

LEIBNIZ AND THE FEAR OF INCOMPETENCE: A STORY FROM THE HISTORY OF MEDICINE

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In a famous passage from *On Writing the New Elements of Medicine* (1682-83) Leibniz states the significance of the practical approach in medicine:

In any Machine one must consider its functions or ends, as well as its manner of operating, or by which means the author of the machine achieved its end. And therefore we should take care lest we imagine a machine that would by chance fulfill these same functions, but nevertheless not by the same means, since the precepts governing the conservation of this imaginary machine were different from the laws governing the true machine. Thus it is not surprising that certain new philosophers, with whose very ingenious thoughts about human beings we are familiar, have contributed little to the advancement of medicine, since they have sketched out their man more from the intellect than from experience. (Leibniz: 2016, 297)

We can easily say that Leibniz was in fact a philosopher dealing with imaginary machines in his philosophy of nature. And yet, as Justin Smith (2011, 26) argues, the reason for his interest in medicine was not his eclecticism, but rather its crucial role for his metaphysics of substance and individual, his philosophy of nature and the questions about organized matter and the cause of motion, and ethical concerns about the good and pious life. Medicine is also important as a part of the wider Leibniz project of improving the living conditions of the whole human kind, for „after virtue, health is most important of all” (Leibniz in Smith: 2011, 27).

In what follows, I would like to argue that for Leibniz as a famous polymath, working in many different disciplines and particularly acknowledged for his contribution to math, physics and metaphysics, it was actually difficult to accept his own incompetence in a field of study. Unfortunately, that was the case with the medicine – he was almost completely inexperienced in it, because he hadn't received medical education (unlike Locke for example) and, unlike many of his early-modern contemporaries, was not used

to performing real experiments with or observations on the living body, in order to make a contribution to the not-yet-established biology. Nevertheless, he spoke frequently about these matters – particularly, but not exclusively, in his early writings he refers to different medical and pre-biological examinations, experiments, doctrines, prescriptions, etc. And yet, although he showed strong interest for this field of study, Leibniz never made an effort to become an accomplished physician. The reasonable question is why?

There are three most plausible answers: (1) he had too many responsibilities and could not find enough time to commit himself to a new science; (2) he really believed in study driven by disinterested love, according to which the right way to care about something is to work for its well-being, without asking for anything in return; (3) he was afraid to admit his own incompetence in these matters – something that every man has to make in order to start learning something new.

It is definitely true that during his lifetime Leibniz was overwhelmed by all his activities. He worked as a councilor, diplomat, historian, librarian, inventor, etc. He traveled a lot, for one of his lifetime-long aims and dreams was to help in the establishment of various science societies and, in fact, under the influence of Bacon's *New Atlantis*, he was an active contributor to the development of the Science Academies in Saint Petersburg and in Vienna.

However, it should be noted that Leibniz's well-known ethical doctrine of disinterested love gives him a convenient reason to insist on his right to speak about medical matters, even though he did not have the required medical training. This boldness is especially well demonstrated in the controversy with Georg Ernst Stahl (1709-10), where Leibniz dares to contest the views of the famous physician from Halle. In his paper about the new antidysenteric of 1695-96 he even argues explicitly that "nothing is more precious to men than health and that This may be said all the more fervently by me, who is not a doctor, since I will be less suspect of seeking to advance my own usefulness" (Leibniz in Smith: 2011, 48).

Since here it is not possible to examine in much detail the doctrine of disinterested love, I would like to note only that for Leibniz true love has no other purpose than the happiness and the well-being of its object. This means that he takes into account the role of the intentions in the act and, because of this, he regards it as reasonable to

question the intentions of physicians, given the fact they are paid to do what they do. Of course, that does not mean Leibniz rejects the medical profession; on the contrary, he sees it as a very important occupation and even compares the doctors with the father confessors in the church (the people who take care for the immortal soul). Nevertheless, for Leibniz doctors should be organized by and should listen to the advices given by philosophers like him, who do not earn their livings with medicine and are driven only by the pure desire to facilitate the scientific progress with the final goal of improvement of the standard of living of the whole of humanity.

