КРАТКИЕ СООБЩЕНИЯ

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The Society of Biology in French 19th century science. Thinking of biology and theory from a positivist perspective

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Between the mid-19th century and the mid-20th century, French biology, despite a handful of remarkable breakthroughs (e.g. Claude Bernard, Louis Pasteur), contributed only very marginally to the growth of biological thought. This has puzzled historians for decades, especially given the unbelievably strong opposition met by cell theory, evolutionary theory and genetics during that time in France. The aim of this paper is to show how a specific form of positivism was instrumental in shaping an epistemological attitude, shared by most scientists, which opposed any form of speculative theorization in biology. I show, first, that the French Society of Biology, which quickly became a highly influent institution, promoted exactly this kind of positivism, having already epitomized this position in its founding manifesto of 1849. Second, partly on the basis of secondary sources (Gley, 1899, Schnitter, 1992, Bange, 2009), I document the kind of research that was promoted within the French Society of Biology during the second half of the 19th century, especially from 1865 onwards, when Claude Bernard published his *Introduction to the Study of the Experimental Medicine*. An experimental-physiological approach to biology was particularly valued then, reducing theoretical explanation to only the identification of external causal parameters. In the final section, I argue that it was this dual and complex Comtian-Bernardian legacy that was captured by the term "positivism" in French biology. I especially focus on the fact that this positivism was a crude simplification compared to Comte's and Bernard's own subtle ideas. Unlike Comte, it made almost no room for the agency of organisms. Unlike Bernard, it minimized the significance of a third entity between an organism's living parts and the environment, namely the "internal milieu".

***Keywords*:** Society of Biology, positivism, Auguste Comte, Charles Robin, Claude Bernard, French biology.

Introduction

Between 1850 and 1950 at least, the state of French biology was quite peculiar. Whereas in the golden age of the 'Jardin du Roy' and the Museum of Natural History, Paris was the scientific capital of Europe (1750–1830), French science, and especially French "biology" was very quickly superseded by advances abroad, first in German-speaking countries and, later on, in England and the United States (Ben-David, 1970, Paul, 1972). Despite significant exceptions, like Claude Bernard's achievements, French biologists strongly opposed all the major theories that came to frame the whole field, like cell theory (Loison, 2015), evolutionary theory (Conry, 1974; Gayon, 2013), and, from 1900 onwards, genetics (Burian, Gayon, Zallen, 1988).

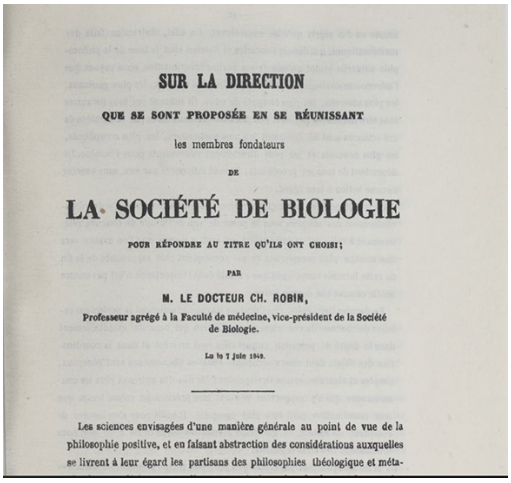
I argue that such a consistent opposition cannot be explained at the individual level and must have something to do with systemic characteristics of French biology as a whole. In the present paper, my aim is to contribute to the elucidation of this strange state of things by supporting the view that Auguste Comte's and, later on, Claude Bernard's complex legacies were instrumental in shaping French resistance to any form of speculation and theorization within biology. I am focusing here especially on the first 50 years of the 'Society of Biology' [*Société de Biologie*], from its foundation in 1848 until the end of the 19th century. The early history of the Society of Biology has already been the subject of previous work by several colleagues, especially Claude Schnitter (1992) and Christian Bange (2009) and I will here largely rely on some of their findings. What transpires from this work is that this scientific society promoted a very narrow kind of experimental science that simply could not make any room for the theoretical reasoning that was for instance the very basis of Darwin's argument in his *Origin of Species*. It was thought that biology had to be experimental, following to the criteria exemplified by experimental physiology. Given that the Society of Biology and its journal (the "*Comptes rendus des séances de la Société de biologie*") were during an entire century one of the main scientific venues for French biologists to present their work, its impact on the course of this history must be thoroughly examined.

