

A Comparison between Homeopathy and the Foundations of Contemporary Scientific Theories

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Abstract

The present paper analyses the epistemological status of the theory of homeopathy in the framework of the main scientific theories of its time. First of all, Hahnemann underlined its experimental nature in opposition to an abstract, rationalist medicines suggested by some his contemporaries. Moreover, recent studies on the foundations of logic enabled to recognize in the original texts of some non-Newtonian scientific theories of Hahnemann's time the occurrences of doubly negated propositions pertaining to non-classical logic. Hahnemann's writings are scrutinized according to this characteristic feature. A more accurate interpretation of Hahnemann's thinking results. In particular the entire organization of his theory emerged as that of the non-Newtonian ones. His method of cure is enlightened under a new viewpoint. Some critical suggestions on the uncertain epistemological status of homeopathy are added.

Keywords

Hahnemann's Writings, Homeopathy, Doubly Negated Propositions, Intuitionist Logic, *Ad absurdum* Arguments, Problem-Oriented Theoretical Organization

1. Introduction

Homeopathy was born as a therapeutic system at the end of the 18th century, in 1796, by Christian Friederich Samuel Hahnemann.

From its very inception to the present day, the academic medical community has accused homeopathic medicine of being unscientific, to the point of excluding it from recognized therapeutic options. For example, on Wikipedia (Wikipedia,

“Homeopathy”), it is stated at the beginning of the page that it represents a “pseudoscientific system of alternative medicine,” although this is followed by a fairly extensive and generally accurate description of the homeopathic method, interspersed with strongly negative judgments.

Many textbooks on the History of Medicine entirely ignore the presence of Hahnemann and homeopathy. Some provide only brief informational notes, accompanied by dismissive evaluations. Others present at least the basic methodological principles, but without engaging with them in depth. In the following section, we will examine several historical aspects in greater detail and review possible connections between Hahnemann’s thought and that of certain contemporary thinkers. These comparisons are necessarily retrospective, as Hahnemann did not explicitly identify theoretical frameworks of reference.

The prevailing judgment in the historiography of medicine is that Hahnemann’s claims amount to abstract speculation lacking a valid methodological approach.¹ Nevertheless, while reiterating the criticisms advanced by official medicine against Hahnemann’s doctrine, some authors acknowledge its historical role as a stimulus for “orthodox” medicine.²

Thus, the debate surrounding homeopathy is not exclusively negative. From a philosophical perspective, a comprehensive evaluation leaves open the possibility that homeopathy may be considered a scientific theory. In this regard, we may refer to the position expressed in the authoritative Stanford Encyclopedia of Philosophy:

Philosophers and other theoreticians of science differ widely in their views on what science is. Nevertheless, there is virtual unanimity in the community of knowledge disciplines on most particular issues of demarcation... Philosophers and other theoreticians of science differ widely in their views on what science is. Nevertheless, there is virtual unanimity in the community of knowledge disciplines on most particular issues of demarcation. There is widespread agreement for instance that... homeopathy, [and others] ... are pseudoscience It is in a sense paradoxical that so much agreement has been reached in particular issues in spite of almost complete disagreement on the general criteria that these judgments should presumably be based upon. This puzzle is a sure indication that there is still much important philosophical work to be done on the demarcation between science and pseudoscience (Hansson, 2021, Conclusion of the entry “Science and Pseudoscience”).

¹Some innovators, “dissenting more or less violently from official medicine, constituted an opposition minority ... [In their theories] The scientific problem tends to dissolve into a solution that is true only because it is believed in and because it appeared so to the mind or imagination of the person who conceived it, in a speculation that distorts its principle of experimental science, taking away its true reason for being.” (Pazzini, 1974) (This translation and the following ones are ours)

²“... homeopathy eventually responded to the more critical spirit of the day, and there is reason to believe that in the long run it may have been of service to orthodox medicine. The homeopathic attack on heroic treatments [treatments requiring to a patient a heroic patience in supporting invasive and debilitating therapies, like bloodletting, purges and emetics, use of toxic substances (mercury, arsenic, and other compounds to treat diseases such as syphilis) without any personalization] was certainly of service to society.” (Shryock, 1936: p. 161). However, author’s conclusion is that, after some negative clinical trials, homeopathy survived in the history only as a sect of “homeopaths” separated from the community of “real doctors”.

In what follows, we expand the usual comparison between Hahnemann's thought and the medicine of his time by extending it to the foundations of the established scientific theories of that period. This broader comparison suggests new theoretical insights for a better understanding of homeopathy. Accordingly, the present work is situated within the history of science, while also bearing implications for current controversies, as it highlights certain features of Hahnemann's homeopathy that remain relevant today. Although these considerations are not decisive in resolving the long-standing debate over the scientific status of homeopathy, they place it in a new light, emphasizing its experimental, logical, and foundational aspects.

This will be pursued as follows. In Section 3, we review Hahnemann's writings, including some biographical notes, occasionally considering different editions of his works that we regard as particularly relevant. In the subsequent section, we demonstrate—through a set of propositions drawn from his principal texts—that Hahnemann's primary concern was to provide an experimental foundation for his theory.

In Section 5, following the work of one of the present authors (A.D.), we define a scientific theory in general terms as an experimental theory characterized by two fundamental choices: one concerning the type of logic adopted, and the other concerning the type of infinity involved. We suggest that an impartial characterization of Hahnemann's doctrine can be achieved through a detailed study within the broader framework of the many scientific theories of his time, dominated by the Newtonian paradigm (Drago, 1988), yet also including alternative approaches.

In Section 6, we compare the content of Hahnemann's texts with the foundational choices underlying the principal scientific theories of his time: Newtonian mechanics on the one hand, and on the other, Lavoisier's chemistry, Lázare Carnot's mechanics, and Sadi Carnot's thermodynamics. The fundamental choices of homeopathy appear to coincide with those of non-Newtonian theories, which are based both on the search for new methods to solve specific problems and on the notion of potential infinity (in mathematics as well as in the definition of basic concepts). Indeed, homeopathy is grounded in the simple problem of how to cure a sick individual, and its core notions are not, at least initially, idealistic.

In Section 7, we examine the type of logic underlying Hahnemann's theory. This is revealed by the presence of double-negation propositions in his original texts, expressions of a non-classical logic that can, as a first approximation, be identified with intuitionist logic (e.g., “not-not-A is different from A,” because the meaning of A differs from that of not-not-A, often due to the lack of experimental evidence supporting A). We first list such double negations concerning the theoretical notion of “disease” and conclude that Hahnemann makes essential use of such propositions—not merely rhetorically, nor as a result of imperfect translations. In this regard, we compare the original German texts with their translations, highlighting in both cases the terms expressing negation. The propositions discussed in Section 4 are also of this type.

In Section 8, we show that both Hahnemann's nosography and his therapeutic method are likewise expressed through double-negation propositions belonging to intuitionist logic.

In Section 9, we analyze Hahnemann's choice regarding the type of infinity. It is noteworthy that he never used the term "infinitesimal," commonly attributed to him; rather, his fundamental choice concerns potential infinity.

In summary, Hahnemann's theory rests on the same foundational choices as alternative scientific theories that emerged in approximately the same period.

Finally, we offer some observations on the debate concerning the scientific nature of Hahnemann's homeopathy. The present historical and methodological reconstruction of his thought does not address the criteria for the efficacy of homeopathic remedies. Other tools, different from those employed here, are required to determine whether such remedies are effective and whether the overall therapeutic framework is valid.

2. Historical and Philosophical Context of Hahnemann's Thought

Returning to the position of homeopathy within the History of Medicine, one observes a dual treatment. On the scientific level, the dominant judgment is that of an "unvalidated system," since early homeopathy was subjected to forms of experimentation using officially recognized methods within hospital settings, with unconvincing results (Shryock, 1936). On the historical and cultural level, however, homeopathy has been regarded as a significant phenomenon in the transformation of modern medicine (Shryock, 1936).

Jackson (2011), in a chapter devoted to "heterodoxies," argues that medical "alternatives" ultimately represent options available to patients. He emphasizes that Hahnemann and other "alternative" physicians of his time belonged to the same medical world as the "orthodox," but distinguished themselves as "opponents of an arrogant and monolithic medical orthodoxy" (p. 585), which they sought to transform.

This supports the view expressed by Duffin (2021):

"... medical practices were neither irrational nor unscientific in their heyday; the rationale was reconciled with prevailing science and concepts of disease ... Therapeutic rationale depends on the time and place. All medical systems appeal to reasoning, including the past of orthodox medicine and the present of 'unorthodox,' or 'alternative,' medicine ... Therapeutic rationale also changes with perceptions of disease." (p. 101)

Therefore, the evaluation of a specific medical method cannot be superficial but must involve an in-depth analysis of the underlying theory within its historical context. What distinguishes the presentation of homeopathy in history books is always that it is a system that emerged at the turn of the 19th century in response to the limitations and often harmful practices of contemporary medicine.