Accordingly, Leibniz tries to restrict himself only to discussing the structure and institutionalizing of medicine and not its contents; however he regularly fails in this enterprise. In his later written Preface to their controversy, Stahl intimates that the reason why his opponent did not understand the physiological part of the *True Medical Theory* was not only the insufficient time and attention, but also his inability to follow the strict scholastic deductions. Through he tries to sound respectful, Stahl almost explicitly doubts Leibniz's competence in the subject matter, as he points out, that the latter writes too chaotically and needs too much time to prepare his answers (in particular, after receiving something, written by Stahl for, I quote, "ten or twelve days", it took Leibniz one year to write down his objections) (Stahl: 2016, 5-7). In conclusion Stahl states: "I shall certainly never be ashamed to confess, and even to declare, that from all these skirmishes I am not able to foresee anything that should ever cause me to fear either for my troops or for my cause" (Stahl: 2016, 11).

Leibniz was definitely not an expert in physiology or medicine and by the time of his controversy with Stahl he was aware of the fact that because of his mature age he will probably never contribute as much as he would like to this field of study. Nevertheless, he continued writing about medical issues and, as we saw, he even dared to oppose himself to one of the main figures of the early-modern medical thought. His interests in disciplines, which nowadays belong to the domain of biology, form a wide range: in his profound study *Divine Machines - Leibniz and the Sciences of Life* (2011, 260) Justin Smith lists here pharmacy, epidemiology, anatomy, embryology, entomology, taxonomy, physical anthropology and field botany.

However, whether or not Leibniz was aware of his own incompetence in medicine is a hard question and we can never be entirely sure about its answer. He was definitely a

confident man, who even in his early career, when he was completely unknown, did not fear to write letters to some of the most prominent thinkers of his time, for example to Thomas Hobbes from 1670. Leibniz was also very proud of the invention of the calculus and the binary system in math, the dynamics and the preservation of force in physics, the system of pre-established harmony in philosophy, etc., and all this could easily make him very self-confident.

However in Leibniz's corpus we find also signs in favor of the other position, that is, that he knew of and accepted his incompetence. In his controversy with Stahl, for example, we find the following statement: "Whether use of the volatile salts of urine is useless is a question of fact, which I leave to the author of the Response, along with other physicians" (Leibniz: 2016, 393). This leads us to accept that there were some issues from the medical practice, about which the German thinker knew he was not a specialist.

Nevertheless, we do not need to answer this question in order to claim that Leibniz did not really want to announce this incompetency to the public. He had a consistent interest in medicine and, as a rationalist, was at the same time convinced in the significance of the purely theoretical knowledge. Thus he developed many arguments for the sake of the claim that the medicine needs philosophers like him. As he wrote to François de l'Hospital in May 1696: "May it please God that it should come about that doctors philosophize, and philosophers occupy themselves with medicine" (Leibniz in Smith: 2011, 43). Let us now proceed to examination of these main usages of philosophy in medicine.

The Institution of Medicine

One of the main ways in which Leibniz tried to contribute to medicine as a non-physician, but as a skilled diplomat, was by helping for its institutionalization. By making the care for the body the most important task after the care for the immortal soul, Leibniz visualizes reforms for improvement of medical and state institutions which have the final goal to make the health system work better, develop faster and be available for all people from all places and all social classes. In short, he was convinced that the doctors should be organized as the religious orders (Leibniz: 2011, 282) and that the state government should make the care for this medical system his primer mission.