This is not to say that Auguste Comte, Claude Bernard, and their numerous writings were *directly* responsible for such an entrenched theoretical reluctance (even if, for example, Comte shared some responsibility in the case of cell theory, see for instance: Stanguennec, 1984). As I will document in the last section, the brand of "positivism" that came to be central for French biologists showed substantial differences from both Comte's and Bernard's philosophy of science. Crucially, whereas Comte always insisted on two categories in order to build a genuine biology, the "milieu" on the one side and the organism on the other (Canguilhem, 1994, p. 65), during the second half of the 19th century, French biologists only considered the first (Canguilhem, 1992). Biology was supposed to be no more than the experimental demonstration of the causal impact of the milieu on living things: explanation was reduced to the elucidation of the Bernardian "determinism" of a phenomenon. This positioning was pivotal in the opposition to Darwin's evolutionary theory and, later, in the development of a so-called "experimental transformism" (Loison, 2010).

1. The birth of the Society of Biology (1848–1849). Charles Robin's positivist manifesto

Although some studies have been devoted to the context in which the Society of Biology was founded (Schnitter, 1992, Bange, 2009), it remains unclear how precisely an informal

group of discussion of young physicians eventually became a structured scientific society. What has now been established is that the creation of this society was the result of the activity of a very select group of individuals: Eugène Follin (1823–1867), Claude Bernard (1813–1878), Hermann Lebert (1813–1878) and most notably Charles Robin (1821–1885). Under the patronage of Pierre Rayer (1793–1867), who became the first president of the society (1848–1867), they met on a regular basis in Paris in order to discuss their work and the newly published findings in various fields of the life sciences. In May 1848, weekly meetings began to be held in Robin's lecture hall at the *Ecole pratique*, with other colleagues also attending (such as Charles-Edouard Brown-Séquard), every Saturday (Lebert, 1849). Histologist and microscopist Charles Robin appears to have quickly taken the reins in this endeavor, as he was the sole author of the programmatic text published in 1849 in the first issue of the Society's journal. The text was read on 7 June 1849, and provides details on "the direction" that the founding members intended to follow in promoting a special kind of biology (Robin, 1849).



SUR LA DIRECTION

QUE SE SONT PROPOSÉE EN SE RÉUNISSANT

les membres fondateurs

DE

LA SOCIÉTÉ DE BIOLOGIE

POUR RÉPONDRE AU TITRE QU'ILS ONT CHOISI;

PAR

M. LE DOCTEUR CH. ROBIN,

Professeur agrégé à la Faculté de médecine, vice-président de la Société de Biologie.

Lu le 7 juin 1849.

Les sciences envisagées d'une manière générale au point de vue de la philosophie positive, et en faisant abstraction des considérations auxquelles se livrent à leur égard les partisans des philosophies théologique et méta-

Fig. 1. Front page of the first text published in the Comptes rendus de la Société de Biologie (1849). Written by Charles Robin, this programmatic text lays the foundations of the positivist orientation of the Society

Рис. 1. Титульная страница первого текста, опубликованного в Comptes rendus de la Société de Biologie (1849 г.).Этот программный текст, написанный Чарльзом Робином, закладывает основы позитивистской направленности Общества

From cover to cover, this 10-page essay reads as a genuine positivist manifesto in a standard Comtian style. Robin starts by recalling Auguste Comte's famous classification of the sciences, from mathematics to social sciences, in order to specifically situate biology in this linear representation. The explicit use of the term "biology" is by itself far from being neutral. At that time, "biology" was not yet commonly used in French; terms like "natural sciences" or "general physiology" were usually favored, especially in print. To choose "biology" as a banner meant following Comte's footsteps, especially for young physicians (Canguilhem, 1994).