In Hahnemann's time

the pharmacopoeias of Europe and North America contained drugs that are now considered poisons: mercury in the form of calomel; antimony in the form of tartar emetic; jalap, a powerful cathartic; strychnine to stimulate appetite and bowel action; opium and laudanum for pain and sleep; alcohol as a stimulant. Combined with restrictive diets, vicious enemas or clysters, and various means of bleeding, such as phlebotomy, leeches, and cupping, this style of interventionist therapy has been called drastic, or heroic. (Duffin, 2021: p. 111)

Roy Porter (1999), one of the most authoritative historians of medicine, notes not only the dominance of such "heroic" treatments but also that:

... regulars [physicians] went to the opposite extreme, making heroic therapeutics their trademark, partly to demarcate themselves from the irregulars' pious trust in nature, herbs and water (p. 319)

The conflict between "regulars" and "irregulars" (later framed as "scientific" versus "sectarian") was perhaps the most intense controversy in the history of medicine, persisting throughout the nineteenth century (Jackson, 2011).

Porter presents homeopathy as a movement arising within the broader medical world, grounded primarily in a critique of "regular medicine of being an oligarchic closed shop, an obscurantist racket devoted to self-aggrandizement." (p. 390) He highlights Hahnemann's "Enlightenment faith in the goodness of nature" and acknowledges homeopathy's ability to gain a significant following:

... a significant fraction of the medical profession across Europe and America. Consolidating itself as a worldwide movement (the International Congress of Homoeopathic Physicians was founded at the end of the century), homoeopathy endured while other movements rose and fell, and established its claims to recognition by licensing authorities. In Britain, for example, the homoeopathic hospitals were to be the only non-regular establishments recognized by the National Health Service in 1948. Homoeopathy's lasting appeal has stemmed from its stress on purity and the attractive idea of the body striving to cure itself.

Porter (1999) concludes:

"Alternative medicine's preoccupations highlight the ambiguities in nineteenth-century medicine... Not least, so long as the message of orthodox medicine was pessimistic, alternative medicine instilled hope." (p. 396)

However, as already noted, historical accounts often fail to move beyond contextualization to an objective analysis of Hahnemann's thought based on his own writings.

An early attempt in this direction was made in "Medical Heresies" (Smythe, 1880). Although motivated by the intent to discredit alternative methods, the author extensively cited Hahnemann's works (122 out of 228 pages). The author's

conclusion was, however, negative, as is already evident from the title of the work; he explicitly predicted that:

the law of similars is the chief corner-stone of homoeopathy, and will be the last of all their principles that will be abandoned; yet its fate is certainly sealed, and in a few short years it will be numbered with the delusions of the past. (p. 132)

History has shown that this prediction was not fulfilled.

In support of this observation, we may consider the account of homeopathy provided by Coulter (1932-2009), an American medical historian and one of the few who attributed a genuinely positive role to homeopathy in the development of modern medicine. In his voluminous work on the History of Medicine, he devotes considerable space to homeopathy; furthermore, he wrote a book entirely dedicated to it, **Homeopathic Medicine**. Coulter frames the medicine of the time within a fundamental epistemological dichotomy between:

Empirics, who invoke therapeutic observation and experience, and Rationalists, who seek their criterion of reliability in some discipline external to the therapeutic process. (Coulter, 1988, "Introduction" vol. 2, p. VII)

In this panorama Coulter underlines

the emergence of two new Empirical departures in therapeutics—Hahnemann's doctrine, which he called "homeopathy", and the series of new systems and concepts (from 1790 to about 1860) known as the "Paris School" (Coulter, 1988, vol. 2, p. 305).

He locates Hahnemann within the movement of rejection of medical rationalism, which was born in the seventeenth century and that remained prevalent also in those years.

[Yet,] The Paris School was late in coming to terms with contemporary pharmacological and chemical learning, while homoeopathy, as Hahnemann suggested, was the Hippocratic method³ combined with knowledge of pharmacology⁴. In a new and original interpretation of pharmacology Hahnemann found the key which Empirical thinkers [of medicine] had been seeking for

³Hippocratic medicine does not treat the disease according to an abstract view but by having as focus the sick individual. In the Hippocratic method, the patient is considered in his totality. A central role of the Hippocratic conception is played by the "vis medicatrix naturae", i.e. organism's ability to react to morbid stimuli by trying to restore the balance of health: the aim of treatment is to help nature, not to oppose it. Last but not least, Hippocrates recognized two possible treatments: "contraria contrariis curantur" and "similia similibus curantur". Hahnemann admired Hippocratic medicine: "Man war der Entdeckung der Arzneikunde nie näher, als zu Hippokrates Zeiten. Dieser aufmerksame, schlichte Beobachter suchte die Natur in der Natur. Er sah und beschrieb die ihm vorkommenden Krankheiten genau, ohne Zusatz, ohne Malerei, ohne Raisonement ... Nur noch ein Haupttheil der Arzneikunde fehlte diesem Lieblinge der Natur, sonst wäre er der Kunst ganz mächtig geworden: die Kenntniß der Heilmittel und ihrer Anwendung." (Hahnemann, 1805a: p. 377). ("The discovery of medicine was never closer than in Hippocrates' time. This attentive, simple observer sought nature in nature. He saw and described the diseases that occurred to him precisely, without additions, without painting, without [idealistic] reasoning... This darling of nature lacked only one essential part of pharmacology, otherwise he would have become completely proficient in the art: the knowledge of remedies and their applications").

⁴We recall that Pharmacology is the scientific study of the effects of drugs and chemicals on living organisms; a drug can be broadly defined as a chemical substance, natural or synthetic, which affects a biological system.

centuries, one which brought all elements of Empirical doctrine together in a new crystallization and gave them a new focus. It was this which has enabled the homoeopathic system to outlive all its competitors and, in fact, to survive and flourish to the present day.⁵ (Coulter, 1988, vol. 2, pp. 305-306)

According to Coulter, Hahnemann's doctrine draws on Hippocratic medicine and contributed to the emergence of modern pharmacology, albeit based on the principle of similarity rather than dissimilarity.

Another significant contribution is that of Jonathan Davidson (2014), a psychiatrist who came to appreciate homeopathy through clinical observation of homeopathic practitioners.

Homeopaths and allopaths who were supportive of homeopathy have influenced medicine in several notable ways. It is the purpose of this book to investigate how homeopathically trained physicians have influenced medical progress, health, and culture. This book also investigates the influence of homeopathy in different medical specialties, as well as the social and political change that some homeopathic practitioners have achieved throughout history ... In this book, homeopaths from various countries are noted, although most discussion focuses on those from the United States and Canada. Over 100 homeopaths are presented, and the personalities cover the spectrum of allegiance to homeopathy. They were chosen because they contributed tangibly to the betterment (or detriment) of general medicine, public health, or culture. (Davidson, 2014, excerpt from the Introduction, pp. 1-4)

The recurring interpretative keys in this historiography are: homeopathy as a reaction to aggressive eighteenth-century medicine; its success as context-dependent; its decline with the rise of experimental medicine; and its enduring cultural significance.

What stands out most is the independence of Hahnemann's thought. We have seen the link between his methodology and Hippocratic medicine, in broad terms. The connection with the approach of Thomas Sydenham (1624-89), closely linked to Hippocratic thought, is certainly even more evident:

"Called the 'English Hippocrates', he sought to return medicine to the empirical art that he identified with the Father of medicine." (Bynum, 2008: p. 37).

Hahnemann cites it several times in his writings⁶, including in relation to the cornerstone of his therapy, the application of "similars," which, again following Hippocrates, Sydenham had already advocated for certain pathologies.

⁵Notice that the above word "flourishing" does not derive from an adhesion of Coulter to homeopathy.

⁶See, for example: "Dieß sah bloß der redliche SYDENHAM ein, da er (Oper. Cap. 2. de morb. epid. S. 43.) darauf dringt, keine epidemische Krankheit für eine schon da gewesene zu halten und sie nach Art einer andern ärztlich zu behandeln, da sie doch⁶⁴ alle, so viel ihrer nach und nach erschienen" (Only the honest Sydenham recognized this, since he (Oper. Cap. 2. de morb. epid. p. 43) insists that no epidemic disease should be considered one that has already occurred and treated medically in the manner of another, since all of them, as many as have appeared gradually, have indeed) (Hahnemann, 1922, nota 2 § 81).

A consideration in this regard: Hahnemann never referred to Paracelsus (1493-1541), another theorist of “therapy by similarity,” who also had a great influence on the history of medicine. He had a distinctly different, fanciful, conception of “similarity” for the treatment of diseases, based on the external aspects of pharmacological substances to be compared with aspects of the diseases being treated.

