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## Special Issue Michel Foucault and the Historiography of Science

### Foucault and the “Noble Sciences”: From *Aufklärung* to “Dignity” in Philosophy

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#### Abstract

“Noble sciences” was a term sometimes used by Michel Foucault to refer mostly to Mathematics and Physics (and, to a lesser extent, Chemistry). This article explores this notion, based on *Dits et écrits*, understanding that there is a strong connection between this term and a reflection on “enlightenment”, or *Aufklärung*. But how has this heritage unfolded in our days? We will discuss this theme, advancing to the text “La vie: l’expérience et la science”, where another important associated question will appear: how to understand what can give Philosophy “dignity” amid the extension of that Kantian tradition?

**Keywords:** Foucault; Sciences; *Aufklärung*; Dignity; Philosophy.

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#### Introduction to the Theme

What did Michel Foucault understand by “noble sciences”? In some cases, like in the important *Dits et écrits*,<sup>2</sup> he sometimes mentions this, relating the term to Mathematics and Physics (and Chemistry, in certain instances).<sup>3</sup> First of all, he would have the same concept to refer to several sciences (two or three, as mentioned above), whose repercussions distinguished them from the others for a long time. As seen in “La vie: l’expérience et la science” (Foucault 1994, III, 768), their “high degree of formalization, [their] aptitude for mathematizing” and the privileged position they used to occupy in the “positivist hierarchy of sciences” would be important characteristics of these sciences.

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<sup>2</sup> It is a collection of his prefaces, interviews, lecture summaries, etc., collected by Gallimard, and articles whose importance Deleuze made direct reference to his observations about our present appeared in his books, but “even better in the interviews he gave the newspapers. [... and:] This is why Foucault’s complete interviews are an integral part of his work” (Deleuze 1990, 143).

<sup>3</sup> Important texts can be mentioned here, such as “Le grand enfermement” (Foucault 2001, I), “Préface à l’édition anglaise” (Foucault 2001, I), “Entretien avec Michel Foucault”, (Foucault 1994, III), “Postface” (Foucault 1994, IV), “Le sujet et le pouvoir” (Foucault 1994, IV) “Réponse à une question” (Foucault 2001, I) and “La vie: l’expérience et la science” (Foucault 1994, IV).

Can we say that Foucault is seduced by this, or wouldn't such “nobility” imply a necessarily high axiological position? This is what we seek to understand further on, as Foucault himself referred to Mathematics and Physics as, perhaps, having a “stronger epistemological structure” (Foucault 1994, I, 688).<sup>4</sup> “Strength” which in Kant's work made these sciences the models to be followed, including metaphysics; or “strength” that made Comte announce as a mature phase of reason (not “adolescent”, therefore) the primacy according to which it is recognized, “as a *fundamental rule*, that every proposition not strictly reducible to the simple statement of a fact, be it particular or general, cannot offer any real and intelligible meaning” (Comte 2016, 29, author's emphasis).

Against those sciences, with a “stronger epistemological structure” (Foucault 2001, I, 688)<sup>5</sup> Foucault will focus on those that would have a “denser and more complex” character. Then, at an opportune time, we will seek to demonstrate this. In any case, the initial steps of our work will aim to show the connection between the “noble sciences” and the theme of “Enlightenment”, or *Aufklärung*. Research on this brings us closer to Kant (and Mendelssohn, a little), insofar as Foucault attributes to such an undertaking a novelty in Philosophy: for the first time, a thinker sets himself to the task, henceforth extended to the present day, of “diagnosing the present”.

It is not difficult to associate this reference by Foucault to *Aufklärung*, often linked to questions about power and ethics. How can we not be so governed, following the primer of Christian pastoral care that states have adopted? How can we engender new or creative, ethical-aesthetic ways of living? Such questions will animate Foucault's research in the 1970s and 1980s. However, we identify as present, though to a lesser extent, a relationship between the *Aufklärung* and an epistemological approach in Foucault. That is, he also mentions a Kant focused on a critical problem and that, in the midst of this, he cannot obliterate the presence of Mathematics and Physics, which are fundamental for the relocation of metaphysics in the order of knowledge.

The various Foucauldian readings about the Kantian newspaper article “Answer to the question: What is ‘Enlightenment?’” (Kant 2005)<sup>6</sup> in very specific and, as we said, smaller instances, can nevertheless lead us to that. Later, we will also need to explain the reasons for Foucault's little emphasis on the “noble sciences”, which in Kant are an important part of the “first revolution” of knowledge.

According to the line of argument that we have adopted, another fundamental text to investigate more recently the developments of the Kantian enterprise is the re-editing of the preface that Foucault presided while still alive, in 1984, to Canguilhem's fundamental work, *The Normal and the Pathological* (Foucault 1994, IV).<sup>7</sup> Here, too, it is not a matter of proposing a comparison between the two authors, that is, between a Canguilhemian epistemology and Foucauldian archeology, for example<sup>8</sup>, but to highlight some points and questions that this text raises.

Thus, Michel Foucault claims to have been linked to a tradition related to French epistemology, which began by adopting (with Cavaillès) a more “ruled” or more “scientific”

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<sup>4</sup> Due to the fact that “Dits et Écrits” contains numerous Foucauldian texts, from now on we will mention the one used in the footnote. In the case now: “Réponse à une question”.

<sup>5</sup> “Réponse à une question”.