For this reason Leibniz hopes for an enlightened ruler, who will praise and promote the work of all the people, contributing to the medicine – physicians, as well as scientists who perform observations on and experimentations with the organic body. In his polemic with Stahl he explicitly throws the blame for the undeveloped stage of the medicine on the government: “Although, to tell the truth, the blame falls rather more on the leaders of the republic, whose task it is to be the guardians of public health and to promote the development of a science, which is so necessary, than on the physicians, on whom it is incumbent to see to the treatment of households” (Leibniz: 2016, 37). Thus, in the end he was particularly disappointed that no one made use of his advises – in the already mentioned letter to de l’Hospital he complains: “I believe that one could go much further, but I have often futilely preached a ‘fable to the deaf’ on this subject” (Leibniz: 2004, 762–63).

The Science of Medicine

Thus for Leibniz the medical science was by that time at the beginning of its development and this justified the significance of the project of its constitution. In order to understand his views, we need to quickly introduce his main epistemological commitments with regard to the holistic image of knowledge.

Completely in accordance with the age of the Enlightenment, Leibniz saw the development of science as a colossal project in which everyone should be involved. This is a direct consequence of his holistic view of knowledge, according to which every discipline has its place and significance. The contribution of many scientists to this *scientia generalis* as a part from a wide range of scientific communities and with the support of an enlightened ruler would result in the creation of a general, demonstrative encyclopedia of the whole human knowledge. As Maria Rosa Antognazza shows (2017, 22–3), these Leibnizian views are particularly influenced by the encyclopedic and pansophic traditions and especially from Francis Bacon’s ideas with regard to the holism of the knowledge and its final goal – the achievement of human happiness.

In light of this epistemological frame it is not surprising that, although for many early modern physicians the meaning of anatomy and chemistry for the medical practice was questionable, Leibniz explicitly defended them, stating that every knowledge should be respected and developed, even through sometimes its practical usefulness is not

evident or yet discovered. For he was convinced the medicine should be regarded in light of a *physica specialis* – an union between physiology, anatomy and chemistry. Thus, he writes for example about the role of anatomy:

Indeed quite apart from surgery, it is important for the physician to investigate the interior parts of our body. And although until now medicine may not have sufficiently benefited from the inner organization discerned by recent investigators, this, I should suppose, was due more to the negligence of men and, above all, of the practitioners, who hardly devote themselves to the search for truth, than to a defect of the domain itself. (Leibniz: 2016, 37)

Theory and Practice in Medicine

This leads us to Leibniz's views on the theoretical and practical knowledge and the need of their union for the sake of the scientific progress – an idea that explains the slogan he gave to the Prussian Academy of Science: *Theoria cum Praxi*. As we can see, this was also the case with the medicine itself – although he insists on the need of practical approach, which includes not only healing practices, but also experiments with and observations on the living body, Leibniz stated the need of theoretical knowledge, in order the medical science to be further developed and completed in the future. This is, in fact, Leibniz's major project of reconciliation of *a priori* and *a posteriori* knowledge, ancient and modern science, the modalities of reason and experience (Becchi: 2017, 56-57).

We can point out three main parts of this mission of the philosophers in the medicine: (1) construction of medical theory, (2) collection of medical data, and (3) announcement of the results. Focusing on the healing of the human, physicians are unable to fulfill any of these main tasks. Hence the first goal of the 'medical philosophers' or the philosophers, who theorize in the medicine, is to construct a medical theory – something that a physician cannot be expected to do, because of his unpreparedness in abstract thinking. This theory will further help in the navigation of the accumulated scientific progress, regulating the most important tasks and the most effective methods and synthesizing the received knowledge in a unified system. And for Leibniz here special attention should be paid to the collection of the world's medical data in a catalog

of diseases and remedies as an encyclopedic project, which requires certain synthetic skills. Having completed such a project, the ‘medical philosophers’ have to promote its distribution; so that it is available in every part of the world and everyone can use it. This cannot be done by the physicians themselves, because like the most part of the craftsmen “in addition to not being inclined to teach others who are not their apprentices, [they] are not people who explain themselves intelligibly in writing” (Leibniz: 1999, 961).