According to Hahnemann:

“... the doctrine of signatures could only be a retrospective justification of the therapeutic indications for these substances, after they had been tested.”⁷

Hahnemann appreciated Sydenham’s emphasis on detailed observation of the patient, his desire to stick to manifest phenomena, without hypothesizing about causes or vainly searching for them. However, he did not share his desire to classify diseases, with a specific description of each, nor the prevalent influence attributed to external factors in determining disease (Colin, 2006). Furthermore, Sydenham certainly did not generalize his observations to establish a therapeutic system, as Hahnemann later did.

Sydenham has a clear connection with Bacon (1561-1626), whose books were among his favourites after the works of Hippocrates, as well as with Boyle (1627-1691) and Locke (1632-1704): with the latter two, he had a direct relationship of frequent contact and collaboration (Colin, 2006).

The influence of the thinkers just mentioned cannot be denied on Hahnemann either. Francis Bacon⁸, first and foremost: he was the first to describe the inductive experimental method, and Hahnemann applied it to medicine. Hahnemann’s seminal text, *Organon of Medicine*, which we will examine extensively in this work, recalls Bacon’s *Novum Organum*, in which he laid the foundations of the scientific method of investigating nature, in contrast to Aristotelian logic. We can also find John Locke, a follower of Bacon, in H., when he states that knowledge of the complex is given starting from simple elements (Colin, 2006) and we will see the importance given by H. to symptoms for the understanding of the disease⁹.

To conclude this quick philosophical excursus, focusing specifically on English Empiricism, which in our opinion has more in common with Hahnemann than the Romantic currents with which he is usually associated, let’s also consider David Hume. Some, such as the philosopher Barbera (2001), have seen Hume as Hahnemann’s main inspiration, identifying various points of contact between the two’s

⁷“... la doctrine des signatures ne pouvait être qu’une justification a posteriori des indication thérapeutiques de ces substances, après les avoir expérimentées” (Colin, 2006: p. 95).

⁸The famous aphorism “*natura nonnisi parendo vincitur*” (Bacon, 1869) already calls to mind Hahnemann’s consideration of nature and its expressions. Bacon also criticizes the Aristotelian syllogism, considering it sterile and unproductive; he criticizes the medicine of his time, which operates through pre-established recipes; he supports the importance of experience in arriving at knowledge; he criticizes causality and abstraction (Colin, 2006): “Bacon had already exposed a good number of problems that could concern homeopathic medicine ... Hahnemann could not agree with everything” (“Bacon avait déjà exposé bon nombre de problèmes pouvant concerner la médecine homéopathique ... Hahnemann ne pouvait qu’être d’accord avec tout ceci”) (pp. 118-119).

⁹In this regard, there are those (Soldat, 2003) who see in this concept an echo of Condillac’s (1715-1780) “sensualism”, which, starting from Locke’s position on the empirical origin of every idea in opposition to the Cartesian theory of innate ideas, went further to assert that all knowledge and mental operations derive from sensations. The same author (Soldat, 2003) identifies, in addition to Condillac’s theory, Rousseau’s naturalism as an influence on Hahnemann.

approaches. Since this is not the place for a systematic analysis, we limit ourselves to pointing it out with reference to the fact that Hume, even more than his predecessors, emphasized the value of experience in arriving at knowledge, and that this can never be complete for the phenomena that present themselves to our eyes (Colin, 2006). Historically, it can be noted that the theoretical development of homeopathy, with Hahnemann and his first followers, proceeded alongside the European diffusion of the Anglo-Saxon thought in question (Barbera, 2001).

It should be emphasized that in Hahnemann's writings there is no reference to the thinkers we have considered; the connection is the result of later reconstructions. Nor is there any reference to Leibniz (1646-1716), to whom Hahnemann is also compared for certain concepts. In the context of this work, we limit ourselves to highlighting Leibniz's interest in the works of Hippocrates and his conception of illness as a state of the person, in continuity with health, not as a rupture of it (Colin, 2006). For Hahnemann, illness is typically individual, as we will see better later, as are the medications used to resolve the illness; in this regard, Hahnemann speaks of "inconjunctibles" in reference to individual entities, perhaps thinking of Leibniz and his "principle of indiscernibles" (Barbera, 2001).

We mentioned the lack of explicit references in Hahnemann's writings to the various thinkers he is associated with today. Explicit references are limited to Kant and Plato¹⁰. A possible parallel with Johann Wolfgang Goethe (1749-1832), as he and Hahnemann belonged to the same Masonic lodge. Contemporary positive evaluations were also expressed by Schopenhauer (in *Philosophy and Science*) and Hegel (in *Philosophy of Nature*) (Colin, 2006).

The overall conclusion is that Hahnemann demonstrated remarkable intellectual independence, combining deep medical and philosophical knowledge with autonomy in constructing his therapeutic system and its theoretical foundations.

3. Hahnemann's Key Works and Their Editions with Biographical Notes

Hahnemann was born in 1755 in Meissen, a small town in Saxony, Germany.

If we wish to extract some notes from his biography, useful for our research and a correct understanding of Hahnemann, we cannot fail to mention immediately that he was a polyglot: he knew both the main living languages and some ancient ones, such as Latin and Greek, in addition to German, French, English, Italian, Spanish, Hebrew, and even some notions of Chaldean (Ortega, 2001). He loved reading, and with a certain assiduity: he was a seeker of truth from a young age.

¹⁰"I admire Kant very much, particularly because he draws the line of philosophy, and of all human knowledge, where experience ends. If the remaining part of what he has thought and written had only unfolded itself a little more clearly before his inner vision, I think that he would not have enveloped himself in a cloud of such obscure sentences ... It is for this reason that I only value Plato when he is quite comprehensible and speaks clearly. If the so-called philosophers who followed Kant had not written even more mystically and allowed their imagination so much play, if in one word they had kept, as Kant wanted them to, within the boundaries of experience. My fight to-day with the reform in medical science would have been an easier one" —Letter to Mr. von Villers (Haehl, 1922: p. 387).

“The study of chemistry occupied my hours of leisure, and that together with small journeys to learn mining science and metallurgy filled some considerable gaps left in my education.” (Autobiographical note in [Haehl, 1922, p. 12](#))

Having limited financial resources, during his medical studies, he supported himself by giving language lessons and translating, given his knowledge. Through translation, he also learned about topics of interest to him ([Ortega, 2001](#)).

He began his medical training in Leipzig, but deeming his development insufficient, he moved to Vienna, considered the most advanced medical centre. After graduating, he began working in Germany, but rather than relying on hospital training, he went to villages to study natural pathology, observing diseases in their natural presentation and evolution. He then moved to Dresden, gaining a large clientele, but always with dissatisfaction:

“His idealism had caused him to refuse fees where he believed his treatment was inadequate or where his patients could not afford to pay, bringing privation to himself and his family” ([Cook, 1981: p. 70](#)).

He finally abandoned the profession entirely, exclaiming: “Eight years of practice, carried out with the greatest care, have taught me the nullity of all healing systems” ([Ortega, 2001](#)). He continued to lecture, research, and translate to support himself, until the publication of his first work on his new discovery in medical practice in *‘Hufeland’s Journal’*¹¹ in 1796: “Essay on a New Principle for Ascertaining the Curative Power of Drugs and Some Examinations of Previous Principles”¹². By that time, he had already published several works, mainly on chemistry and his experiments. Subsequently, wrote several books and articles. In present paper we will refer to mainly two fundamental books illustrating in detail his theoretical approach; only occasionally we will quote some others writings.

As first, let us consider the main book, *Organon*. It is certainly the most important text for understanding Hahnemann’s thought and his therapeutic method. Six different editions have been published, dated respectively 1810, 1819, 1824, 1829, 1833, 1921. Note what he says Whitney:

The editions of the *Organon* were never final documents. Rather, they represented stages in the application of the *simillimum* principle within the context of the experience, life, and times of Hahnemann’s era. ([Whitney, 2010: p. 23](#))

The various editions differ in terms of number of sections and pages. The number of sections was 271 in the first edition¹³; in next editions it became respectively

¹¹“Professor Christian Hufeland occupied the chair of medicine at the University of Jena, and Hahnemann was one of the first contributors to his newly founded Journal of Practical Medicine.” ([Cook, 1981: p. 77](#))

¹²It was subsequently published posthumously in “The Lesser Writings of Samuel Hahnemann”, a collection of all his minor writings (William Radde, New York, 1852), cited here from a later reprint of 1990 ([Hahnemann, 1796](#)).