<sup>6</sup> This text by Kant was written at the invitation of the newspaper “Berlinische Monatsschrift” on December 12, 1784, whose question “what is the Enlightenment?” had also been answered by philosopher Moses Mendelssohn three months earlier, on September 9. Apparently, Kant did not know the answer given by Mendelssohn.

<sup>7</sup> “La vie: l'expérience et la Science”.

<sup>8</sup> There are already good studies close to us on this, such as those by Portocarrero (2009) or Roberto Machado (2006), in addition to Rabinow and Dreyfus (1995). But we also believe that comparisons are always complicated, as Deleuze and Guattari warned us, given that each thinker engenders their own peculiar “abstract machines” (Deleuze and Guattari 1996).

kind of investigation in the footsteps of the pioneer Husserl. But this would not be the only aspect to be taken into account. Amid scathing criticism towards Phenomenology and, elsewhere (but taking the same period into account), Marxism, two hegemonic trends in his undergraduate days, Foucault is mostly dedicated to Canguilhem. And it has nothing to do with the “noble sciences”. On the contrary, there are other criteria to be taken into account, including understanding how Foucault, who does archeology, not epistemology, understood the term and the conditions necessary for knowledge to rise to the position of philosophical “dignity”; an understanding that might be drawn or sketched, despite the countless gaps left by “La vie: l’expérience et la science”.

## An Epistemological Reading of Kant

In 1970, in “Préface à l’édition anglaise” (Foucault 2001, I) of *The order of things*,<sup>9</sup> Foucault emphasizes that he did not seek in his book what he himself would call “noble sciences”, “rigor” or “necessary sciences”. Nothing more natural if he did. After all, “one can observe in their history the almost uninterrupted emergence of truth and pure reason” (Foucault 2001, 875).<sup>10</sup> In this foreword, as in other places we will have the opportunity to visit, Foucault is referring to Mathematics and Physics (at other times, he includes Chemistry), whose method of research and influence were so cherished by the sciences of the 19th century and first half of the 20th (at its most overt slant, at least).<sup>11</sup>

This becomes evident when he considers Psychology, a science extensively researched by him from the late 1940s to the 1960s and places it as *Aufklärung*’s heir. What does that mean? To align oneself “on the sciences of nature [and...] to find in man the extension of the laws that govern natural phenomena”. The “destiny of this psychology”, in its eagerness to want objective knowledge, was therefore linked to the aspiration of a path according to which “all scientific knowledge must go through the determination of the quantitative relationship, the construction of hypotheses and experimental verification”. (Foucault 1994, I, 120).<sup>12</sup>

The failure of this undertaking had made Psychology not so much “revived” as a science throughout its history but rather constantly faced with an “incomplete task”. More recently, Foucault said in 1957, it sought to establish “new relationships with practice: education, mental medicine, organization of groups”, intending to be its “rational and scientific foundation”. Thus, it should answer questions such as school success or failure, social integration, and adaptation of man to work. But, in addition to genetic psychology or psychopathology, the “choices” made by Psychology were evident: it was a study whose goal was the abnormal, the conflicting or the pathological, a study on, in short, the “contradictions of man with himself” (Foucault 1994, I, 122).<sup>13</sup>

These are choices that, as reaffirmed by Foucault in the next article, “La recherche scientifique et la Psychologie” (Foucault 1994, I, 139), bring the idea of this binary quest of Psychology when it wants to be scientific research or not, of seeking it through the

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<sup>9</sup> This work was originally published in 1966 with a slightly different title, *Les mots et les choses* [Words of Things].

<sup>10</sup> As *Dits et écrits* contains numerous texts, we will always put the corresponding text in a footnote, in this case, the “Préface à l’édition anglaise”.

<sup>11</sup> Soon after, he questions: that he dared to go through a different, risky undertaking, witness, perhaps, to a “state of mind, an intellectual fashion, a mixture of archaism and daring appreciation, of intuition and blindness”, but, and if “empirical knowledge, in a given time and culture, actually had a clearly defined regularity? If the very possibility of recording facts, of letting oneself be convinced by them, of deforming them into traditions, of making a purely speculative use of them, even if that were not left to chance” (Foucault 2001, I, 875)

<sup>12</sup> “La psychologie de 1850 à 1950”.

<sup>13</sup> “La psychologie de 1850 à 1950”.

objectivity of possible knowledge. But is the physicist asked if his Physics is scientific? Then why is it appropriate to ask the psychologist if the questions he poses to me and perhaps brings an answer to have the weight of that objectivity? Foucault tries here to highlight the peculiarities of Psychology, of course, but it was undeniable that the other sciences, in general, would venture there; that is, the humanities born in the 19th century and the other sciences tended to align themselves with a supposedly successful tradition, led by Mathematics and Physics, something that lasted until much of the first half of the 20th century.

This point brings us back to an important topic: the tradition of Western knowledge, the tradition of the *Aufklärung*, target of Foucauldian criticism for better and worse if we can put it like that. Let us explain: in “Postface” (Foucault 1994, IV, 37), set in 1980, Foucault said that the *Aufklärung* is our “most ‘recent past’”, repeating an idea by Canguilhem. At another time, however, he now reports that the *Aufklärung* heritage had become “sterile” (Foucault 1994, IV, 225).<sup>14</sup> We will try to tread these trails a little below, always seeking to make connections with the “noble sciences”.