It should be stressed that Auguste Comte (1798–1857) had no specific training in the life sciences. Before turning to philosophy, he had studied mathematics and most of his

knowledge in biology came from lectures by Henri-Marie Ducrotay de Blainville (1777–1850) at the Museum of National History. Comte was especially concerned with drawing a clear line between sciences and their applications. Hence, he supported an autonomous science of living things — biology — that could not be reduced to medicine or any other form of applied knowledge, a positioning that was also explicit in Robin's manifesto (Robin, 1849, p. IX–X).

Thus, to choose "biology" was both a sign of fidelity towards Comte and a way to emphasize the fact that living things give birth to special phenomena that need specific explanations. This was not tantamount to adopting a vitalistic stance: all these young scientists firmly opposed any form of theorization that would have relied on unknowable and vitalistic forces. The point was to acknowledge the irreducible complexity of vital phenomena, which deserved a special science (Robin, 1849, p. III):

> Among the sciences that I have listed, there is one that interests us more directly than the others, and that is *biology*.
>
> The phenomena that biology deals with have something more complicated, more particular than the others, which makes them easily distinguishable; these phenomena are influenced by all the others without reciprocity. No matter how one explains the differences between the beings studied in biology and those studied in the inorganic sciences, it is certain that in living bodies one observes all the phenomena, whether mechanical, physical or chemical, that take place in raw bodies. But we notice that they become more and more complicated until they are so complex that their direct physical or chemical analysis becomes impossible, such are especially the nervous, sensitive, intellectual and moral phenomena. They therefore constitute a very special order of phenomena called *vital phenomena*, the only ones worthy of the name, coinciding with a very special static state as well[1].

Being neither medicine nor physics or chemistry, life science deserved a name of its own. Another Comtian mark that is obvious in this short text is the centrality of the concept of milieu (Braunstein, 1997). Again, as for "biology", there is here a rather straightforward historical line from Blainville to Comte and from Comte to Robin (note that Robin had also direct contacts with Blainville at the very beginning of his career). In his own work, Robin always paid special attention to the "milieux" (plural) and the way in which variations of abiotic parameters (like temperature, humidity and so on) altered the physiological working of living beings. Robin was so concerned by what he thought would be a major shift towards a genuine biology that he attempted to elaborate an entire scientific discipline dedicated to the quantitative study of the "milieu", which he termed "mesology" (*mésologie*[2]). As documented in the final section of this article, the emphasis on this specific account of the concept of milieu would have a tremendously long-lasting legacy in French biology, which only faded gradually during the interwar period.

In the late 1840s, although Comte had already distanced himself from part of his own "positive philosophy" (Petit, 2016), much (albeit not all) of it served as building blocks for the nascent Society of Biology's philosophical approach. To what extent the other founding members were as committed as Robin to Comte's early positivism remains an open question. In particular, it is highly doubtful that, even as a beginner (especially considering his philosophical education), the young Claude Bernard had adhered to such a dogmatic

[1] All translations from French are mine.

[2] On the history and philosophy of mesology, see Taylan, 2018.

definition of the nature and goals of biology. As rightly noted by Frederic Holmes, it is more likely that Bernard was then interested in finding a place that would be more open to biological discussions than the old-fashioned Academy of Medicine and Academy of Sciences (Holmes, 1974, p. 403).

