Giving in this way, I move on to the second sentence that it expresses: the history of science without the philosophy of science is blind. It is here where the critical dimension of the history of sciences appears, since according to Lakatos, ( <sup>14</sup> ) methodologies can also be criticized and compared constructively, “ *since it is often better to do the best one can with the tools available , than stop in the contemplation of divergent positions* ” <sup>15</sup>.

Well, when Lakatos says that the history of science without the philosophy of science is blind, he is doing nothing other than attributing to the philosophy of science the gift of seeing, and just as it sees, it can make history see. of science and avoid its blindness, it happens here, in this interactive learning “ *an endless exchange from vision to the visible* ” <sup>16</sup>, that is to say, from thought to history.

It is time then to resume the overflight that we referred to at the beginning of this essay, that of thought that through concepts or terms (with Lakatos) hover like lightning illuminating the world of the history of sciences, which for this reason can time –as the thought- see. In this way the history of sciences can say as when Lamartine writes in Graziella: “ *the lightning flashes without interruption through the slits of my blinds, like the winks of an eye of fire on the walls of my room.* ”<sup>17</sup>

### final considerations

Finally, we see that the borders that prevent learning between philosophy and history -and vice versa- begin to “dissuade” with the activ-

14 *Ibid.*, p. 46

15 *Ibid.*, p. 153

16 BACHELARD, Gaston. *The Water and the Dreams*. Mexico: Economic Culture Fund, 1996. P. 54

17 *Ibid.*



ity of concepts in the reflective field, when both disciplines from their immense and vast gno-seological terrain, throw a comprehensive and understanding lightning over an area or a delimited and rational landscape of science, and this remains illuminated for an instant and then plunges everything back into darkness.

Thus, the concepts are the reflective artifacts that would put our disciplines in contact, both disciplines therefore share a conceptual dialectic of luminosity and mystery, that is, a conceptual community of a mediumistic or reflective type, which come into contact <sup>18</sup>when a concept or term carried out by one discipline can shed light on the reflective field of another. And this without forgetting that the engineering work of philosophy is precisely to create concepts, for this reason, to a large extent, philosophy is, as we mentioned before, the provider of reflective eyes for history.

To conclude, we attend with Lakatos a modern logic of discovery that shows a hegemonic rationality, where the paradigms try to orient themselves towards progress, to that extent, the history of science is a possible story to know and rationalize. But according to Peter Burke, ( <sup>19</sup>) there is also a relativism, which brings with it a diversity of paradigms, in this sense, relativism begins to open a horizon and in the world there is no longer a single vision that has the truth, it does not have it. only Kant, Hegel, since rationality is an attribution of the human.

<sup>18</sup> The concept of the medium finds with Deleuze and Guattari a concept that is comparable to it: that of the plane of immanence, which is nothing more than an absolute ground, in which the concepts inhabit as islets, where they vibrate and those vibrations, those waves that set in contact with the waves of other concepts, which also have heterogeneous elements, they set the universe of thought to resonate. For science and technology, knowledge occurs on a transcendent plane; On the contrary, philosophy and its conceptual work occurs on an immanent plane, which folds in on itself, thus there is never a change of plane, since the plane is like a puff pastry, that is, full of folds. Between the folds of the plane, the absolute ground has curvatures, concave and convex as lenses have. See in DELEUZE and GUATTARI. *What is philosophy?* Spain: Anagram, 1993.

<sup>19</sup> BURKE, Peter. *What is cultural history?* Buenos Aires (Mexico): Paidós editores, 2010. Pages 69-96.

Although one speaks of rationality, relativism would speak of rationalities. History today is not the center, but rather the decentralization of stories, of the Eurocentric God. Relativism, for example, is witchcraft, which in turn is rational as a device to order the world.

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