¹³Note that in the first edition the exact title was: *Organon der Rationellen Heilkunde* (in page 1 he further the title: *Organon der rationellen Heilkunde nach homöopathischen Gesetzen*), with the term “rational” attributed to Medicine ([Hahnemann, 1810](#)). In the “Introduction” p. V he

315, 320, 292, 294 and 291. There are both quantitative and qualitative changes. We will cite passages from different editions, both for the lexical expressions used, more appropriate to our research (double negatives, reasoning ad absurdum), and for new content added in the various re-editions. While in the first three editions there are no substantial changes, the other three editions present changes in the fundamental and applicative notions. In the fourth edition, section 68, Hahnemann introduces the concept of “chronic disease”¹⁴ which is considered as the first problem of both medical practice and the theoretical medicine. In the fifth edition the concept of “Vital Force” appears; it will be further expanded in the sixth edition¹⁵.

In each edition there are minor changes to the procedures for pharmacological preparation and clinical administration of remedies. The most significant one appears in the VI edition which was published posthumous in 1921, i.e. 78 years after the death of Hahnemann and almost a century after the fifth edition.¹⁶ Here he introduces a completely new method of preparing remedies, i.e. the starting preparation of the basic substance changes, and then the dilution and succussion method changes; later it was defined the “method of the 50 millesimal potencies [LM]”.¹⁷ We will mainly refer to the last edition, the sixth one, which is the edition in current circulation (Hahnemann, 1922).¹⁸

gives a meaning to his word “rational”: he claims that the treatise is rational in opposition to his contemporary dominant medicine, which had nothing “rational” in its applications: “Man kurirte bisher die Krankheiten der Menschen nicht rationell, nicht nach feststehenden Gründen, sondern nach sehr verschiedenen Heilzwecken, unter andern auch nach der palliativen Regel: *contraria contrariis curentur*.” (“Until now, people’s illnesses have not been cured rationally, not according to assured basic fixed reasons, but according to very different healing purposes, including the palliative rule: *contraria contrariis curentur*”). We were unable to attribute to Hahnemann’s word “rational” a specific meaning. However, the word disappears already in the title of the second edition which is *Organon der Heilkunst*. Note that this second edition was not translated into English while there exists an Italian translation (Hahnemann, 1824). It was the book scattered in Naples at the time the entry of Austrian Army introduced homeopathy.

¹⁴Let us recall that in a first time the therapies of both Hahnemann and his students were limited to “acute diseases”, i.e. what was usually considered diseases; to which often they did not apply treatments because he considered them as merely temporary disorders. A year before the book we are considering, in 1828, Hahnemann had published a text dedicated to the “chronic diseases”; they are the diseases whose acute was not completely resolved, becoming then chronic; that is, they expose the organism to be more susceptible to again and repeatedly getting sick, with problems that may be increasingly profound. This new concept is fundamental for the entire homeopathic approach.

¹⁵“In the last edition, throughout the work ‘vital force’ is often substituted for the words ‘organism’, ‘body’, ‘state of health’ (*Organism, Körper, Befinden*) of the previous editions; and the disparaging adjectives applied to the vital force in the earlier editions are generally omitted in the last.” (Dudgeon, 1991: p. 185).

¹⁶On February 20, 1842, Hahnemann wrote to the publisher (Schaub of Düsseldorf) that he had completed the revision of the V edition: “I have now, after eighteen months of work, finished my sixth edition of my *Organon*, the most nearly perfect of all.” (Cook, 1981, p. 177). The sixth edition of the *Organon* was essentially a copy of the 5th edition: “The sixth edition of the *organon* was a copy of the 5th *Organon* which Hahnemann had annotated in February 1842 with numerous revisions before his death in 1843 in Paris but not very well accepted as it was the posthumous edition and also carries a lot of controversies along with it.” (Padiyar, 2019: p. 25). There exists a digitalized version of the text with Hahnemann’s manual additions, accessible to everyone on the web; it was also used for a graphological analysis, in order to clarify whether any additions were Hahnemann’s or not and also to outline an ‘objective’ picture of his personality (Whitney, 2011).

¹⁷Let us recall that the preparation of homeopathic remedies occurs through progressive dilutions of the prepared solution accompanied by “dynamizations”: the solution obtained is subjected to succussion, with a sequence well defined by the European Pharmacopoeia (defined in the wake of the German and French Pharmacopoeias in particular, all including homeopathic remedies without any ostracism). Each phase of this process of dilution generates a new remedy, with different potentialities from the previous ones. The traditional “centesimal method” diluted in the ratio of 1/100. In the VI edition of the *Organon* Hahnemann introduced the ratio of 1/50,000, which allows a gentler action, in order to avoid the initial aggravation that was often recorded and to be able to repeat the remedy more times by accelerating its healing action.

¹⁸The first publication of the VI edition was in 1921, Willmar Schwabe, Leipzig. This edition was edited by R. Haehl, a German homeopath who acquired the rights for its posthumous publication in 1920. In the following notes, quotations from this text will be reported as *O.* 6th, plus the section number and page number.

The second important Hahnemann's book is *Chronic Diseases*, of which he published two editions in the years 1828 and 1835-1839. This writing presents a specific conception of the disease, distinguished into the "acute disease" and the "chronic diseases"; the latter ones constitute the main object of doctor's investigation (see fn. 8). A physician practicing the homeopathic medicine has to accompany this book with his more practical book (which sometimes was published jointly with the former one), *Materia Medica Pura* whose subject is homeopathic pharmacology. Although we will not examine this text, we will refer to it because it is important for homeopathic practice. It was important also for Medical Pharmacology based on dissimilar, at that time still in embryo. The book is a compilation of "homoeopathic proving" reports, i.e. the reports of experimental assumptions of homeopathic drugs on healthy humans; Hahnemann follows an "inductive" method and from the concrete to the abstract. Hahnemann personally experimented a hundred remedies (in the following decades his followers added much more personal experiments). The book is divided into six volumes. The first two volumes had three editions while the remaining four volumes only two editions, in a span of time that goes from the year 1811 to the year 1833 (Hahnemann, 1825-1833)¹⁹. *Materia Medica Pura* is still the dictionary of available homeopathic remedies and their indications: it was the precursor text of the current pharmacopoeia which is considered valid by all doctors. Today, homeopathic physicians habitually use two hundred or even three hundred products, to which one has to add a thousand lesser-known or episodically prescribed drugs.

All Hahnemann's texts are in German. They have been translated into many languages; those translated into English have been the most widely used in all times.

Samuel Hahnemann died in his bed on July 2, 1843.

"At his death Hahnemann's long and bitter campaign for medical reform was already beginning to bear fruit. The old system of medical treatment, which he had charged as crude, barbaric, unhygienic and ineffective, was about to undergo a complete metamorphosis. The value of proper diet, regular exercise, adequate rest and improved sanitary conditions was slowly becoming an accepted part of medical practice ... Hahnemann's theories were not transitional. Indeed, they were destined to become interwoven with the entire fabric of modern medical practice. The final irony is that his even greater work, enunciating the principles of homoeopathy, has overshadowed Samuel Hahnemann's undoubted contribution in other fields of medical progress." (Cook, 1981: p. 184).

4. A First Look of Hahnemann's Theory: His Great Concern for Its Experimental Nature

Let us recall that before French Revolution theoretical medicine was either an in-

¹⁹Second increased edition 1822-1827; third revised editions, only for volumes I and II, respectively 1830 and 1833. English edition translated by Dudgeon in the year 1921.

formal group of philosophical ideas of biology and medicine, or a methodology of medical practices and medical morality (Szumowski, 1949: p. 1099). All medical approaches of that time and the next times deduced the operative indications from few principles-axioms, which were idealist, metaphysical statements. The attitude of these theoretical frameworks were the same of Newton's theory, which was deduced from few axioms-principles referring idealist notions (absolute space and time, force-cause; moreover, he declared gravitational force to be the intervention of God in the world, hence this force is universal in linking objects together, included the molecules).

In opposition to the lack of experimental evidence for the idealistic principles of his contemporary medicine, Hahnemann, without making axiomatic assertions, begins in the opening pages of the *Organon* by posing a concrete problem for the physician's work, which, however, in the first edition, he expresses with a double negation:

The physician has no higher goal than to make sick people healthy, which is called healing.²⁰

From the second edition of the *Organon*, the double negative disappears, and a more direct affirmation appears; we have already noted a similar change for the term "rational" in the work's title (see note 13):

The physician's highest and unique profession is to make sick people healthy, which is called healing.²¹

We do not know the meaning of these changes; Hahnemann does not mention them; we can hypothesize "adjustments" motivated by the evolution of his thought or by the findings obtained after the publication of his text.

