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Remarks on the theoretical context of Cassirer's philosophical project

ABSTRACT

In this paper we aim to expose and to analyze some important features in the context of Cassirer's epistemology in his first major work *Substanzbegriff und Funktionsbegriff* (1910), specifically on the problematic relationship between philosophy and science in 19th century. To fulfill our task we opt to proceed in this way: we shall start announcing the problem faced in this period; then we pass to treat the philosophical heritages; in a third moment we shall deal with the scientific legacies, and finally we shall conclude the article with some remarks on the importance of the two referred moments to the origins of Cassirer's philosophical project.

Keywords: Cassirer; Philosophy; Science; 19th Century.

RESUMO

Neste artigo propomo-nos expor e analisar alguns importantes aspectos do contexto epistemológico de Cassirer em sua primeira grande obra *Substanzbegriff und Funktionsbegriff* (1910), especificamente acerca da problemática relação da filosofia com a ciência no século XIX. A fim de cumprirmos nossa tarefa, optamos por proceder desta maneira: iniciaremos anunciando o problema enfrentado nesse período; a partir daí passaremos a tratar as heranças filosóficas; em um terceiro momento trabalharemos os legados científicos e, finalmente, concluiremos o artigo com algumas considerações sobre a importância dos dois momentos referidos às origens do projeto filosófico cassireriano.

Palavras-chave: Cassirer; Filosofia; Ciência; Século XIX.

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Introduction

The philosophy of Ernst Cassirer (1874-1945) represented the culmination of the movement of the Neo-Kantianism of Marburg.[1] From this assumption, we have that the theoretical influences of Cassirer's doctrine came from two different ways: the first one comes, as an immediate result, from the proper development of the Neokantianism of Marburg – in which we have to highlight the thoughts of Hermann Cohen (1842-1918) and Paul Natorp (1854-1924) – and the second one reassembles a broad theoretical context in which other two fundamental points stand out. From one part, it is a philosophical moment and, from another part, it is a scientific moment. Thus, if this large context of debate between philosophy and science in the 19th century is presupposed by the predecessors of Cassirer in Marburg – as well by the Neo-Kantian movement in general[2] – and to the philosopher himself, our task here is to expose it and evaluate it. We will see in the end that these remarks will be of great importance to Cassirer and particularly regarding the importance assumed by the natural sciences[3] on one of his first work the already mentioned *Substanzbegriff und Funktionsbegriff*.

The state of art

The relationship between philosophy and science in 19th century is complicated, if we want to say the minimum. On the one hand, the philosophical hegemony of Hegel seemed consolidated, and, from another, the successful results of science, viewed as an autonomous field of knowledge, were undeniable. Moreover, the distinction between the *Naturwissenschaften* and the *Geisteswissenschften* – such distinction developed by W. Dilthey (1833-

[1] In German there is at least three important schools of Neo-Kantianism which we resume here: (i) The Marburg School (with: Cohen, Natorp and Cassirer); (ii) The Baden School (with: Windelband, Rickert and Lask); (iii) The Realistic School (with: A. Riehl).

[2] Even though all Neo-Kantians had as their background this context, we know that there is a huge difference between the Neo-Kantian schools and also between the members of the current. Since Neo-Kantianism it is a multifaceted movement sometimes certain issues which are questioned by a certain author, are not even mentioned by others. To give a concrete example of a high-importance author in neo-Kantianism, let us take into account Windelband (1848-1915) and the problem of method. Notably, this was one of the well-crafted themes in the doctrine of the Badenian Philosopher. Windelband proposed in his project, roughly speaking, that the role of philosophy would be to evaluate the methods of science, not merely in the sense of research technique, but as a discipline that investigates the conditions of possibility of production of scientific knowledge. In other words, the philosophy evaluates what is established by the science as a starting point, namely, the facts (in the empirical sciences) and axioms (in the formal sciences). See, for instance Windelband's book *Die Prinzipien der Logik*. *Encyclopädie der philosophischen Wissenschaften* (1913).

[3] Obviously, the contribution made by Cassirer in *Substanzbegriff und Funktionsbegriff* is not limited solely to analyze the natural sciences, but also about the formal sciences (e.g., logic) as well as the methods of these sciences. In the end of this article we will mention something regarding this subject.

1911)[4] and resumed by Cassirer himself in his *Essay on Man* (1944)[5] – puts philosophy in a delicate position. If for a long time Philosophy had reach the *status* of the most fundamental discipline of all, through the emancipation of the particular disciplines[6] from its jurisdiction – and let us remember that from that time those same disciplines are possessing their own research methods and objects – what still remains for philosophy? In this sense, one of the day's tasks to be accomplished at that time will be precisely this one: to restore the positive relationship between philosophy and science. Faced with these huge problems, the Neo-Kantian movement would emerge and would accept this difficult challenge of restoring the dialogue between philosophy and science.

