

What Political Economy for Science?

by Brice Laurent

By putting forward an analysis of the historical depths of the bonds connecting science to capitalism, Gabriel Galvez-Behar's book opens up stimulating research perspectives for a critical analysis of the political economy of knowledge.

Reviewed: Gabriel Galvez-Behar, *Posséder la Science. La propriété scientifique au temps du capitalisme industriel*. Paris, Éditions de l'EHESS, 2020, 320 p., €25.

Many contemporary problems, from access to vaccines against Covid-19 to the funding of academic research, raise the question of how scientific knowledge is appropriated. By providing a historic survey of the connections between science and capitalism, Gabriel Galvez-Behar's book, *Posséder la Science* ("Owning Science") offers a thought-provoking perspective for developing a critical view of the issue of the economic property of knowledge. This critique shifts the somewhat too simplistic opposition between the "autonomy of science" and the "privatisation of knowledge", revealing different configurations which, from the mid-19th century to the interwar period and on both sides of the Atlantic, structured both scientific production and the conditions of its appropriation. Galvez-Behar thus stresses a crucial argument: an we can only understand of the economic history of science (and of the history of science more generally) if we connect "the symbolic and material dimensions of science" (p. 27). "There is no science without an economy of science, which is not a symbolic economy, but which also requires material resources and offers a perspective of pecuniary profit" (p. 281). In the book, numerous examples provide excellent

illustrations of this close connection, such as those of Pasteur, of the chemist Liebig (who turned his name into a commercial brand) or of the physicist Kelvin, whose scientific activities were never very far removed from his industrial projects. But the analytic position goes further. The book shows us that science does not progress in spite of its economic connections, but rather with them. Knowledge is recorded on different kinds of media, from scientific publications to patents, and the gradually increasing autonomy of the scientific professions went hand in hand with the strong implication of knowledge production in the apparatus of the industries that developed throughout the 19th century. There is no knowledge without a knowledge economy.

Hence the point of investigating the relationship between science and capitalism. Gabriel Galvez-Behar takes a particular interest in “industrial capitalism” and in the way in which “scientific agents have used – or not used – the systems that fall under intellectual property in its broadest sense” – systems which the book refers to using the term of “scientific property” – to “produce, broadcast, protect and use knowledge.” (p. 28) Galvez-Behar studies the claims of scientific agents who are themselves committed to the recognition of forms of property, in order to connect the symbolic value and the material value of knowledge. In the history he thus retraces, from the early 19th century through to the interwar period, scientists closely associate the activity of knowledge production to claims of ownership. These claims are all connected to the problem of attributing the priority of knowledge – the book examines a few famous cases, including the controversy surrounding the discovery of Neptune, to show how disputes regarding priority reveal a lot about the scientific organisations of their day, but also about the economic issues involved. These claims would eventually give rise to the progressive establishment of scientific property rights that were inscribed within national configurations.

The debates described in the book illustrate the establishment of national models of science, which themselves are intertwined with forms of industrial capitalism. In Germany or in the United States for example, “intellectual property is a major lever in the construction of the monopolistic position of big companies.” (p. 150). In the United States and Great Britain, the patent becomes a favoured instrument that contributes to organising companies and their relationships with the worlds of academic research. France is a case of a progressive transition from an individualistic regime to an institutionalised regime of scientific property, within the context of a strong centralisation of scientific policy. Based on the analysis of scientific property, the book reveals the way nations organise not just their scientific research, but also their economies. Gabriel Galvez-Behar then identifies three regimes of scientific

property: the regime of “capture”, in which major industrialists control property, the “institutionalised” regime, in which institutions regulate the distribution of value, and the “individualist” regime, in which scientific property is the subject of individual negotiations.

Aborted Alternatives

While focussing on the role played by scientists themselves in the establishment of these models, Gabriel Galvez-Behar also insists on the alternatives that were put forward. One episode, outlined in chapter 6, is very revealing in this respect. During the interwar period, a project for an international convention aimed to ensure that “any scientific discovery would open up for its author a right to remuneration from users” (p. 214). The project involved famous researchers such as Henri Bergson or Marie Curie, who deplored the fact that “the discovery [of radium] immediately entered into the public domain and benefits commercial enterprises, while the Institute of Radium is only able to survive with the greatest difficulty” (quoted on p. 200). The project for a convention was based on a report written by the Italian legal expert Francesco Ruffini in 1923, which challenged the distinction between discovery and invention that was at the heart of patent law in order to “break with the scandalous custom of viewing the treasure of science as a free mine” (quoted on p. 202).

Gabriel Galvez-Behar gives a detailed description of the campaign in favour of an international convention organising scientific property rights that would have been founded on the Ruffini report, and which sparked numerous developments. For example, an insurance mechanism was considered which would allow private agents to protect themselves against the risk of having to pay scientific property rights. This campaign failed, largely due to the opposition of the United States and Great Britain, where the patent system was well-established and institutionalised the distribution of rights between scientists and industrialists. In France, scientific property failed to establish itself as a new legal form, but it contributed to changing the organisation and institutionalisation of scientific research, in particular by setting “the brand new CNRS on the path of using invention patents” (p. 280).