In “Postface”, it was a matter of touching on the theme of the “abominable” social practices that, at a certain moment, go beyond the “limits of intolerance” (Foucault 1994, IV, 35). But, at the same time, that in no way allowed us to put reason itself in check, since everything that comes for good is from it, and everything that comes to bad is not rational at all. So, finally, Foucault suggests to Agulhon and his collaborators that they set themselves to the task of carrying out “a major historical investigation into the way in which the *Aufklärung* was perceived, thought, lived, imagined, conjured, anathematized, reactivated in Europe in the 19th and 20th centuries.” (Foucault 1994, IV, 37). Now, Foucault himself had already started this study, and it would be up to us to see along with him how a certain hegemonic tendency could be established, with Kant in a central position in this debate.

In fact, this philosopher’s Foucauldian forms of appropriation were numerous, and it is not the case here to mention them.<sup>15</sup> We are only interested in pointing out his undeniable delay in reading the small, but, for him, a very relevant Kantian newspaper article “Answer to the question: What is ‘Enlightenment?’” (Kant, 2005), published in December 1884 and which Foucault discusses in numerous texts and lectures, whose understanding is only completed by relating them all.<sup>16</sup>

From these texts, we intend to initially highlight the epistemological question present there, hidden, so to speak, under the veil of a reflection on power and ethics, the predominant themes of Foucault in the 1970s and 1980s. In other words, a path that leads us towards Mathematics and Physics, fundamental sciences for the construction of an

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<sup>14</sup> “Le sujet et le pouvoir”.

<sup>15</sup> It is known, for example, that Kant was the object of study of his complementary doctoral thesis and cannot be removed if one takes criticism of the anthropological tendency of the West. In *Les mots et les choses* (Foucault 2002) the man who knows is also the object of knowledge, and this trait would certainly make the human sciences problematic. The somewhat recent book by Celso Kraemer (2011) addresses precisely the different readings that Foucault makes of Kant, although at times we do not agree with him (which can also be a matter of interpretation), for example when he says: “From 1966 to 1978 there were no references by Foucault to the *Aufklärung* (Kraemer 2011, 265). But the “Postface” mentioned above does so, in 1980; Furthermore, we are working with the idea that the acceptance in life of republishing the preface to Canguilhem’s book attests, at the very least, to an agreement and/or a manifestation of the presence of that term in Foucault.

<sup>16</sup> Namely, mainly: “Qu’est-ce que la critique? [Critique y *Aufklärung*]”, lecture given in 1978; in the article “Qu’est-ce-que les Lumières?”, from 1984, published in the “Pantheon Books”, in New York and in the “Magazine Littéraire” (Foucault 1994, IV), both dealing here or there with different contents, although along the same line of argument; in “La vie: l’expérience et la Science (Foucault 1994, IV), in addition to courses given at the “Collège de France”, especially “Le Gouvernement de si et des autres”, in the lesson of January 5, 1983 (Foucault 2008).

objectivist/positivist idea of knowledge, although in the end, we are led back to point that only touches on the theme of the “formality of knowledge” or either a connection to reality from a very generic position of Foucault.

Speaking about “Enlightenment”, according to Kant’s newspaper article, Foucault seeks to show that it leaves everything open: the departure of man from his minority is not specified, each one having only the courage to think for himself. “*Sapere aude!*”; for Kant this means: I can use a guide text, a spiritual teacher or any method; I can therefore – this was what many still did – make use of the “convenience” of this practice, revealing here a spirit that does not want to have the trouble of thinking (KANT 2005, 64), or a thought that one accepts to be tutored. Think for yourself, though!

Looking over other moments of Foucault about *Aufklärung* in Kant, the latter leads us to think of something like a “teleology immanent in the very process of history” (Foucault 1994, IV, 679),<sup>17</sup> because for the first time, a thinker starts to talk about the present. Many are the Philosophers cited who seem to have also done this: Plato, Augustine, Descartes, given his philosophical autobiography, *Discourse on method*; Vico or Hegel, in their own way. But, for Foucault, no other in the same way; no one else had sought to understand or question what this present to which I belong is, a problem that could grant me the second step, reactivating an old Kantian questioning: after all, what should I do?

In this way, Kant, for Foucault, circumvents the question of some kind of revolution, which by itself would not respond to the progress of humanity. Instead, what should be highlighted is the “disposition” (the “will”) of the new *aufklärer*, of the new subjects capable of the process of “enlightenment” through autonomous and self-conscious reason (Foucault 1994, IV, 680-685).<sup>18</sup> That is, in this way Kant, in addition to referring to a historical moment in the West, the Enlightenment, engraves in our hearts the problem of a perennially self-questioning history of reason, namely, “in the development and establishment of forms of rationality and of technique, [in] the autonomy and [in] the authority of knowledge” (Foucault 1994, v, IV, 686).<sup>19</sup>

Ontology of the present and ethics: this will be a priority target of Foucauldian discussions from the second half of the 1970s to the 1980s.<sup>20</sup> “*Qu’est-ce que la critique? [Critique y Aufklärung]*” is about leading us to a historical-philosophical plan of that Kantian tradition, from the perspective that there was a certain secularization of the Christian pastoral, giving rise to a new type of “governmentalization”. Then, the forms of government of men over themselves and over others exploded: children, beggars or the poor, “a family, a house, armies, cities, states, their own body, their own spirit” (Foucault 1995, 3).