Furthermore, starting with the second edition of the *Organon*, Hahnemann adds an explanatory footnote to section 1 which better clarifies his rejection of an abstract medicine:

[My theory²² is] not (on which so many doctors have previously wasted their energy and time in a quest for glory) the spinning together of empty ideas and hypotheses about the inner nature of the life process and the origins of disease in the invisible interior into so-called systems, or the countless attempts to explain the phenomena in diseases and their (always hidden) immediate cause, etc., wrapped up in incomprehensible words and a bombastic mass of abstract phrases that are supposed to sound learned in order to astonish the ignorant—while the sick world sighs in vain for help. We have just enough of such learned enthusiasms (that is called theoretical medicine and

²⁰“Der Arzt hat kein höheres Ziel, als kranke Menschen gesund zu machen, was man Heilen nennt” (Hahnemann, 1810, §1 p. 3). Here and in the following, the two negative words of each doubly negated proposition are underlined for making easier recognition of its logical nature. In the above proposition the comparative is a double negation since it is not equivalent to equality, the typical relation of classical logic.

²¹“Des Arztes höchster und einziger Beruf ist kranke Menschen gesund zu machen, was man Heilen nennt” (Hahnemann, 1819, §1, p. 91)

²²In his texts Hahnemann never uses the term “theory” to define his thought, while he defines “theoretical medicine” the overall approach of the official medicine of his time. In referring to his “discovery” he uses the terms “method” or directly “therapy” more in general he speaks of “Medical Art”. For the sake of clarity here and in the following we make use of our usual word “theory”.

there exist even professorships for it) and it is high time that those who call themselves doctors finally stop deceiving poor people with chatter and rather start to act to really help and heal²³.

Already in the preface to the second edition of the *Organon*, Hahnemann emphasized that not abstract speculations, but only observational facts, can provide guidance to the empirical sciences:

Mere intellect is not able to recognize anything in itself [= if not from others] (a priori), cannot develop a concept of the nature of things, of cause and effect from itself alone; every one of its propositions about reality must always be based on sensory perceptions, facts and experiences if it wants to bring truth to light. If in its activity it removes itself by even a single step from the hand of perception, it already finds himself in the endless realm of fantasy and arbitrary conjecture, the mothers of pernicious madness and absolute nothingness.

In the simple empirical sciences, in physics, chemistry and the art of medicine, the merely speculative intellect can therefore have no voice at all; acting alone, and thereby degenerating into empty conjecture and fantasy, it generates only.²⁴ absurd hypotheses, which in millions of cases are self-deception and lies, and by their very nature must be so.

This has hitherto been the sublime jugglery of the so-called theoretical art of medicine, in which a priori conception and the art of conjecture have erected a multitude of proud doctrinal edifices, which have merely shown what each of their authors had dreamed about things which cannot be known and which are not necessary to the cure.²⁵

Again, in the text “Chronic Diseases”:

But that which does not reveal its hidden, alleged existence through any signs does not exist for us humans, who are dependent on the Creator for our

²³“Nicht aber (womit so viele Aerzte bisher Kräfte und Zeit ruhsüchtig verschwendeten) das Zusammenspinnen leerer Einfälle und Hypothesen über das innere Wesen des Lebensvorgangs und der Krankheitsentstehungen im unsichtbaren Innern zu sogenannten Systemen, oder die unzähligen Erklärungsversuche über die Erscheinungen in Krankheiten und ihre (stets verborgen bleibende) nächste Ursache, u. s. w. in unverständliche Worte und einen Schwulst abstrakter Redensarten gehüllt, welche gelehrt klingen sollen, um den Unwissenden in Erstaunen zu setzen—während die kranke Welt vergebens nach Hülfe seufzte. Solcher gelehrter Schwärmereien (man nennt es theoretische Arzneikunst und hat sogar eigne Professuren dazu) haben wir nun gerade genug und es wird hohe Zeit, dafs, was sich Arzt nennt, endlich einmal aufhöre, die armen Menschen mit Geschwätze zu täuschen und nun zu handeln, das ist, wirklich zu helfen und zu heilen anfangen.” (Hahnemann, 1819, § 1, p. 91, fn. 1).

²⁴Notice that the word “only” is equivalent to “Nothing else”. We will point underline each word equivalent to a double negation.

²⁵“Der bloße Verstand vermag kein Ding an sich (a priori) zu erkennen, keinen Begriff vom Wesen der Dinge, von Ursache und Wirkung aus sich allein zu entwickeln; jedem seiner Sprüche über das Wirkliche müssen stets sinnliche Wahrnehmungen, Thatfachen und Erfahrungen zum Grunde liegen, wenn er Wahrheit zu Tage bringen will. Entfernt er sich in seiner Thätigkeit auch nur mit einem einzigen Schritte von der Hand der Wahrnehmung, so befindet er sich schon im endlosen Reiche der Phantasie und der willkürlichen Vermuthungen, der Mütter des verderblichen Wahns und des absoluten Nichts./In schlichten Erfahrungswissenschaften, in Physik, Chemie und Arzneikunst kann defshalb der bloß speculirende Verstand gar keine Stimme haben; er erzeugt da, allein handelnd, und eben dadurch in leere Vermuthung und Phantasie ausgeartet, bloß abentheuerliche Hypothesen, die in Millionen Fällen Selbstbetrug und Lüge sind, und ihrer Natur nach seyn müssen./Diefs war bisher das erhabene Gaukelspiel der sogenannten theoretischen Arzneikunst, in welcher apriorischer Begriff und Vermuthungskünstelei eine Menge stolzer Lehrgebäude errichtete, die bloß zeigten, was jeder ihrer Urheber über Dinge, die nicht gewußt werden können und die nicht zum Heilen erforderlich sind, geträumt hatte.” (Hahnemann, 1819, “Preface”, pp. 8-9).

knowledge of things solely through observation—it is therefore a phantom of a misguided imagination.²⁶

Therefore, Hahnemann started not from pre-established principles; rather, he empirically derived laws from careful and meticulous observations and equally careful and rigorous experimentations. Since the early writings Hahnemann's main concern was indeed the experimental nature of his theory:

Medicine is a science of experience; its object is to eradicate diseases by means of remedies. The knowledge of diseases, the knowledge of remedies, and the knowledge of their employment, constitute medicine ... Two thousand years were wasted by physicians in endeavouring to discover the invisible internal changes that take place in the organism in diseases, and in searching for their proximate causes and *a priori* nature, because they imagined that they could not cure before they had attained to this impossible knowledge. Even if the futility of these protracted efforts were not proof of the impossibility of this undertaking, the empirical fact that they are unnecessary for healing would in itself prove their impossibility.²⁷

Instead at his time the animism of Stahl, the school of Hoffmann and that started by Boerhaave, all claimed to be rational in deriving remedies from metaphysical principles.

His method is to examine the disease as described by a set of evident symptoms and in addition (therapeutic part) to administrate pharmacological substances upstream experimented on human body.

Hahnemann suggests that cure is effective when it is similar to the illness.²⁸ He reports as the most representative example of this kind of cure the smallpox vaccination (recall that the cure of this disease born thanks to Jenner in 1796, at the same time as Hahnemann's first studies). He fully appreciates the new vaccination technique:

Many examples could be cited of diseases which, in the course of nature, have been cured homeopathically by diseases with similar symptoms... Among them, the smallpox disease, so notorious because of the large number of its violent symptoms, stands out, which has already abolished and cured numerous illnesses with similar symptoms... The smallpox disease which follows

²⁶“Was aber durch keine Zeichen sein verborgnes, angebliches Daseyn zu verstehen giebt, existirt nicht für uns Menschen, die wir auf Erkenntnis der Dinge einzig durch Beobachtung vom Schöpfer angewiesen sind—ist folglich ein Phantom verirrter Phantasie.” (Hahnemann, 1828, Vol. 1, p. 99, pp. 25746/7, fn 29).

²⁷“Die Heilkunde ist Eine Wissenschaft der Erfahrung; sie Beschäftigt Sich mit Tilgung der Krankheiten durch Hülfsmittel. Die Kenntniß der Krankheiten, die Kenntniß der Hülfsmittel, und die Kenntniß ihrer Anwendung bilden die Heilkunde ... Zweitausend Jahre wurden von der Aerzten Verschwendet, um die Unsichtbaren Innern Veränderungen des Körpers bei den Vorkommenden Krankheiten, ihre Nächste Ursache und das Apriorische Wesen derselben, zu ergrübeln, weil sie wähten, nicht eher Heilen zu können, bis sie diese unmögliche Kenntnis ergrübeln hätten. Wenn nun auch die Vergeblichkeit dieser langwierigen Anstrengungen noch kein Beweis von der Unmöglichkeit dieses Unternehmens wäre, so würde doch der Erfahrungssatz, daß sie unnöthig zur Heilung sind, schon allein ihre Unmöglichkeit beweisen.” (Hahnemann, 1805b: p. 390).