Very quickly indeed, the Society of Biology became one of the most important French institutions specifically devoted to the life sciences, and a substantial part of the writings that became landmarks were very often first discussed in the *Comptes rendus des séances de la Société de Biologie*. Bernard himself published roughly one third of his scientific output in that journal, including his work on sugar synthesis in animals (Bernard, 1856). This journal was more accessible for young scholars than the *Comptes rendus de l'Académie des sciences*, and the Society of Biology, during the last third of the 19th century, appeared more dynamic and open than the "controlled" National Academy of Sciences, which was still run by the rearguard (Crosland, 1992). The Society of Biology became the place to discuss new results and emerging research programs, and one of the most influential institutions in the late 19th century French life sciences.

2. What kind of science did the Society of Biology promote during the second half of the 19th century? From observation and anatomy to experimentation and physiology

To account for half a century of the activity of a scientific society is a very difficult task, which would require an exhaustive quantitative study of all the work published and discussed within that society[3]. Here, I will rely on a more modest qualitative approach and I will also draw on previous work (Schnitter, 1992; Bange, 2009) and on the extensive overview provided in 1899 by physiologist Eugène Gley, who was asked, for the 50th anniversary of the Society, to account for the strengths and weaknesses of the Society's activity during that period (Gley, 1899).

First, it must be emphasized that the first volumes of the Society's journal evidently reflect an initial orientation towards description and anatomy. For instance, volume no.1 includes a thematic index comprising entries such as "Pathological anatomy of man and animals", "Botanic", "Zoology" or "Teratology". Most of the papers in that volume are about the description of anatomical and histological structures. Initially, only one section was devoted to experimental science ("Physiology"), which was almost entirely formed by Bernard's and Brown-Séquard's early work. Such a descriptive and observational — rather than experimental — perspective is not surprising because it perfectly fits the Comtian credo embraced by Charles Robin: in the hierarchy of the sciences, experimentation was the method of physics whereas biology was supposed to be about comparison.

Bange and Schnitter note a significant shift during the 1865–1870 period (Bange, 2009: 243). Roughly then, the Society of Biology started to promote a much more experimental and physiological approach. This should not be surprising either: in 1865, Claude Bernard published his opus magnum *The Introduction to the Study of Experimental Medicine* and, after the death of Rayer in 1867, he was elected president of the Society, a position he

[3] Reportedly, steps towards such a quantitative assessment can be found in Claude Schnitter's master thesis, which he defended in June 1991 (Bange, 2009, p. 243). Unfortunately, this work is not referenced in French academic libraries and I was unable to locate a copy.

kept until his own death in 1878. Thus, from the late 1860s to the end of the 19th century, the Comtian and the Bernardian perspectives merged into an orientation that was usually called "positivism" by the biological community of the time (see section 3 below). Most of the work discussed and published during that period pertained to animal physiology in a rather strict and narrow understanding of the term. Typical studies dealt with subjects such as the functioning of the nervous system in vertebrates in various altered conditions, and, later, the nascent field of endocrinology, in which the French school was at the forefront. Brown-Séquard's famous work on experimental epilepsy on guinea pigs was a perfect example of the kind of methodology that the Society rated highly: it was pivotal to ascertain the conditions that were both necessary and sufficient for the controlled production of a specific phenomenon. Brown-Séquard's results are still remembered today because they were acknowledged by Darwin himself as convincing evidence supporting the inheritance of acquired characters.[4] It was in the Society's journal that Brown-Séquard announced, as soon as 1859, what seemed to be a documented case of inheritance of an acquired character (Brown-Séquard, 1859) and "experimental epilepsy", from that point, constantly remained a topic of interest during the following decades (see for instance Brown-Séquard, 1871). It must be noted here that, in those years, although Brown-Séquard was explicitly dealing with heredity, he was especially cautious never to mention evolution and the nascent evolutionary theory.

