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Special Issue

Historiography of Science in South America: Reception, Reflection and Production (Argentina, Brazil and Uruguay)

From the Editor

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As we know, philosophical and scientific ideas and thoughts circulate around the world. However, of course, the context of reception of these ideas is not necessarily the same as it is in the soil where they were created. Receptions are reflected from other contexts and usually meet other demands, creating other actions, technological deployments, and products. Historiographical reflection on science is no different. Ideas on the history and philosophy of science that emerged in Europe, especially from the first half of the 20th century, arrived in South America and generated new reflections and productions based on local realities. In an effort to establish itself in the southern continent of America and seek its institutionalization in these lands, it was necessary to find tools that could help the historical and philosophical understanding of the young science.

This special issue of *Transversal* addresses this movement of the historiography of science on South American soil – Argentina, Brazil, and Uruguay. Throughout the 20th century, comparatively, we can see the many “family resemblances” in the development of reflections on the history and philosophy of science in these countries, even as we perceive the differences, singularities, and nuances of each one. The historiography of science is directly linked to scientific production and is an extension of it. Thus, the historiography of science is part of scientific culture. Therefore, like the owl of Minerva in Hegel’s claim, the historiography of science takes flight at dusk, after the rise of science. In other words, as the scientific community became present in these countries, a historical and philosophical reflection on what science is and what it means to produce science in South America also became necessary. In the articles of this special issue, we can see how the historiography of science developed in these countries with the (local, national, and international) circulation of ideas and people, the editorial production (articles and books), and the development of disciplines and departments devoted to the history of science and philosophy of science. Finally, in this special issue, we can glimpse the essential aspects of the arising community of

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historians and philosophers of science in these countries and observe how the writing of the history of science has developed there.

As a whole, the articles in this issue demonstrate that the reception of historiographical ideas about science coming from other places without local reflection and production makes no sense. For an adequate reception, such ideas need a context of reflection and production through agents, institutions and projects that re-read these ideas or, from the dialogue with them, create new conceptions that meet local purposes. Therefore, mere reception and reproduction establish only loose ideas. It is an exercise of erudition without transformation of reality. In fact, in the reception of the historiography of science, it is necessary to dialogue with ideas from various places of the world to create new and singular ideas for a particular location. And, above all, to transform this local environment in which these ideas are reflected.

We can see this difference between ideas that were fruitful and ideas that became innocuous when comparing the historiographical reception of science in Brazil between the 19th and 20th centuries. The incipient scientific community of 19th century Brazil could not adequately absorb historiographical reflections on science.² There seems to have been no adequate reception, even if some efforts were made in this direction. In the 20th century, the situation was completely different. We can perceive not only the reception and reflection of the historiography of science but also its effective contribution to the transformation of the local reality.

As an example of the Brazilian situation in the 19th century, the work of Pedro Américo (1843-1905) is a significant demonstration of this lack of space for the reception of historiographical ideas. Pedro Américo is a great painter who depicted Brazilian politics and culture in the second half of the 19th century. What few people know, even in Brazil, is that Pedro Américo had diverse interests in different fields such as science and politics – he was even a congressman during the drafting of the Brazilian Constitution of 1889. In the scientific field, he studied science in Europe. He graduated in Social Sciences at the Sorbonne in Paris and wrote and defended his doctoral thesis in Natural Sciences at the University of Brussels, where he taught. Curiously, his doctoral dissertation was on History and Philosophy of Science themes, and titled *La Science et les Systèmes: Questions d'Histoire et Philosophie Naturelle* [Science and Systems: Issues in Natural History and Philosophy]. His thesis was published as a book in 1868.³

At the beginning of the book, Pedro Américo regrets that a good part of those reflections could not apply to Brazil because we lived in a very different scientific reality. According to him, in Europe, “the moral and intellectual situation differs greatly from ours”, and his contemporary Brazilian readers would find the book “under many aspects, something empty and meaningless” (Américo [1868] 1999, 3). At that time, his ideas on history and philosophy of science had no space for reception in Brazil due to the lack of an adequate scientific culture that would make it possible to discuss them, even if only to refute them. The thesis ended up allowing him to become a professor of art at the *Imperial Academy* (renamed *School of Fine Arts* after the Republic) in Rio de Janeiro. Thus, the theme developed

² The demarcation about the beginning of science in Brazil is controversial, and it is not the objective to address it in detail at this time. However, when and where science started in Brazil depends on what we understand as scientific activity. To establish this milestone, we can consider the first isolated scientific initiatives to the first scientific institutions already in the 19th century Empire of Brazil (Dantes 2001; Carvalho 1978). In the 20th century Brazil Republic, we will find different scientific institutions dedicated to research, funding agencies, and the universities as an essential training locus for science (Stepan 1976; Schwartzman 1979).