²⁸The smallpox vaccination was not the only one that used a disease agent “similar” to that causing the cowpox. The classic example of a cure by similars (which would play the role of the “spark” for Hahnemann) is the use of Cinchona (from which one obtains quinine) as a cure for malaria; he assumed Cinchona and developed symptoms similar to those of the malaria picture.

cowpox [after the smallpox vaccination], as is well known, completely abolishes the former (homeopathically) and does not allow it to reach its full potential, precisely because of its greater severity as well as its great similarity; However, due to the cowpox, which has already reached maturity, and its great similarity, the human smallpox that breaks out after it is (homeopathically) at least much less severe and more benign.²⁹

This seems to be the reason for the so beneficial, remarkable event that, since the general spread of Jenner's cowpox vaccination, smallpox has never again appeared among us as epidemic, nor as malignant, as it did 40 or 50 years ago, when a city struck by it lost at least half and often three-quarters of its children to the most miserable death from the plague.³⁰

In general, he induces his "Law of Similars" or the "principle of similars" (provoking diseases similar to the diseases already in progress) first of all by examining the healings that occur spontaneously in nature, then by personally experimenting and also by healings obtained with medical treatments characterized by similarity. He assumed that different diseases with similar symptoms cannot co-exist in a same body.

In conclusion, while some contemporary doctors (Stahl, Hoffmann, Boerhaave and then Cullen, Brown) proposed to replace the so-called "heroic" medicine of the time with their personal theories, Hahnemann proposed an operational method, which in his intention was based on experimental aspects: observation, perception, collection of objective data and administration of already experimented drugs, without any pre-established hypothesis, apart the similarity principle.

Hence, Hahnemann's doctrine has to be located within the vast movement that characterized the scientific research of the late 18th century with the rejection of the abstract, aristocratic science (Gillispie, 1959). In particular, Hahnemann's attitude appears similar to Lavoisier's. According to Newton; chemistry was an application of his mechanics based on the force-cause which has the metaphysical meaning of a cause. Instead, Lavoisier abandoned the speculations on the gravitational force as the responsible of attractions between the molecules (the "affinity") and with it the Newtonian theoretical apparatus of mechanics for rather starting science anew from the experiments of the chemical analysis and chemical synthesis under the only law of the mass equality (Thackray, 1970). A similar attitude

²⁹“Es würden sich sehr viele Beispiele von Krankheiten anführen lassen, die im Laufe der Natur durch Krankheiten von ähnlichen Symptomen homöopathisch geheilt wurden ... Unter ihnen raget die, wegen der großen Zahl ihrer heftigen Symptome so berühmte Menschenpocken-Krankheit hervor, welche schon zahlreiche Uebel mit ähnlichen Symptomen aufgehoben und geheilt hat ... Die zu Kuhpocken kommende Menschenpocken-Krankheit hebt wie bekannt, eben sowohl ihrer größern Stärke, als ihrer großen Aehnlichkeit wegen, erstere sogleich gänzlich, (homöopathisch) auf und läßt sie nicht zur Vollendung kommen; doch wird hinwiederum, durch die ihrer Reife schon nahe gekommene Kuhpocke, ihrer großen Aehnlichkeit wegen, die darauf ausbrechende Menschenpocke (homöopathisch) wenigstens um vieles gemindert und gutartiger” (O. 6th ed., § 46, pp. 93-95).

³⁰“Dieß scheint\der Grund/ des so wohlthätigen, \merkwürdigen/Ereignisses zu seyn, daß, seit der allgemeinen Verbreitung der Jennerschen Kuhpocken-Impfung, die Menschenpocken nie wieder\unter/uns weder so epidemisch, \noch so böartig/erscheinen, wie vor 40, \50/ Jahren, wo eine davon ergriffene\Stadt, wenigstens/die Hälfte und oft drei Viertel ihrer Kinder durch den jämmerlichsten/Pest-Tod. verlor.” (Ibidem, § 46, p. 95, fn. 1).

was shared by Lázare Carnot discrediting both Newton's gravitational force and force-cause, for rather basing mechanics on the experimental phenomena of the impact of bodies, being each body characterized by means of an index of elasticity (Carnot, 1783).

5. A Characterization of the Foundations of a Scientific Theory

The birth Newtonian mechanics was impressive because solve a great number of crucial problems about the celestial bodies. This theory is composed by laws derived according to classical logic from affirmative *axiom-principles*. The theoretical organization of Newton's mechanics was that theorized by Aristotle as the "apodictic science" (AO) and later followed by science since the time of Euclid's geometry. It quickly became a scientific paradigm, obscuring any alternative as insufficient.

However, at the time around French Revolution, i.e. at the end of 18th Century and in the first decades of 19th Century, a cultural and scientific movement arose against the Newtonian paradigm; it charged the traditional theories to be abstract of life's reality and people's interests (Gillispie, 1959). In that time some alternative scientific theories born.

For instance, Chemistry born by tackling the basic problem of how many they were the elements of matter; Lavoisier's search was based on the following methodological principle: "It is not true that matter is divisible to the non-finite" (Guerlac, 1961: p. 206)³¹; of course, chemists could not affirm that matter was divisible to the finite, because it was not possible to recognize in an experimental way the dimensions of the elements. (Similarly, it was stated that "Nothing is created"; this proposition does not mean the corresponding affirmative proposition "Everything is conserved" because the verification of the latter one requires examining with an infinite accurateness an infinity of things, both microscopic and gigantic).

In this context Lavoisier defined an element of matter by means of the following doubly negated proposition:

If we link to the name of elements... the idea of last term arrived at by [chemical] analysis, all the substances which we were not able to decompose by any means are for us elements. (Lavoisier, 1789: p. 7),

where the word "decompose" carries the negative meaning of a separation. (Notice that in chemistry the same name of an element, "atom" is a doubly negated proposition, being it a word of the ancient Greek (a-tom) composed by the privative alpha = not and *tomèi* = to cut; also in this case an affirmative word, e.g. "simple" element, was rejected owing to the lack of evidence).

Recent studies of history of science have recognized that many theories beyond

³¹More instances of DNPs in chemistry are listed by (Drago, 2007: pp. 189-201). In (Drago, 2012: pp. 175-189), are presented instances of DNPs in many other theories.

classical Chemistry (Lázare Carnot's Mechanics, Sadi Carnot's Thermodynamics, Galois' theory of algebraic equations, 1905 Einstein's theory of quanta, etc.) have very different foundations from those of the paradigm originated by Newton's mechanics. In the original texts of each of these theories one can recognize a lot of doubly negated propositions which are not equivalent to the corresponding affirmative propositions (i.e. "Non-non- A is different from A "), because the meaning of A is different from that of non-non- A , often because A lacks experimental evidence (DNPs). Hence these theories are managed by a non-classical logic³², which as first reference can be identified with intuitionist logic.

In the past classical logic was characterized by the law of the excluded middle: "Either A is valid, or not- A is valid" (where A is a proposition). Yet, according to recent studies the distinction of intuitionist logic from the classical one is better characterized by means of the law of the double negation "Not-not- A is equal to A ."³³ (Grize, 1970: pp. 206-210; Dummett, 1977: p. 24).

Since the above double negation law does not allow an intermediate case between holding true and failure, the distinction between classical logic and intuitionist logic is actually a dichotomy. Logic is certainly basic for science. Therefore, the above dichotomy on the kind of logic is an integral part of the foundations of a scientific theory.

Moreover, an analysis of previous past theories shows that, by including in an essential way DNPs, a theory of the above-mentioned ones is based on a search for a new method capable to solve a basic problem (PO).

In conclusion, the dichotomy on the kind of logic implies a dichotomy on the kind of organization of the theory: this organization may be either the organization drawn from a set of axioms or that based on the search of the solution of a basic problem (either AO or PO).

Another constitutive component of the foundations of a scientific theory is surely the notion of infinity. Ancient Greek science was deliberately bounded to make use of the finite, or better at most the potential infinity (PI) (which is the kind of infinity represented by both an unlimited segment and the usual counting natural numbers which does not admit a last number). Yet, modern science was based on the idea of actual infinity (AI) through, for instance, the point at infinity of a straight line, the absolute precision on a single point and a single line; and over all, the actual infinitesimals which both Leibniz and Newton made use in establishing the new mathematical calculus (which gave marvelous results in astronomy and in physics). All these notions were considered as real objects although they were no more than inventions of reason.

But one century later some scientists suggested important scientific theories, e.g. classical chemistry, which made use of the mathematics of merely rational numbers, i.e. which rejected the AI (Drago, 1990; Drago, 1991). This rejection was reiterated by also Thermodynamics' mathematics. Therefore, in the foundations

³²Which had been misleadingly anticipated by Hegel's dialectical logic. For an introduction to intuitionist logic, see (Drago, 2010).

³³For more instances of doubly negation propositions in chemistry see (Drago & Oliva, 1999).

of science there exists a second dichotomy; it concerns the notion of infinity, either AI or PI³⁴.