Also in regarding to this, take into account that Cassirer, in the first volume of his *Philosophy of symbolic forms* (on language), notes this problem concerning the applicability of the important results achieved in the field of natural sciences, worked by him in his book *Substance and Function* – whose major concern in the field of logic, mathematics and natural science is indubitable – to the field of the *Geisteswissenschften*. Such problem, as already mentioned above, was given by Cassirer's predecessors.[7]

The alternative found by this generation of thinkers will have its starting point signed within the framework of a dialogue on different nuances to return to Kant and the philosophical trends of his time. So much so that it became well known the appeal of Otto Liebmann (1840-1912) of 'return to Kant' on his classic book *Kant und die Epigonen* (1865). In it, at the end of the chapters, Liebmann always concluded with the phrase *'Also muss auf Kant zurückgegangen*

[4] See for instance Dilthey's *Einleitung in die Geisteswissenschaften* (1883).

[5] See specifically on part II, *Men and Culture*, the subjects 'History and Science'.

[6] With the emancipation of particular sciences (economics, social sciences, anthropology, psychology, etc.) from the purview of philosophy, the aspiration of philosophy as a system in which are worked out the various areas of knowledge, it is becoming increasingly a rather complicated task.

[7] See for example Cassirer's first words in his preface of his first volume of *Philosophy of Symbolic Forms* (on Language): "Die Schrift, deren ersten Band ich hier vorlege, geht in ihrem ersten Entwurf auf die Untersuchungen zurück, die in meinem Buche „Substanzbegriff und Funktionsbegriff" (BERLIN, 1910) zusammengefaßt sind. Bei dem Bemühen, das Ergebnis dieser Untersuchungen, die sich im wesentlichen auf die Struktur des mathemalischen und des naturwissenschaftlichen Denkens bezogen, für die Behandlung geisteswissenschaftlicher Probleme fruchtbar zu machen, stellte sich mir immer deutlicher heraus, daß die allgemeine Erkenntnistheorie in ihrer herkömmlichen Auffassung und Begrenzung für eine methodische Grundlegung der Geisteswissenschaften nicht ausreicht. Sollte eine solche Grundlegung gewonnen werden, so schien der Plan dieser Erkenntnistheorie einer prinzipiellen Erweiterung zu bedürfen. Statt lediglich die allgemeinen Voraussetzungen des wissenschaftlichen Erkennens der Welt zu untersuchen, mußte dazu übergegangen werden, die verschiedenen Grundformen des „Verstehens" der Welt bestimmt gegen einander abzugrenzen und jede von ihnen so scharf als möglich in ihrer eigentümlichen Tendenz und ihrer eigentümlichen geistigen Form zu erfassen. Erst wenn eine solche „Formenlehre", des Geistes wenigstens im allgemeinen Umriß feststand, ließ sich hoffen, daß auch für die einzelnen geisteswissenschaftlichen Disziplinen ein klarer methodischer Überblick und ein sicheres Prinzip der Begründung gefunden werden könne. Der Lehre von der naturwissenschaftlichen Begriffsund Urteilsbildung, durch die das „Objekt" der Natur in seinen konstitutiven Grundzügen bestimmt, durch die der „Gegenstand" der Erkenntnis in seiner Bedingtheit durch die Erkenntnisfunktion erfaßt wird, mußte eine analoge Bestimmung für das Gebiet der reinen Subjektivität zur Seite treten." (PSF, I, V)

werden'. Moreover, the contribution made by Liebmann – starting his research with German idealism (Fichte, Schelling, Hegel), following with the realistic aspects (Herbart), and the empiricists aspects (Fries) and concluding with Schopenhauer – suggests that what followed Kant's transcendental philosophy was not something rightly consequential, but on the contrary was a setback. That's why we would have to return to a save harbor (Kant) and the exhortation mentioned above would appear.

The philosophical heritage

The Kantian philosophy at the philosophical context of the end of 18th century until Hegel's death was subject of criticism, in addition to having gone through numerous and the most diverse interpretations. To remind us of some very close to Kant,[8] let us take, *e.g.*, first line names such as: Mendelssohn (1729-1786), Hamann (1730-1788), Jacobi (1743-1819), Maimon (1753-1800) and Reinhold (1757-1823). Subsequent to this first generation of thinkers, a new one would emerge and would be of even greater importance to our present objectives, and this generation, notably, the apex of German idealism, with the exponents of the famous triad: Fichte (1762-1814), Schelling (1775 -1854) and Hegel (1770-1831). Also in regard to German idealism, it is of particularly importance two other points, which we pass to describe below. It is, on the one hand, its relationship with the critical philosophy of Kant and, on the other, its legacy to the Neo-Kantian movement.