A generally similar picture emerges from Eugène Gley's detailed review. On 27 December 1899, he delivered to his colleagues a 69-page synthesis on the history of the Society. At that time, the Society's centrality was indisputable, to such an extent that the minister of "Instruction Publique" was invited to attend the anniversary speeches. Gley's synthesis is highly informative and I will only focus here on what I think were the Society's most essential features from 1849 to 1899. First, even if "biology" was favored, there is no doubt, for Gley, that the work promoted by the Society had mostly been about animal physiology. Second, this thematic orientation was closely linked to a strong epistemological commitment: following in Bernard's footsteps, physiology had to be an experimental practice aiming at establishing what was called the "determinism" of specific phenomena (Bernard, 1865). Third, such an epistemological claim was itself understood as the cornerstone of a philosophical positioning usually termed "positivism", even if it was clear at that time that this kind of biological positivism may have had only a very distant relation to Comte's own philosophical system (Gley, 1899, p. 1022–1023). These prominent features strongly limited the kind of topics valued by the Society of Biology. Besides standard physiology, only the nascent fields of microbiology and immunology were progressively welcomed as new disciplines embracing this epistemological attitude (Bange, 2009, p. 247).

This is especially obvious regarding the two main theories that were instrumental in the progressive emancipation of biology as an autonomous science: cell theory and evolutionary theory. Neither were discussed in their own right during the 1849–1899 period. At the end of his text, Gley was forced to admit that evolutionary theory was mentioned in only a couple of papers published in the *Comptes rendus*. He argued that the "positivist" and experimental

[4] Darwin started to refer to Brown-Séquard's work from the 3rd edition of the *Origin of Species* (Darwin, 1861, p. 152). On Darwin's relation to Brown-Séquard's work, see especially Walsh, 2021

orientation of the Society made it impossible to discuss such speculative topics[5] (Gley, 1899, p. 1078–1079):

> Still, transformism [i.e. evolutionary theory] has never been the subject of direct examination or discussion at the Society, unlike everywhere else. One may simply wonder whether, at the time when it began to be studied in France, when it returned in the form of Darwinism to the country of Lamarck, there were enough men in the Society capable of effectively partaking in this examination. One may rather wonder whether those who would have been able to discuss the question were not deterred from doing so at the Society by the very experimental and very positive tendencies that prevailed there. In this way, we would have paid a kind of ransom for the spirit that presided over our foundation. Positivism, starting with its leader, was very hostile to transformism; and Ch. Robin, in particular, manifested this hostility on more than one occasion.

Gley was right: Charles Robin himself, one of the most prominent figures in Parisian medicine and biology in the mid-19th century, repeatedly expressed his opposition to both cell theory (in its Virchowian form) and evolutionary theory, broadly speaking — i.e. whatever the mechanisms considered (Loison, 2015). Even if Gley seemed to regret this orientation that prevented any serious discussion of the main biological theories of the time, one must emphasize here that still in the 20th century the Society of Biology continued to favor empirical and experimental work to the detriment of theoretical issues. In 1948, Maurice Caullery was invited to give a speech for the Society's 150th anniversary. Despite being himself Professor in the chair of "Evolution of Organized Beings" [*Evolution des êtres organisés*] at the Sorbonne, Caullery highlighted the centrality of the experimental method, in a physiological sense, for the Society, and, like Gley did half a century before, when he had to present what he considered the Society's most significant achievements, he chose to focus on work related to endocrinology, including for instance Paul Ancel's on the interstitial tissue in testes (Caullery 1948).

In short, rather quickly indeed, the Society of Biology had tended to reduce biology to physiology and, as a consequence, had come to consider that the only method relevant to produce biological knowledge was the experimental method used in physiology and masterfully laid out by Claude Bernard in his *Introduction to the study of Experimental Medicine*.

3. Biological theory and positivism, the ambiguous Comtian-Bernardian legacy

One cannot expect Auguste Comte's or Claude Bernard's legacy to have been simple and straightforward, especially when both were progressively combined into an idiosyncratic mixture. That would be my only disagreement with Bange's account, who does not tackle the issue of the continuity/discontinuity between Bernard's philosophy of science and the methodology promoted by the Society of Biology (Bange, 2009, p. 243). In such cases, the ill-defined concept of "influence" is too weak a tool to properly understand what was at

[5] Evolution was discussed on a regular basis in another, more modest, scientific journal, the "*Bulletin scientifique dela France et de la Belgique*", which was run by one of the most prominent figures of French neo-Lamarckism, zoologist Alfred Giard (1846–1908).

stake. My claim in the present section is that this Society encapsulated an experimentalist philosophy of biology that was rooted in some of Comte's and Bernard's own positionings but also that, at the same time, it strongly simplified and even *denatured* both of them. It was this biological account of positivism that framed the anti-theoretical dimension of French biology.