Michel Foucault’s departure from this conference consisted in dividing the historical-philosophical investigation into an archaeological, genealogical procedure and the imbrication of both. From now on, knowledge-and-power will no longer be dissociated and the pertinent strategies to be carried out will consist of this recurring suspicion of the “acceptability of a system”, based on the starting idea according to which everything is arbitrary and contingent (Foucault 1995, 15). But we are advancing this question very quickly because, precisely, the question is: why keep insisting on the “analytic of truth” present in Kant, if what Foucault does is only pointing to this *ethos* to be assumed?

Following the same line as Temple (2009), we find it perfectly possible (because of the main texts that we have listed about the *Aufklärung* in Foucault) to identify his mention of Kant’s aspect of the problem of knowledge, or “analytic of truth”, as he calls it. In Michel

<sup>17</sup> “*Qu’est-ce que les Lumières?*”.

<sup>18</sup> “*Qu’est-ce que les Lumières?*”.

<sup>19</sup> “*Qu’est-ce que les Lumières?*”.

<sup>20</sup> There is a lot of bibliography available, dealing with subjects related to Foucauldian ethics. Some of these are gathered in the edition edited by Vera Portocarrero and Guilherme Castelo Branco, *Portraits of Foucault* (2000).

Foucault, this appears clearly in the Pantheon Books edition of the text “Qu’est-ce-que les Lumières?” and in 1984, in the slightly modified reprint of his preface to Canguilhem. Thus, says Foucault in that first text: “Criticism is somehow the logbook of reason made greater in the *Aufklärung*; and, conversely, the *Aufklärung* is the age of Criticism” (Foucault 1994, IV, 567).

Now, what does the Kantian critique say? Furthermore, is there any important reference by Kant concerning Mathematics and Physics? Without trying to delve too deeply into this issue, which others have already done,<sup>21</sup> there is undoubtedly a clear reference to this. We only have to look at the rather illuminating “Preface to the Second Edition” of *Critique of Pure Reason*. Kant establishes in it very clearly the privileged place that knowledge occupied, saying that it was only Mathematics, since the Greeks, and Physics, around the 17th century, that walked the safe path of science (KANT 1985). For him, if metaphysics had not been successful, it was because it had not observed three very important prerequisites: not falling into difficulties after reaching its goal, not needing to turn to postulates established before constantly, and, finally, reaching “unanimity” among the various collaborators” (KANT 1985, 15). Further on, Kant reinforces this: the dogmatic procedure of reason acts “without a prior criticism of its own capacity” (KANT 1985, 30, emphasis added). Paying attention to this would lead us to the safe path of science, namely, the universal and the necessary.

Kant takes his reader to the fabulous feats of modern physicists (for example, when Galileo imprinted the speed he wanted on a sphere on an inclined plane, he revealed that it was not the “nature” of things, their substantial Being, that imposes their dynamics on us) and these feats were exemplary. Nevertheless, they made the theoretical-metaphysical “imagination” take a step back, giving way to an external nature that now shows itself, or is forced to show itself, more by the data of the experience my work provides than by the arrogance – in the Kant’s words, by the “dogmatism” – of a reason that insists on going beyond the limits of “possible experience”:

Criticism is not opposed to the dogmatic procedure of reason in its pure knowledge as a science (since it is always dogmatic, that is, strictly demonstrative, based on safe a priori principles), but rather to dogmatism, that is, to a presumption of going forward only with a knowledge of pure concepts (philosophical knowledge) (Kant 1985, 30, author’s emphasis).<sup>22</sup>

This epistemological dimension in Kant also appears in the Foucauldian lecture of January 5, 1983, at the *College de France*. An interesting position by Foucault is that we think not about the question of modernity but rather about “modernity as a question” (Foucault 2008, 15). What did that mean? Always keeping a transversal position, without wanting to fit into any rigid scheme of current of thought and without announcing any kind of enunciative

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<sup>21</sup> It is known that Kant sought to give an answer to rationalism and empiricism and that the way out of the “dogmatic slumber” awakened by Hume was the establishment of synthetic a priori judgments, the object of extensive discussion later. Authors such as Popper, for example (1972), will not accept the Kantian approach. For a more general study of Kant, the doctoral thesis by Lebrun, *Kant and the end of metaphysics* (2002) is fundamental.

<sup>22</sup> For Kant, there would still be a “second revolution” in this process in search of the right paths of the sciences: the understanding of human a priori and transcendental conditions – in contact with nature, it is the internal forms of sensitivity and understanding that regulate knowledge (Kant 1985, 20), but the important thing here is to retain the emphasis given to Mathematics and Physics.

arrogance,<sup>23</sup> Foucault suggests two philosophical options in which we are confronted today: either

a critical philosophy that will present itself as an analytical philosophy of truth in general or a critical thought that will take the form of an ontology of ourselves, of an ontology of the present. And it is this form of philosophy that, from Hegel to the Frankfurt School, passing through Nietzsche, Max Weber, etc. founded a form of reflection to which, of course, I relate as much as possible. (Foucault 2008, 22)

## On “Dignity” in Philosophy

It is not intended here to deny that Foucault’s relationship with the *Aufklärung*, in the wake of Kant, tried to emphasize a certain notion of “criticism” that, in Foucault, must go beyond an epistemological inquiry.<sup>24</sup> How not to be governed and, extending this to Michel Foucault’s reflections in the 1980s, how to develop their own ethical-aesthetic ways of life will, of course, be what our thinkers will want to emphasize more. Our exercise here only intends to demonstrate that an epistemological dimension did not fail to insinuate itself in the treatment given by Foucault to the *Aufklärung*, and that this appears more vigorously on the occasion of his last publication before his premature death in 1984: “La vie: l’expérience et la science” (Foucault 1994). It was this work that introduced the reader to the fundamental work of his master Canguilhem, *O normal e o patológico*, in the preface to the American version, in 1978, later inserted in volume III of *Dits et écrits*, in the 1994 edition, and which now reappears conserving the fundamentals, almost everything, in short, of what he had written before.