The German idealism appears on the philosophical scene of that time critically dialoging with the Kantian philosophy. And that does not mean anything other than idealism emerges as a systematic alternative and more consistent than what the criticism of Kant intended. On such positive consequences of the movement, let us take into account that a number of dualisms, deriving from the old Cartesian scheme, which the author of the *Critique of Pure Reason* had accepted largely in the context of his doctrine, would have been dissolved by idealism.[9] To remind ourselves of a few, let us take these: (i) subject-object; (ii) matter-form; (iii) intuition-concept; (iv) phenomenon-thing-in-itself. Finally, in addition to allegedly dissolved this series of dualisms, idealism had also proposed two important criteria that have become their characteristic marks, namely:

i) totality and

ii) systematicity.

[8] Some of those thinkers had discussed with Kant himself. If we look the exchange of letters of the German Philosopher, then we will see that Mendelssohn, Hamann, Maimon and Reinhold already had spooked with Kant.

[9] See Hegel's *Encyclopedia of Philosophical Sciences* (1817) specially §§ 40-42.

Put in those terms, a philosophy worth its salt should contain, therefore the a character of a system. And an important point to note here with respect to this is the fact that Cassirer will not abandon such an ideal and is considered one of the last, if not the last, philosopher to make a proper system of philosophy, which would be worked various areas of knowledge, such as: science, politics, language, myth, anthropology, etc. In addition, and just as importantly, it is needed to highlight another decisive factor in Cassirer's background, namely, he defends the thesis that all these areas of knowledge mentioned above are equally valid knowledge. In this sense, we would have, for example, that the discourse of science is no more or less important than that of myth. Indeed, within the framework of Cassirer's epistemology in *Philosophy of symbolic forms*, both (science and myth) are equally valid ways of understanding the world.

In order now to clarify some aspects regarding the importance of idealism in German philosophical context of the 19th century, we take into account the particular case. For this, take the example of Hegel – and there is no doubt that this author serves us as a representative model of German idealism.

At first, let us remember that Hegel's system aims to, roughly speaking, a science of absolute, fulfilling in this way with the first criteria mentioned above. And already on this first point the author of the *Phenomenology of Spirit* proposes a change of two central concepts commonly used in philosophy, namely:

1) The very notion of philosophy. Hegel modifies the design of this course, etymologically known as being one discipline which has the 'love of wisdom', to be understood as "the wisdom". In these terms, the philosophy would not be a discipline among many others, but the most important one.
2) His model of science. In this sense, one of the most important implications of this would be that the ideal of science would not be contemplated in Newtonian mechanics, as understood Kant[10] for example, but in the philosophy itself, which would then be considered science[11] *par excellence*.[12]

Another crucial notion to Neo-Kantianism coming of idealism was the spontaneity of the spirit. However, this spontaneity has to be proved precisely

[10] It is well known that Hegel makes a severe criticism of Newton in his *Dissertatio,* 1801. Perhaps one of the most relentless criticisms of Hegel to Newton was that the first accuses the theory of the second to be nothing else then a mere random calculation.

[11] An interesting point regarded to this is that also Husserl would consider the philosophy as "the" science. Just remind us of his famous writing *Philosophy as rigorous science* (1911).

[12] On this subject see Hegel's preface to his *Phenomenology of Spirit*.

in the science itself. In proposing the "transcendental method", Cohen distance to both the Hegelian method (dialectical-speculative) and the psychological method.[13]

At the end, this totalizing aspiration of idealism, besides making possible the loss of track, as reported by Otto Liebmann, eventually leads philosophy to a direct conflict with science. This one, however, follows its profitable course without caring so much about what philosophy has to say about it. Add to this adverse state of things to philosophy the other decisive factor, pointed out once: the emancipation of the particular sciences from philosophy – and both natural sciences and the sciences of spirit came, increasingly strong, claiming its autonomous place in the field of knowledge.

The Scientific heritage

There is no doubt that the emergence of new theories in the field of natural science in the nineteenth century influenced a lot the philosophical theories which intended to speak about science and there are many examples in history that serve as an endorsement of that. To name just a classic example of this, let us remember that Kant, who saw in Newtonian mechanics a model of science, wrote his famous *Critique of Pure Reason* in light of this crucial scientific theory. Like him, other authors had in their particular contexts different scientific theories as models. In this same vein, Cassirer, as we shall see, would work out his doctrine also in view of a model of science. However, it was not in Newtonian mechanics, but the electromagnetism of Maxwell that Cassirer has its well-established science model.