Auguste Comte's philosophical system was inherently highly complex and experienced major shifts during his own lifetime (Petit, 2016). For instance, some of his closest supporters, like Charles Robin and Emile Littré, did not follow Comte when, in the late 1840s, he partly renounced some central aspects of his "Philosophie positive" in order to develop what he termed a "religion of Mankind" [*religion de l'Humanité*]. In the life sciences, positivism thus came to label a methodological attitude that only had a distant and elastic relation to Comte's own ideas. This sort of positivism was the main philosophical driver of the life sciences in France during decades (Canguilhem, 1994), and was at the root of the Society of Biology.

In Comte's system, biology was the key science because it acts as a bridge between the natural sciences and what he termed "sociology". This is why he paid special attention to developing his ideas about biology, leading him to propose a substantial philosophy of biology grounded on two concepts: "milieu" and organism. For Comte, biology was the science devoted to the study of the causal relationship between organisms and their milieu, wherein the causal interactions were understood as reciprocal, dialectic ones: if the milieu were able to alter organisms, organisms themselves were endowed with a form of irreducible spontaneity (Canguilhem, 1994).

In sharp contrast, Robin, the Society of Biology, and most French biologists in the second half of the 19th century — see for instance Gaston Bonnier's work in "experimental anatomy" (Bonnier, 1893) — minimize the role of the organism and emphasized the omnipotence of the milieu (Canguilhem, 1992). Very quickly indeed, organisms were pictured as passive automats dominated by their physical and chemical surroundings. This theoretical positioning, closer to Descartes than to Comte, was in complete accordance with the so-called Bernardian experimentalism that was simultaneously being defended: it seemed to legitimate the necessity of studying the impact of the controlled variation of environmental parameters on living bodies (Loison, 2010, 2011). But in so doing, most of these biologists also partly missed one of Bernard's lessons: between an organism's living cells and the environment, there is a complex intermediary, namely the "internal milieu", which highly complicates and buffers the causal action of the environment on living things.

"Positivism", in this specific context, came to signify a rather simple attitude: biology, it was thought, should only be about experimentally linking the abiotic environment to the organism in an unidirectional way. Any form of theorization was immediately opposed because it would reintroduce metaphysics in science. As Eugène Gley still acknowledged by 1899, positivism — albeit no longer Auguste Comte's version of it — remained an active factor in the Society's epistemological orientation (Gley, 1899, p. 1023, my emphasis):

> Without doubt, positivism, as a philosophical doctrine, has little effect on contemporary thought, and the classification of the sciences of Auguste Comte, on which Robin relied so confidently to explain the intentions of the founders of our Society, has rightly been criticized. But of all the great philosophical systems something remains. [...] *Positivism, in turn, has transmitted to many minds its faith in experience as the unique principle of science.*

This is why evolutionary theory was barely an issue for French biology, and especially within the Society of Biology. In *The Origin of Species*, there is not a single piece of experimental evidence of transformation of one species into another. To be convinced of the significance of such a speculative framework, French biologists expected experimental support of the kind provided by physiological disciplines. When eventually, evolutionary theory could no longer be ignored, in the 1880s, it was conceived along these lines as "experimental transformism" (Loison, 2010, 2011). Evolution was understood as only the long-term effect of inheritance of acquired characters, where the milieu had the major causal role. Organisms, reduced to plastic bodies, accommodated this inescapable "determinism" in their morphology and physiology. During the 1880–1920 period, several research programs were launched to ascertain this view of the evolutionary process, in botany, microbiology or zoology. All of them were degenerative according to Lakatos' epistemology (Loison, Herring, 2017).