Where do Mathematics and Physics insinuate themselves in this new text? Based on an analysis of the repercussions of the *Aufklärung* in France and, more specifically, on some fundamental authors, while others were not. This point of view made Foucault rescue the “strange 60s” in which he had lived and reputed a good part of the influences suffered by students, teachers, and researchers in Canguilhem’s classes or books. Well, Michel Foucault also includes himself here, given that he circumvented some strong trends of his time, linked either to a position on Marxism, to Freudians, philosophers, specialists, politicians, theorists, academics or not, or, as another possible classification that he gives us, to “a philosophy of experience, of meaning, of the subject”, as opposed to a philosophy of the concept and rationality (Foucault 1994, IV, 764).<sup>25</sup> Everything would have to do with the “reception” in France of the *Cartesian Meditations* (2006), pronounced by Husserl in 1929 and later published.

Therefore, if one direction was towards that philosophy of experience, of meaning, of the subject, another would also emerge, this time related to the works of epistemologist Cavailles. Foucault will point to the publication of his theses on the axiomatic method and in *The formation of set theory*, a reading of Husserl made “more theoretical” or “more regulated” speculatively speaking; and, apparently, but only apparently (!), less linked to “immediate political questions” (Foucault 1994, IV, 765). For he is going to question two

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<sup>23</sup> Foucauldian thought demands that its reader preferably remake these ideas or even explode them. Thought is made to move ideas and must constantly “carbonize” (Foucault 2001, I, 1591). In fact, Michel Foucault himself did this throughout his life, turning his writings into “fireworks”. This is what Roberto Machado’s (2017) beautiful writing shows us, his “impressions” after his direct contact with Foucault, obviously in an entirely positive sense: a thinking that is constantly created and recreated. In other words, the act of an “experiencer rather than a theorist”, one who writes to change himself; although he says that it is necessary to meet criteria of academic and historical truth, but “the essential thing (...) is rather in the experience that the book allows to do”; “I do not teach, but gestures made in public do” (Foucault 1994, IV, 42, 45 and 47, respectively).

<sup>24</sup> This is what Costa (2018) tries to show, for example.

<sup>25</sup> “La vie: l’expérience et la Science”.

things at this very moment: first, what, in fact, characterizes a more or less political knowledge? The question about the conditions of existence of rationality in the midst of war was the best form of combat at the time.<sup>26</sup> A similar question, which took place within the universities, was about the “statute and role of knowledge” (Foucault 1994, IV, 765) that were insinuated, so they say, through that epistemologist. In this, merit of Cavailles, when reading a more formalist and intuitionist Husserl, although Foucault does not explain to us in what way he thought this, or to what extent he understood the presence of Mathematics in Husserl, for example.<sup>27</sup> The important thing to be highlighted here is that the reactivation of the Kantian questioning, the “symbol” of the attempt to understand the present, to Foucault cannot appear everywhere and all at once.

Thus, in Germany, a historical and political reflection on society was the tail of that tradition, in the likes of Feuerbach, Marx, Nietzsche, Max Weber, Luckács and the Frankfurt School. But Foucault specifies more the tradition of *Aufklärung* in France, and the curiosity of the text “La vie: l’expérience et la science” is that currents such as Phenomenology, for example, did not dignify (! – and the word is really hard) by themselves that tradition. Only the history of the sciences did it: Foucault cites Saint-Simon, the positivism of Comte and his followers – soon after including the aforementioned Cavailles, plus Koyré, Bachelard and Canguilhem (Foucault 1994, IV, 766-767).

Phenomenology, therefore, is left out, and “La vie: l’expérience et la science” reaffirms the Foucauldian position contrary to this current that took the subject, his experiences and their meaning as the object of its research. In our author’s view, Phenomenology never wanted to be a science,<sup>28</sup> much less share the Husserlian formalist inclination, which shows

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<sup>26</sup> Elsewhere he will say that it is useless to come up with a totalizing philosophy (like Sartre, sometimes), insofar as it ends up distancing itself from reality. In “Le grand enfermement” he says: “everywhere Sartre totalizes, he moves away from reality. And every time he takes hold of a specific problem, for which he has a specific strategy, for which he fights, he approaches reality” (Foucault 2001, I, 1173).

<sup>27</sup> Although, in his fundamental text on Phenomenology, Husserl was not seduced by Mathematics in the same way that Descartes was, and he did not exclude it from the epoché. As we can see (ROCHA 2020) regarding the Husserl/Descartes relationship, a passage by him announces his intentions: “It is through the study of his Meditations that the phenomenological source has been transformed into a new type of transcendental philosophy. We could almost call it neo-Cartesianism, even though it was forced to reject almost all the known doctrinal content of Cartesianism” (HUSSERL 2001, 19). Regarding the inclusion of Mathematics in the epoché, Husserl says: “I therefore remove from the circuit all the sciences that refer to this natural world, however firmly established they may be for me (HUSSERL 2006, 81, emphasis added).