The narrative of the failure of the international convention as it is retold by Gabriel Galvez-Behar is particularly interesting because it reveals not just the strength of the national configurations that organised the economic relationship between

science and industry, but also the attempts that were made to invent alternative configurations. The aborted project for a convention shows that industrial capitalism could have been structured differently than by patent law and by the distinction between discovery and invention, which were then picked up again by categories such as “fundamental research” and “applied research” – these being in turn at the basis of what would be referred to in the second part of the 20th century as the linear model of innovation.

The failed attempt to create scientific property in the interwar period invites the reader to ask questions that are highly relevant today: how can we reopen the field of possibilities of the appropriation of science? Can we imagine an appropriation that would be collective and not individual? Can we reinvent the respective roles of scientists, of the state and of economic agents in the use of scientific property? These questions are the ones posed by many protagonists in Galvez-Behar’s book. They are those asked by the unhappy defenders of the international convention on scientific property, but also those of Arago when he reflected on the attribution of the priority of results in connection with their publicising and social utility (chapter 2) or of the participants in new regimes for the regulation of the relationship between science and industry in wartime, when an increased collaboration between scientists and industrialists increased people’s interest in the property of the results (chapter 5). Each of these people suggests different solutions to the problem of scientific property, and in so doing, to that of the relationship between knowledge production and the distribution of economic value. But these attempts also invite any readers interested in the challenges facing contemporary scientific research to investigate these problems themselves. Without explicitly confronting his historical material with the situation as it is today, the book invites us to embark on an enterprise of this kind.

What Political Economy of Science?

Gabriel Galvez-Behar’s work can contribute to a critical analysis of contemporary forms of scientific property, a crucial undertaking in light of current developments in many fields ranging from health policy to the organisation of research. In order to formulate this critical analysis, it would doubtless be necessary to continue the investigations suggested by Gabriel Galvez-Behar by adding other elements. The first of these elements is related to the tools of capitalism. In the age of financial capitalism, scientific property is connected to economic models, be they those

of scientific publishers or of pharmaceutical companies. These economic models are based on legal instruments that locate knowledge within a system of operations of private appropriation, such as those analysed by Philip Mirowski in the case of American academia¹, but also on calculation systems that produce the economic value itself and, in so doing, the type of knowledge that must be produced – for example, when future revenue flows are calculated to determine the present value of a particular molecule². The instruments on which the appropriation of science is based determine the individual action that is then deemed desirable on the part of scientists, but also the nature of the knowledge they should produce and the way in which economic value is produced and attributed. We see here once more the triple “moral, epistemic and economic” dimension (p. 28) which the book shows is at the heart of the control of scientific property. We also understand that this triptych can only be reconfigured by intervening at the level of the systems and mechanisms that determine property in practice, but also by calling into question the possibilities of control of these instruments: who constructs them? Who promotes and uses them? Who is subjected to them? The three regimes of scientific property (“capture”, “institutionalised”, “individualistic”) presented at the end of the book show that the negotiation of how value should be shared can take place in different ways, and in ways that are more or less asymmetrical between scientific and industrial agents. Control of property instruments appears crucial in the contemporary scientific world, in which the appropriation of knowledge is an issue for multiple stakeholders: not just scientific and industrial ones, but also financial ones.

The three dimensions – moral, epistemic and economic – should probably be extended in order to fully grasp the breadth of the question of scientific property and its ramifications from the book’s historical terrains through to the contemporary world. The comparison between France, Germany, the United Kingdom and the United States shows that the configurations of scientific property rest on administrative organisations, on ways of thinking about the state, and, ultimately, on institutionalised ways of defining what is problematic. This political dimension is largely visible today, with the response to the Covid-19 pandemic raising the question of the nature of legitimate scientific expertise, and highlighting the high stakes of vaccine property – all problems that spark different responses in different national and international contexts. Patent rights over life forms are another illustration of the strong link between the systems of scientific property and the definition of public

¹ Mirowski, P. (2011). *Science-mart*. Harvard University Press.

² Doganova, L. (2015). “Que vaut une molécule ? Formulation de la valeur dans les projets de développement de nouveaux médicaments”. *Revue d’anthropologie des connaissances*, 9(9-1).

problems. The legal apparatus depends on ethical or health priorities, which vary from Europe to the United States³. In this case as in many others, the control of scientific property is not possible without a government of public issues that scientific developments are supposed to enable, even though they are often their root cause. Thus, we should probably add a political dimension to the “moral, epistemic and economic” triptych, in order to account for the central role of science in the shaping and management of public problems. This offers a path towards analysing how the rules of scientific property contribute to shaping democratic life, rendering all the more necessary a critique of the configurations that determine the appropriation of knowledge.

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³ Parthasarathy, S. (2017). *Patent politics*. University of Chicago Press.