³ In 1999, the Federal University of Paraíba – UFPB translated and published Pedro Américo’s book, *Ciência e os Sistemas: Questões de História e Filosofia Natural* (Américo, [1868] 1999).

in his book was lost in time. Unfortunately, it took nearly a hundred years for Américo to have appropriate readers of his thesis in Brazil.

Just as other Brazilian scientists in the 19th century did not develop scientific activities when they returned from Europe to Brazil,⁴ Pedro Américo also did not find adequate soil to germinate his ideas about the history and philosophy of science. Although there were already some scientific endeavors developing in Brazil of the 19th century, there was not a developed scientific culture as an adequate scientific locus for the reception of these ideas just yet. In other words, we did not have a sufficiently consolidated scientific culture that, besides taking its first steps in science, could think transversally about its historical and philosophical aspects. The number of institutions dedicated to sciences in Brazil increased throughout the 20th century.⁵ This institutional process will also enable the reception of ideas in the historiography of science that could be learned, questioned, rethought about, and eventually adapted to solve local problems.

With effect, this scientific maturity will occur throughout the 20th century on Brazilian lands and will be accentuated in the second half of this century. Consequently, this scientific culture will enable a community interested in reflecting on the historical and philosophical aspects of science and, in particular, on the science produced here. In other words, if, throughout the 20th century, Brazilian science was consolidating itself, together with it were the development of conditions to, more than producing sciences, think transversally about this production. As Tiago Almeida illustrates in one of the articles of this special issue of *Transversal*, in the 1970s and 1980s, one of the largest public health systems in the world, the Unified Health System (*Sistema Único de Saúde – SUS*), was created in Brazil in close dialogue with Bachelard and Canguilhem's historical epistemology. Authors, such as Sérgio Arouca and Cecilia Donnangelo, were representatives of Collective Health builders, and had partially accepted the idea of science's historicity as a key to solving problems with the collective healthcare system in Brazil (Almeida 2021, 1). This movement is an example of a rich and healthy circulation of ideas in the historiography of science: reception, reflection, and effective production.

This issue thus has some aspects that are important to highlight. First, it seeks to understand how ideas of the historiography of science were received in South America, contributing to the reflection, and writing of the history of science in these countries. Secondly, for the reader interested in this set of articles, it provides a comparative idea between these countries and how the development of the history and philosophy of science took place here. Finally, this special issue, together with the preceding "Colloquium on the Historiography of Science in South America", which was held in October 2021, seeks more significant interaction among researchers in these countries. I am very grateful to the authors who accepted the call for participation in the colloquium and sent their contributions to this special issue. I am also very thankful to the other authors who sent contributions to this dossier, even though they did not participate in the colloquium.

⁴ Perhaps the most emblematic case was José Bonifácio de Andrada e Silva (1763-1838), an outstanding Brazilian naturalist recognized in Europe. He dedicated himself entirely to politics and played an important role in Brazil's independence when he had returned.

⁵ Especially in the second half of the 20th century, "scientific culture" was effectively established in Brazil. This interpretation considers that "scientific culture" means more than producing science with the various apparatuses and institutions linked to it. It also considers the impacts and unfolding of science in society, including historical and philosophical reflections on scientific knowledge. For our interests in this special issue, the historical transversal reflection on science in Brazil has in Azevedo (1943, 1956) one of its first approaches. Mainly from the 1970s and 1980s, numerous works appear, for example, (Ferri and Motoyama 1979-1981), and there is an enormous development of the community of historians of science in Brazil, especially after the foundation of the *Brazilian Society for the History of Science* (SBHC) in 1983.

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