<sup>28</sup> This is also what Matthews (2011, 17) points out: “Thus, an important part of phenomenology, as the study of how things appear to consciousness, is the study of the different ways in which the same things appear to different modes of consciousness, as thought, perception, fear, love, imagination, and so on (...) and much of the phenomenological literature is, in effect, concerned more with the essences of the different modes of consciousness than with the essences of different modes of consciousness. of the different objects of consciousness”. But, although Husserl himself wanted to place Mathematics and Physics, no matter if they were exemplary knowledge until his time, below philosophical knowledge, it was for the constitution of a fully scientific knowledge, a more original and fundamental knowledge: Phenomenology. Thus, Mathematics will not be exempt from the phenomenological “reduction”, since everything in Husserl must remain “in parentheses”, until the first truth/evidence/intuition can emerge (the “ego”). In the same way, Physics and, we would even say, the experimental sciences as a whole, do not answer apparently simple questions that the philosopher can ask: for example, how to justify statements such as “all valid thinking is founded on experiences, as the only donor intuition” (Husserl 2006, 63)? How, questioned Husserl, can direct and singular experiences generate generalities and laws? These are questions that only the philosopher can ask, and only him, inverting the entire polarity of nobility of the sciences now prevailing: we (philosophers) “not letting ourselves be overshadowed by prejudices [we are] the authentic positivists” (HUSSERL 2006, 64).

how Foucault was not seduced by the healthy exercise of surrounding each question with a concept - certainly typical of philosophers in general - since just this wouldn't guarantee the legitimacy of the current of thought. Thus, (asking for support in some other texts), the phenomenologist is concerned with the “meaning” of what is perceived (Foucault 1994, I, 62),<sup>29</sup> seeking to investigate the “intentionalities of the speaking subject” (Foucault 1994, III, 465)<sup>30</sup> and, in general, wanting to map the lived experiences of each one, the problem was basically in relegating to lower planes precisely what should precede everything: the subject, what I “aim,” and what I do, all of this is not sustainable if the dimension of history does not precede them; if we do not “historicize” that subject of the phenomenologists (hence Foucault speaks of “processes of subjectivation”),<sup>31</sup> giving it “a consciousness that is transformed through history”, and that cannot be translucent of itself by itself (Foucault 1994, III, 147).<sup>32</sup> Anyway, Foucault says he shared that “more regulated” path, as we said above, in a clarification that can be found later, still in the text “*La vie: l'expérience et la science*”, when he compares Phenomenology to Canguilhem's perspective. Namely, the difference in treatment between the lived [vécu], with the search for a certain “originating meaning of every act of knowledge”, and the living [vivant], which, in Canguilhem, is tied to a historical concept of life (Foucault 1994, IV, 773).<sup>33</sup>

“*La vie: l'expérience et la science*” does not highlight the Foucauldian university period in detail, but the currents from which he cites imply this and can give us the dimension of how the *Aufklärung* tradition is capable of being reactivated or not. Thus, elsewhere Foucault tells us that the interest in Phenomenology, typical of French universities from 1945 to 1955, had to be over (Foucault 1994, IV, 432),<sup>34</sup> and already from 1950 onwards, he confirmed it, gradually entering the scene of Psychoanalysis and authors such as Lévi-Strauss (Foucault 1994, III).<sup>35</sup> But we should not move on that quickly, because there was an equal interest in Marxism, which only began to wane after the French movement of May 1968, when its dogmatism was called into question (Foucault 1994, III, 61).<sup>36</sup> An answer to this current also needed to be given since one of its weapons consisted in claiming for itself the status of a current in tune with the rigors and objectivity of the “noble sciences”.<sup>37</sup>

That is, giving importance to economics and the “game of superstructures and infrastructures” (Foucault 1994, 147),<sup>38</sup> an immediate question that remained was how he could, reconstituting a history of society with its schemes, account for the history of sciences, the nature and development of mathematics, theoretical physics, etc. And this was generally

<sup>29</sup> “Qui êtes-vous, professeur Foucault”.

<sup>30</sup> “Dialogue sur le pouvoir”.

<sup>31</sup> We have discussed this elsewhere (Rocha and Rocha, 1990).

<sup>32</sup> “Entretien avec Michel Foucault”. Foucault said that, in practice, it was the concern for the meaning of history, namely, the “conditions according to which a scientific object could be constituted” (Foucault 1994, I, 602) that made him write the works *histoire de la folie* (1976) and *Naissance de la clinique* (2003).

<sup>33</sup> “*La vie: l'expérience et la Science*”. Portocarrero (2009, 11) explains this: to a “conceptual, historical and discontinuous analysis, but without considering its questioning of the truth value of the knowledge of life”.

<sup>34</sup> “Structuralisme et poststructuralisme”.

<sup>35</sup> “*Le pouvoir, une bête magnifique*”. On the entry into the scene of these authors and currents, in a more general perspective, not necessarily Foucauldian, see the two volumes of *History of Structuralism* (Dosse 1993 and 1994).

<sup>36</sup> “Entretien avec Michel Foucault”.

<sup>37</sup> Michael Löwy makes a good synthesis of how this objectivity could be thought of, from a Comte statement: “Society is governed by natural laws, that is, invariable laws, independent of human will and action [and...], therefore, it is epistemologically assimilated by nature (what we will classify as ‘positivist naturalism’)” (Löwy 2000, 17).