6. Hahnemann's Doctrine Shares the Basic Choices of Its Contemporary Alternative Scientific Theories: His Main Problem

We are now in a position to characterize each theoretical system of the medical tradition by means of the above two dichotomies: one on the two different kinds of logic of its propositions (respectively, classical or intuitionist) and in correspondence the different kinds of theoretical organization; and the other dichotomy on the kind of infinity, and in correspondence the kind of mathematics. The latter characterization is relevant, notwithstanding medicine is a not mathematized discipline, because we can distinguish whether a basic concept is operational (i.e. expressed by a mere approximating series without obtaining the last element is not) and hence is adherent to reality, and therefore refers to PI, or it is idealized, as it is suggested by AI (as e.g. in the case the final limit of an approximation series is assumed as existent).

From what has been suggested in previous sect. 4, the foundations of Newton's mechanics are characterized by the choices AI (actual infinitesimals) and AO (three principles-axioms from which to draw all mechanical laws) (Drago, 1988).

Already in the above it was remarked that around the time of French Revolution alternative theories born. Remarkably, also homeopathic medicine born in these years: Hahnemann's first text referring to the "principle of similarity" was published in 1796, i.e. in the time of French revolution that means also the time of contestation of Newtonian science. In this paper he coined the new term "homeopathy" as well as the antithetical term, "allopathy"; they etymologically mean respectively "similar to disease" and "different from disease". Notice that the word *similar* is equivalent to a DNP: "It is not true that it is not...". Therefore, the same term Homeopathy, relying on the word *similar*, is characterized through intuitionist logic.

He moreover enounced a general principle through a DNP:

"... only natural law of healing [is]: **Heal through similarity of symptoms!**"³⁵

Here Hahnemann's word "law" may appear excessive, but we may intend it as a concession to the common language of scientific milieu.

In fact, as we have been highlighting, Hahnemann's doctrine is not based on a priori principles from which to deduce scientific laws; he intends to solve a specific problem, as we have seen in the statement of the first paragraph of his most important book, the *Organon* (from its first edition).

This appeal to a basic problem had the great merit of bringing medicine back to its basic task. Notice that subsequent medicine assumed exactly this attitude,

³⁴This dichotomy played a decisive role for the birth of modern science, as highlighted by (Koyré, 1957).

³⁵"... einzigen Natur-Heilgesetze: **Heile durch Symptomen-Aehnlichkeit!**" (*O.* 6th ed., §50, p. 99; bold in the text).

although rejecting Hahnemann's theory of medicine.

Therefore, Hahnemann's programmatic approach is clearly in tune with Lavoisier's re-founding chemistry without any ideal notion coming from Newtonian mechanics (as the gravitational force linking together the molecules).

In order to sharply define the basic choices of his writings in the following we will investigate Hahnemann's writings; they will be characterized by the alternative choices PO and PI. We begin with the choice PO, manifested by the doubly negated propositions occurring within his texts.

7. Doubly Negated Propositions in Hahnemann's Doctrine: The Notion of Disease

Hahnemann's approach differs from that of his contemporary doctors in regards to also the following features: the concept of disease, the relationship between health and disease, nosography, therapeutic method, experimentation on healthy humans. Hahnemann states all these features through DNPs, as we will begin to see in the following quotations concerning the disease. Recall that each DNP cannot be translated into an affirmative proposition because the latter one has a different meaning (the reader can easily convince himself of this logical nature of the following DNPs by cancelling the two negations of each of them, i.e. by translating it into the corresponding affirmative proposition and then verify the difference in meaning of the latter one).

Also, the hostile, partly psychic, partly physical potencies in earthly life, which are called morbid harmfulnesses, do not necessarily have the power to make the human condition morbid—we fall ill through them only when our organism is disposed and disposed enough to be attacked by the present cause of illness and to be changed in its condition, upset and put into abnormal feelings and activities—they therefore do not make everyone ill and not at all times.³⁶

More specifically:

Therefore disease ... is by no means, as is conceived by the allopaths, as a separate entity from the living whole, from the organism and from the dynamis that animates it, inwardly hidden, however finely considered, an absurdity which could only arise in material minds and which for thousands of years has given medicine all the pernicious directions that have made it a true art of evil³⁷; And yet, even a moment reflection makes clear that no external illness (which has arisen without any particular damage from the outside) can arise and remain in its place, or even worsen, without internal causes, without the in-

³⁶“Auch besitzen die feindlichen, theils psychischen, theils physischen Potenzen im Erdenleben, welche man krankhafte Schädlichkeiten nennt, nicht unbedingt die Kraft, das menschliche Befinden krankhaft zu stimmen wir erkranken durch sie nur dann, wenn unser Organismus so eben dazu disponirt und aufgelegt genug ist, von der gegenwärtigen Krankheits-Ursache angegriffen und in seinem Befinden verändert, verstimmt und in innormale Gefühle und Thätigkeiten versetzt zu werden—sie machen daher nicht Jeden und nicht zu jeder Zeit krank” (O. 6th ed., § 31, p. 81).

³⁷“Daher ist Krankheit ... keinesweges, wie von den Allöopathen geschieht, als ein vom lebenden Ganzen, vom Organismus und von der ihn belebenden Dynamis gesondertes, innerlich verborgenes, obgleich noch so fein gedachtes Wesen ein Uningd was bloß in materiellen Köpfen entstehen konnte und der bisherigen Medicin seit Jahrtausenden alle die verderblichen Richtungen gegeben hat, die sie zu einer wahren Unheilkunst schufen zu betrachten.” (O. 6th ed., §. 13, p. 72).

volvement of the entire (and therefore sick) organism. It could not appear at all without the consent of the entire other state of being and without the participation of the rest of the living whole... indeed, its emergence cannot even be imagined without being prompted by the whole (disturbed) life, so intimately are connected all parts of the organism and form an indivisible whole in feelings and activity. There is no rash on the lips, no nail ulcer, without a preceding and simultaneous inner ill-being of the person.³⁸

... that people's illnesses are not based on any substance, any emotion, i.e. on any disease matter...³⁹

The degenerate substances and impurities which become visible in diseases are, in a word, as cannot be denied, nothing other than products of the disease of the organism itself, which has been placed in an abnormal condition.⁴⁰

(In the semi-last quotation, it is easy to recognize an argument *ad absurdum* ("not imaginable") which later we will deal with).

Having rejected the idea of disease as an a priori entity, then Hahnemann posed a precise problem: is disease something more than the symptoms or not? Its resolution would define the field of facts on which his method for treating a sick is founded.

He starts from a principle that imitates the principle of sufficient reason. According to Leibniz it and the principle of non-contradiction constitute the two principles of human reason; actually, they represent the two chief principles of PO and AO respectively. In fact, Leibniz's principle of sufficient reason is a doubly negated proposition: "Nothing is without reason" (Leibniz, 1686); on his part, Hahnemann says: "No change [of health into illness] is without cause."⁴¹ However it should be noted that here the word "cause" has to be understood in a very general sense, as the following quotations explain.

What is the reason of a disease? Since we cannot inspect inside the body, how to determinate the disease?

It is conceivable that every disease presupposes a change within the human organism. However, this is vaguely and deceptively suspected by the intellect based on what the symptoms of the illness reveal; however, the nature of this

³⁸“Und dennoch ist schon bei geringem Nachdenken einleuchtend, daß kein (ohne sonderliche Beschädigung von außen entstandenes), äußeres Uebel ohne innere Ursachen, ohne Zuthun des ganzen (folglich kranken) Organisms entstehen und auf seiner Stelle verharren, oder wohl gar sich verschlimmern kann. Es könnte gar nicht zum Vorschein kommen, ohne die Zustimmung des ganzen sonstigen Befindens und ohne die Theilnahme des übrigen lebenden Ganzen ... ja dessen Emporkommen läßt sich, ohne vom ganzen (verstimmt) Leben dazu veranlaßt zu sein, nicht einmal denken, so innig hängen alle Theile des Organisms zusammen und bilden ein untheilbares Ganze in Gefühlen und Thätigkeit. Keinen Lippen-Ausschlag, kein Nagelgeschwür giebt es, ohne vorgängiges und gleichzeitiges inneres Uebelbefinden des Menschen.” (O. 6th ed., §189, p. 172).

³⁹“... daß die Krankheiten der Menschen auf keinem Stoffe, keiner Schärfe, d.i. auf keiner Krankheits-Materie beruhen ...” (Hahnemann, 1833a, “Preface”, pp. VI-VII)

⁴⁰“Die in Krankheiten sichtbar werdenden, entarteten Stoffe und Unreinigkeiten sind, mit einem Worte, wie nicht zu leugnen ist, nichts Anderes, als Erzeugnisse der Krankheit des in innormale Verstimmung gesetzten Organisms selbst” (O. 6th ed., “Introduction”, p. 32).