Such a crude positivism prevented any form of theorization that could not immediately rely on a firm empirical ground. For instance, August Weismann's theory of the germplasm was dismissed as metaphysical and anti-scientific from the outset (Le Dantec, 1909, p. 267). In the early 20th century, genetics met the same fate: for a long time, the gene was caricatured by biologists like Felix Le Dantec or Etienne Rabaud as a reminiscence of the pre-scientific era, when somehow magic properties were attributed to invisible entities. This epistemological attitude, strongly rooted in the Society of Biology, contributed to the gradual marginalization of French biology (Burian, Gayon, Zallen, 1988). Only after the Second World War did French biology come to progressively catch up with international standards (Gayon, Burian, 1989–1990), when, eventually, genetics was taught in the old Sorbonne and molecular biology studied within the Pasteur Institute (Burian, Gayon, 1999).

Conclusion

The history of the Society of Biology ran parallel with most of the history of French biology for almost a century, from the late 1840s until the late 1940s. To decide if the Society's history was itself only a side-effect or a causal factor in the course of this history remains difficult. Yet, given its institutional and scientific centrality since at least the 1870s, I think that it cannot be denied that the Society of Biology genuinely led the way in the building of this defensive form of positivism that decisively opposed cell theory, evolutionary theory and eventually classical genetics. Other factors were of course involved, that most certainly reinforced this situation, like Parisian centralism, the weakness of the relationships with foreign colleagues, etc. (for a more complete survey in the case of genetics see: Burian, Gayon, Zallen, 1988). Nonetheless, in my view this effort to promote an effectively a-theoretical form of biological knowledge played a key role in this state of affairs, and there is no doubt that it was reified in the Society of Biology itself, as Charles Robin's positivist manifesto already exemplified in 1849.

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Биологическое общество во французской науке XIX в. Размышление о биологии и теории с позитивистской точки зрения

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В период с середины XIX по середину XX вв. французская биология, несмотря на выдающиеся достижения таких учёных, как Клод Бернар и Луи Пастер, лишь незначительно способствовала развитию биологической мысли. На протяжении десятилетий это озадачивало историков, учитывая существовавшую в то время во Франции невероятно сильную оппозицию клеточной теории, эволюционной теории и генетики. Цель данной статьи — показать, как конкретная форма позитивизма способствовала формированию эпистемологической установки, разделяемой большинством учёных, которая выступала против любой формы спекулятивного теоретизирования в биологии. Во-первых, я покажу, что Французское биологическое общество, которое быстро стало влиятельным учреждением, продвигало именно этот вид позитивизма, уже воплощая эту позицию в своём основополагающем манифесте 1849 г. Во-вторых, частично на основе вторичных источников (Gley, 1899, Schnitter, 1992, Bange, 2009) я документирую те исследования, которые проводились в этом Обществе во второй половине XIX в. и особенно с 1865 г., когда Клод Бернар опубликовал своё «Введение в изучение экспериментальной медицины». В тот период в биологии особенно ценился экс-

периментально-физиологический подход, сводивший теоретическое объяснение только к выявлению внешних причинных параметров. В заключительном разделе я утверждаю, что именно это двойственное и сложное наследие Конт-бернардианства было охвачено термином «позитивизм» во французской биологии. Я особенно акцентирую внимание на том факте, что этот позитивизм был грубым упрощением по сравнению с собственными тонкими идеями Конта и Бернара. В отличие от Конта, здесь почти не оставалось места для действий организмов. В отличие от Бернара, он сводил к минимуму значение третьей сущности между живыми частями организма и окружающей средой, а именно «внутренней среды».

Ключевые слова: Биологическое общество, позитивизм, Огюст Конт, Шарль Робен, Клод Бернар, французская биология.