<sup>38</sup> “Entretien avec Michel Foucault”.

the problem at the time he lived, and which authors such as Althusser or Desanti, Foucault’s professors, addressed themselves (Foucault 1994, IV, 53-54).<sup>39</sup> Marxism wanted to separate what was science from what was ideology (Foucault 1994, 53).<sup>40</sup> But the current notion of ideology, for Foucault, presupposed bringing with it the idea of a hidden truth to be exposed. And intellectuals attentive to this, therefore, needed to separate the scientific and objective contents from the ideological ones, “changing people’s conscience”, contaminated by false ideas. Foucault points out that many problems exist there and, for example, if we took this seriously, it would be difficult to assess the question of a supposedly racist scientific ideology: the biological concept of degeneration, says Foucault, and “racism itself was not initially a political view”; moreover, modern anti-Semitism would not have started with that concept (Foucault 1994, III, 324-325).<sup>41</sup>

But the fundamental thing is to understand that, if Marx certainly represented an important moment for Western thought (but Foucault warns us: we cannot dissociate him from the context of the 19th century!), reactivating that tradition of *Aufklärung*, the same could not be said of Marxism. On the contrary, this represented the phase of a “political impoverishment”, tied to varied “power dynamics” and always under the banner of scientific rationality that legitimized its “coercive propositions” (Foucault 1994, III, 600).<sup>42</sup> And it is this same rationality that is at the core of communist parties (Marx’s theory could not assert itself without the existence of these parties), joining everything to “prophetic” elaborations that, by the way, were the part Foucault didn’t like in Marx (Foucault, 1994, III, 612).<sup>43</sup>

In “La vie: l’expérience et la Science” (Foucault 1994, IV), in line with what we are dealing with here, it is important to highlight that Foucault points out the fact that the history of science, preferably or almost exclusively, had been in charge of the “noble sciences”, unlike Canguilhem.<sup>44</sup> What did he do? He chose a completely different scientific region, the “sciences of life”, or the history of Biology and Medicine (anatomy and physiology, in particular), whose knowledge was “much less deductive” (Foucault 1994, IV, 768). Canguilhem’s merit was not only in electing “regions” of knowledge that were foreign to the routine habits of historians of science. It is also a matter of seeing how he “relocated” a series of concepts then used, from which he cites and emphasizes the one of “discontinuity”.

For Foucault, this “discontinuity” at times highlighted the “history of ‘true discourses’”, scientific discourses constantly subjected to rectifications and corrections; at other times, it sought to show that there was no scientific unit where pathologies appeared “under a background of normality”. At the heart of this question was the idea, absolutely interesting (!), of not only relying on “normal science”, but also seeking “the internal normativity of different scientific activities” (Foucault 1994, IV, 771). And that between truth and falsity, notions typical of the sciences until then, Canguilhem places “error” (Foucault 1994, IV, 772).<sup>45</sup>

Therefore, we were not faced with too evident and demarcated relationships, where options “T” and “F” await to be chosen. Canguilhem showed, in a transversal exercise, so to speak – an exercise that could not be tied to the science-object relationship and the fixed region of research. This is seen when Canguilhem shows in his investigations, according to

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<sup>39</sup> “Entretien avec Michel Foucault”.

<sup>40</sup> “Entretien avec Michel Foucault”.

<sup>41</sup> “Le jeu de Michel Foucault”.

<sup>42</sup> “Méthodologie pour la connaissance du monde: comment se débarrasser du marxisme”.

<sup>43</sup> “Méthodologie pour la connaissance du monde: comment se débarrasser du marxisme”.

<sup>44</sup> The case of Bachelard is exemplary. In his book, the formation of the scientific spirit (1996), the development of the notion of “epistemological obstacle” seeks to show how knowledge rises from common sensory experience to formal and abstract concepts, where Mathematics, Physics and Chemistry rest.

<sup>45</sup> “La vie: l’expérience et la Science”.

Foucault’s words, that “life and death are never matters of physics themselves (...); it is for him a question of morals, or politics, not a scientific question” (Foucault 1994, IV, 773).<sup>46</sup>

Now we are in a position to insert that old difference between strong sciences and dense and complex sciences. The “density” of these sciences would characterize the problems around the “status, conditions of exercise, functioning, the institutionalization of scientific discourses” (Foucault 1994, I, 688).<sup>47</sup> How can we not understand the need for the difference in importance given by a Kant in his time, concerned with establishing the status of the sciences, in relation to what happened in the few years that followed his undertaking, when the phenomenon of population intensified? Now, social and governmental reasons emerged (Foucault 1994, III, 13-14),<sup>48</sup> new demands, therefore, and it is because we are in this ever-changing historical ground that made Foucault understand that “theory” cannot be opposed to practice, as much has been said in Philosophy. In fact, in itself every theory “is already” a “practice” (Foucault 2001, I, 1176).<sup>49</sup>

Thus, the text “La vie: l’expérience et la science” continues to give little clarification to its reader and ends up resuming in more detail the distance between Phenomenology and Canguilhem: “this philosophy of meaning, of the subject and of the lived experience that [he] opposed to a philosophy of error, of the concept of the living, as another way of approaching the notion of life” (Foucault 1994, IV, 776).<sup>50</sup> But is it from this more pertinent development of French epistemology with Canguilhem that the Kantian tradition will find a final safeguard? Yes and no. This answer, from our perspective, would have a double understanding, each, obviously, from a certain point of view. Yes: insofar as Foucault emphasizes, generically (!), successful traits of a good extension of the Kantian diagnosis embraced by all those epistemologists: a more regulated and “scientific” thought was what he spoke about Cavallès,

No: if we understand that, although one can see “interesting approximations” between “[Foucauldian] philosophy and the sciences” (Machado 2006, 8), and Foucault himself reports elsewhere the good surprise in learning that Canguilhem was also a reader of Nietzsche (Foucault 1994, IV, 434),<sup>51</sup> one cannot ignore significant differences between them, see the “progressive distancing from epistemological theses” made by Foucault (Machado 2006, 8). In fact, Machado goes on, not even his archeology “is guided any longer by the same principles that guide epistemological history” and point to the sciences, in any case, as a beacon for philosophy or the privileged place of rationality (2006, 9).