Therefore, Leibniz sees the deficiency of early modern medicine in the lack of theory – lack of first principles or foundations, which leads to uncertainty (Smith: 2011, 40). For him the philosophy can free the medicine from its dependence on mystical practices like physiognomy, chiromancy, etc., as well as from the influence of their tendency toward fraudulence and to the right path of empirical experiment with the animal and human body, the observation of bodily symptoms and the examination of medicaments (Smith: 2011, 35).

Thus, for Leibniz the empirical inductive truths can be proved only by observations and experiments and these form the core of, to use the Anne-Lise Rey’s term, a ‘provisional empiricism’ that expects rationalistic approval or correction. The *a priori* method begins with reasoning about the creator of all things and is certain, but it is often very difficult to accomplish. In those cases we should use the *a posteriori* method that derives from the results of observations and experiments and is plausible by nature (Rey: 2013, 370-1).

However, as the well-known Leibnizian rationalistic claim states, true knowledge is the *a priori* knowledge of the reasons. This aspect can be further found in regard to the content of the medicine – the need of identification of the causes for the diseases – something that the practicing doctors disregard in favor of finding and treating the symptoms. Leibniz saw this as a prerequisite for the prevention of diseases in the future, which he valued as an indispensable and fruitful part of medicine, paying special attention, in particular, to the role of the diet for the preservation of health.

In conclusion, I would like to point out that Leibniz’s approach to the question was, in fact, modern and in accordance with the age of Enlightenment, whereas some doctors’ and observers’ secrecy (e.g. Leuwenhoek’s) in regard to their own knowledge was distinctly anti-modern. As Alessandro Becchi (2017, 76-77) shows, the conflict between

the two parties was a result from different cultural backgrounds, languages, social layers, etc., but at the same time a symbiosis was necessary for the progress of medicine and of life sciences as a whole. This can be seen as an overcome of the distinction between practical and theoretical medicine, as in Leibniz's view it will make possible the identification of the cause with an analysis that begins with the experience (Rey: 2013, 370). In Beacon's metaphor from the *New Organon*, it is necessary for the ant that collects data and the spider that creates networks to connect and unite, in order to achieve the ideal of the bee (Becchi: 2017, 78).

However, the concordance isn't coincidence and yet Leibniz frequently oversteps the line he drew between the theoretical and practical medicine, sharing his opinion about substantive medical issues. A plausible reason for this is the self-confidence he gained from his successes in other fields of study and also the awareness of his deep knowledge of mechanical philosophy and the laws of nature that govern the physical world. This could easily have driven him to thinking that as a mechanist he can also contribute to the medical practice. Thus, he writes:

It is evident that the human body is a machine disposed by its author or inventor to certain functions. And thus to write medicine is nothing other than to prescribe to a mechanic a method by which he will be able to conserve the machine that has been entrusted to his care, so that it should continue to operate correctly, like the precepts that are typically given to the custodians of those hydraulic machines by means of which water is dispensed throughout an entire city. (Leibniz: 2011, 297)

This may have led to a curious fact from the history of philosophy – Leibniz himself died in large part because of self-inflicted injuries, which, as we read in the *Note on Gout and 'the Vapors'* of 25 January 1676, he held as remedies for the gout (Leibniz: 2007, 169). Ironically, earlier he had claimed that precisely unwarranted self-confidence in the medicine caused Descartes' death (Leibniz: 1978, 275). Thus, it might have turned out the idea that the human body is only a machine encouraged the mechanical philosophers to overrate their own ability to treat it and even to make fatal decisions about their own health. These examples demonstrate not only the importance of general philosophical commitments for the real life decisions of the early moderns, but also the real danger of the incompetency in the field of medicine. And so the moral of

this story from the history of medicine is that the latter can and should, in fact, learn many things from philosophy, but, at the same time, philosophers should be more afraid for their bodily health than for their reputation in the scientific community.

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