Regarding the importance of certain scientists and their determinant theories, a large list would be made. To remind ourselves of a few examples here, let us take up these names: Mendel, Lamark and Darwin in biology; Weierstrass, Cantor, Dedekind, Boole and Galois in arithmetic; Felix Klein and Gauss in geometry; Kelvin, Boltzmann, Faraday and Maxwell in physics. Some of the direct fruits of these efforts are focused on the following theories: (i) thermodynamics; (ii) non-Euclidean geometries; (iii) logicism of arithmetic; (iv) electromagnetism.

On the importance of Maxwell's Electromagnetism theory to Cassirer's epistemology

If we consider the philosophy of Cassirer, the author who arouses greatest interest is, without doubt, Maxwell and his theory of electromagnetism.

[13] On this subject see: PORTA, M. A. G. *O problema da 'Filosofia das Formas Simbólicas'*. In: *ESTUDOS NEOKANTIANOS*. Loyola, 2011. P. 48-49.

Accordingly, the influence of this scientist is similar to that exerted by Newton in Kant's epistemology.[14]

With the emergence of these new scientific theories of the nineteenth century Newtonian mechanics is called into question. New phenomena come to be studied by scientists of this century and gradually the Newtonian program could not give more account to explain them. What finally mark the fall of Newtonian hegemony in the scientific scene of the time was precisely its inability to interpret what Maxwell proposes with its innovative theory of electromagnetism.[15] While the Newtonian world was a world in which it was possible to intuit, the intuitiveness condition increasingly begins to lose its place in the face of new scientific concepts. Thus, physics has no longer as one of its main tasks to provide a picture of the universe. Furthermore, science has become a discipline in which it investigates the principles instead of a physics seeking to investigate the matter properly. While the concept of material object was considered the fundamental concept of physics at that time this conceptualization changes.

From the new ideas of Faraday and Maxwell, the concept of field comes to occupy a prominent place in physics. The culmination of this radical course in physics is given in Einstein's relativity, having as one of its philosophically relevant points, and essential in the Einstein's program, that relativity is not restricted to the requirements of intuitiveness, culminating thus with the radical break on science whit all intuitive view of the universe. This process results, in a certain sense, from the impossibilities of Newton's mechanics to interpret Maxwell's equations. And Cassirer was a strong proponent of the thesis that thanks to Maxwell, Einstein could do what he did. [16]

Concluding remarks

In the mid-19th century in the *Materialismusstreit* will finally play a decisive role in the roots of neo-Kantianism. Moreover, this controversy will reshapes the neo-Kantian the idealistic worldview. Thus, according to the transcendental method – which opposes both the dialectic-speculative-metaphysical method of Hegel as the psychological method – as mentioned

[14] Another author who has in his philosophical horizon another famous scientific theory is Moritz Schlick, who saw in Einstein's relativity that model. In this sense, we would have: Einstein is to Schlick what Newton and Maxwell were to Kant and Cassirer respectively.

[15] To be fair the mechanical theory of Newton is received in the 19th century as "the" science, but, according to what we said above, this theory would be put into question, among other reasons, by the appearance of new themes and subjects of study in science, besides the notion of field, like for instance the concept of heat. The electromagnetism theory of Maxwell is one of many others theories in science at this moment, as we said above.

[16] See for example in Cassirer's ERT the first chapter: on the concepts of measure ad concepts of things.

above, originally proposed by Herman Cohen, Science will be a *FAKTUM*, that is, a starting point of reflection.

In *Substance and Function*, Cassirer will do a thorough contribution regarding the scientific point briefly exposed here. His analysis will aim to a "logic of objective knowledge"; this project was pointed out firstly by the philosopher in his Article *Kant und die moderne Mathematik* (1907) (See Cassierer's KMM, p. 44). Therefore Cassirer will have to evaluate several points: from the rising of a new logic on the last quarter of the nineteenth century, through the development of arithmetic, geometry, natural sciences, to the methods developed by authors like Mach and Poincaré.

Finally, as we said initially, there remains an important gap to be filled if you want to get to Cassirer's thought. Within this, two other points should be analyzed which relate to two other representative Neo-Kantians of Marburg, who succeeded E. Cassirer: Herman Cohen and Paul Natorp. Notably both were of importance to the philosopher of culture. However, we will leave this task for the next opportunity.

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