Only generic positions are left for the understanding that we want about the “seal” of the dignity of authors and currents about that Kantian tradition. The first has to do with a “questioning of rational thought, not so much regarding its nature, its foundation, its powers and rights, but about its history and geography, about its immediate past and its conditions of exercise, about its moment, place and present” (Foucault 1994, IV, 765).<sup>52</sup> And that explains a lot, this time. Now, if the epistemological aspect of the problem of “Enlightenment” in Kant appears little in Foucault’s readings about him, it does not mean to say that Foucault did not see it. For example, that Kant “took for granted”, so to speak, Mathematics and Physics, which would be incorrect, given that this author speaks of the “first revolution” of knowledge related to them, as we said when he replaced the imagination by direct confrontation with nature (in the case of Physics). However, it was important for Foucault to emphasize research that took into account History and Geography;

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<sup>46</sup> “La vie: l’expérience et la Science”.

<sup>47</sup> “Réponse à une question”.

<sup>48</sup> “La politique de la santé au XVIII siècle”.

<sup>49</sup> “Les intellectuels et le pouvoir”.

<sup>50</sup> “La vie: l’expérience et la Science”.

<sup>51</sup> “Structuralisme et poststructuralisme”.

<sup>52</sup> “La vie: l’expérience et la Science”.

that is, at what moment and in what place was the emergence of a knowledge-and-a-practice noticed? The Foucauldian reader could certainly understand a little what he meant there, but even so, he would need to visit other places to delve into it.

A second general position that endorses that Kantian tradition – and, moreover, that does not find borders in countries and their tendencies – is now in the sense of examining “a reason, whose structural autonomy brings with it the history of dogmatisms and despotisms – consequently, a reason that only has a liberating effect as long as it manages to free itself from itself” (Foucault 1994, IV, 767).<sup>53</sup> But, again, this points to the dangers of rationalities with universalizing pretensions, whether placed at the center of a certain culture, science or social organization.

## By Way of Conclusion

What can be understood about the notion of “noble sciences” sometimes used by Michel Foucault? The present work aimed at this, taking as support *Dits et écrits*, which, in their two or four volumes (2001 or 1994 edition, respectively) here and there refer to the term. Firstly, Mathematics, Physics and sometimes Chemistry appear under that rubric, and it is not important to specify each one of them, but the general characteristic that animated them: being more deductive, objective knowledge and with a high value in the hierarchy of knowledge.

In taking this route, we notice a very close connection between “noble sciences” and *Aufklärung*, because Kant, to Foucault, was the “symbol” not so much of “Enlightenment”, but of a different and more fruitful activity for Philosophy: thinking of the present – the breadth of those sciences was inserted there. We have seen that Foucault is not unaware of this, and at times he was able to point to the fact; he didn’t do it much, however, because it didn’t interest him, according to his reading of Kant.

It was less a matter of highlighting the question of the “nature” of the sciences than of perceiving the Geography and History of knowledge. This was the first fundamental conclusion of the text “La vie: l’expérience et la science”. The second has to do with a reason that should not seek universality, a sign, of course, that such reason leans there towards a despotism of some order. Only with this awareness can one speak of rationality without it already implying some pure and simple freedom.

The dignity [dignité] of philosophy was another aspect that we wanted to highlight in “La vie: l’expérience et la science”. We tried to show that not each and every thought can claim to be a legitimate heir of the Kantian *Aufklärung*, to Foucault, unless those that followed the directions mentioned above. Cavallès’ formalism met the criterion of a more regulated knowledge, and the new regions of science explored by Canguilhem emphasized the historicity of knowledge.

Finally, at all times, we consider the preface addressed to Canguilhem, published in 1978 and republished in 1984, as too incomplete or too generic. As the reader would know, for example, see the “Entretien avec Michel Foucault” (Foucault 1994, IV, 57) that an “Enlightenment” that did not pay attention to man’s “limit experiences”, such as death, madness, disease, crime, sexuality, should we, therefore, operate a historical retreat in relation to the 18th century, Kant’s century?

That these gaps could be easily found, it was not difficult to imagine reasons and conjectures for it: perhaps Foucault wanted to keep what he had written to Canguilhem and to his other readers as fundamental; perhaps he was already tired, with the worsening of his illness (this re-edited preface was published in April 1984 and Foucault died on June 25 of that year), to propose new writings that would also signal the line of his innovative thinking. Or, even more important than demarcating some difference between them, between the

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<sup>53</sup> “La vie: l’expérience et la Science”.

student (already famous) and the former teacher, talking about it in 1994, in the text “La vie: l’expérience et la science”, would overshadow the historical merits of Canguilhem and would not be an act of gratitude and not of kindness. Let Foucault take the risks of his hiatuses, for the sake of elegance...

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