⁴¹“Keine Veränderung entsteht ohne Ursache.” (Hahnemann, 1805b, p. 390). The cause referred to by Hahnemann is not to be understood as a deterministic factor. The continuation of the above sentence is: “Die Krankheiten werden ihre Entstehungsursachen haben, so verborgen sie uns auch in den meisten Fällen bleiben” (“Diseases must have their exciting causes, concealed though they may be from us in the greater number of cases”), *ibidem*. Hahnemann's discourse is subtle: the causes can exist, but they are often unknown to us. This is precisely the attitude of Leibniz who says: “Nothing is without reason, or rather everything has a reason, ... although we are not always able to know it.” and therefore it is good to say the previous double negative. But while Leibniz says “reason” Hahnemann says “cause”, therefore here H. is imprecise.

inner, invisible change is not recognizable in itself and cannot be recognized in any way without deception.⁴²

It is therefore impossible to know the internal alteration at the basis of the symptoms and to identify a precise, direct reason of the entire process. However, the fact that a disease within the organism is invisible is not an obstacle to scientific investigation [the following propositions constitute an *ad absurdum* argument]:

Would it not be foolish [=absurd] to not try to imitate the fire-starting with steel and stone because one cannot understand how so much bound heat is hidden in these bodies...? [the question implicitly waits a negative answer; therefore, this proposition implicitly includes one more negation] ... it would be just as foolish as not learning to write because one cannot understand how one person can communicate his thoughts to another using pen, ink and paper ...⁴³.

To pursue the construction of a theory even if the experimental evidence is not complete is parallel to the theoretical effort of the contemporary chemists, who did not have, nor could they hope to have, experimental evidence of atoms, and yet, in order to scientifically investigate the problem of their number, successfully constructed a method for solving the problem.

Like chemists, Hahnemann ties himself as much as possible to empirical data: in the case of chemists, chemical reactions and the balance of masses; in his case, the symptoms of disease at issue. His observation focuses on what is perceptible with the senses; he expresses his thesis through various DNPs:

The un-prejudiced observer ... perceives ... nothing in each individual disease but changes in the condition of the body and soul that are externally recognisable by the senses, signs of disease, coincidences, symptoms, that is, deviations from the healthy, former state of the now sick person, which he himself feels, which those around him perceive in him, and which the doctor observes in him.⁴⁴

... the doctor can perceive nothing but the signs of illness ...⁴⁵.

There is nothing pathologically curable and nothing invisibly pathologically altered curable within the human being that does not reveal itself to the closely observing physician through signs and symptoms of illness.⁴⁶

⁴²“Es läßt sich denken, daß jede Krankheit eine Veränderung im Innern des menschlichen Organismus voraussetzt. Diese wird jedoch nach dem, was die Krankheits-Zeichen davon verrathen ... vom Verstande hlofs dunkel und trüglich geahnet; an sich erkennbar aber und auf irgend eine Weise täuschungslos erkennbar ist das Wesen dieser innern, unsichtbaren Veränderung nicht.” (Hahnemann, 1829, §5 p. 107).

⁴³“Würde es nicht thöricht seyn, das Feuer-Anschlagen mit Stahl und Stein gar nicht nachthun zu wollen, weil man nicht begreifen könne, wie in diesen Körpern so viel gebundener Hitzstoff verborgen seyn ...? ... Eben so thöricht würde es seyn, als wenn man nicht schreiben lernen sollte, weil man nicht einsehn könne, wie ein Mensch dem andern seine Gedanken durch Feder, Tinte und Papier mittheilen könne ...” (Hahnemann, 1828, vol. 1, 177, 25, fn. 21, pp. 924/5).

⁴⁴“Der vorurtheillose Beobachter ... nimmt ... an jeder einzelnen Krankheit nichts, als äußerlich durch die Sinne erkennbare Veränderungen im Befinden des Leibes und der Seele, Krankheitszeichen, Zufälle, Symptome wahr, das ist, Abweichungen vom gesunden, ehemaligen Zustande des jetzt Kranken, die dieser selbst fühlt, die die Umstehenden an ihm wahrnehmen, und die der Arzt an ihm beobachtet.” (O. 6th ed., §6, p. 66).

⁴⁵“... nichts wahrnehmen kann, als die Krankheits-Zeichen...” (O. 6th ed., §7, p. 67).

⁴⁶“Es giebt nichts krankhaftes Heilbare und nichts unsichtbarer Weise krankhaft verändertes Heilbare im Innern des Menschen, was sich nicht durch Krankheits-Zeichen und Symptome dem genau beobachtenden Arzte zu erkennen gemäß” (O. 6th ed., §14, p. 73).

For on the removal of all morbid symptoms nothing remains but health.⁴⁷ All accurate experience teaches that a troublesome disease requiring help almost never consists of a single symptom, and that a single severe symptom is almost never present alone. There are almost always several noticeable signs of disease and deviations from the natural state to be perceived in the patient at the same time, which form the unity of the overall diseased state, however little some of them at first sight may appear to be related to each other. A single, minor accident is not a disease that requires help.⁴⁸

In the year 1835 he wrote retrospectively:

Until now, the faithfully followed homeopathic healing art, as taught in my writings and the writings of my students, has demonstrated its natural superiority over any allopathic procedure in all diseases that affect people, not only rapidly [at the moment], but also in epidemic diseases and sporadic fevers.⁴⁹ But he had to admit that not in all cases his method was effective.

Why, then, can this successful vital force, effectively affected by homeopathic medicine, created to restore the integrity of the organism, and tirelessly working to complete recovery even in serious acute illnesses, not bring about a true, lasting recovery in those chronic illnesses, even with the help of homeopathic medicines that best cover the current symptoms? What prevents it from doing so? The answer to this very natural question had to lead me to the nature of these chronic illnesses. To discover the reason why all the remedies known to homeopathy fail to bring about a true cure for the diseases in question, and to gain, if possible, a more accurate and correct insight into the true nature of those thousands of chronic diseases that remain uncured—and yet remain uncured despite the irrefutable truth of the homeopathic law of healing—this most serious task occupied me day and night since the years 1816 and 1817.⁵⁰

⁴⁷“Denn alle Krankheitszeichen hinweggenommen, bleibt nichts, als Gesundheit übrig” (Hahnemann 1833b, p. 844). This essay was first published in 1813 and subsequently, in *Reine Arzneimittellehre (Materia Medica Pura)*, 2nd vol. of 3rd ed.

⁴⁸“Alle genauere Erfahrungen lehren, dafs eine beschwerliche, Hülfe erheischende Krankheit fast nie aus einem einzigem Symptome bestehe, und ein einziges heftiges Symptom fast nie allein da sei. Fast immer sind mehrere merkbare Krankheitszeichen und Abweichungen vom natürlichen Zustande zugleich, am Kranken wahrzunehmen, welche die Einheit des kranken Gesamtzustandes bilden, so wenig auch cinige derselben auf den ersten Anblick Beziehung auf einander zu haben scheinen. Ein einziger, leichter Zufall ist keine, Hülfe fodernde Krankheit.” (Hahnemann, 1810, footnote 1, §10 p. 10).

⁴⁹“Bisher erwies überall die treu befolgte, homöopathische Heilkunst, wie sie in meinen und meiner Schüler Schriften gelehrt worden war, ihren natürlichen Vorzug vor jedem allöopathischen Verfahren bei allen die Menschen nicht nur schnell befallenden (akuten) Krankheiten, sondern auch bei den epidemischen Seuchen und sporadischen Fiebern sehr entschieden und auffallend.” (Hahnemann, 1828, vol. 1, 1, p. 25.617).

⁵⁰“Warum kann nun diese, durch homöopathische Arznei wirksam afficierte, zur Herstellung der Integrität des Organism erschaffene, und unermüdet zur Vollendung der Genesung bei selbst schweren akuten Krankheiten tätige, erfolgreiche Lebenskraft in jenen chronischen Uebeln, selbst mit Hülfe der die gegenwärtigen Symptome bestens deckenden homöopathischen Arzneien, keine wahre, dauernde Genesung zue Stande bringen? Was hält sie davon ab? Dieser so natürlichen Frage Beantwortung mußte mich auf die Natur dieser chronischen Krankheiten hinführen. Den Grund also auszufinden, warum alle die von der Homöopathie gekannten Arzneien keine wahre Heilung in gedachten Krankheiten bringen und eine, wo möglich richtigere und richtige Einsicht in die wahre Beschaffenheit jener Tausende von ungeheilt bleibenden—bei der unumstößlichen Wahrheit des homöopathischen Heilgesetzes, dennoch ungeheilt bleibenden—chronischen Krankheiten gewinnen konnten, diese höchst ernste Aufgabe beschäftigte mich seit den Jahren 1816, 1817 bei Tag und Nacht.” (*Ibidem*, vol. 1, 5-6, pp. 25.624/5).

Therefore, he explained this fact by splitting the notion of disease in “acute” and “chronic”. In the first years of the application of his method Hahnemann was mainly interested to “acute diseases”; later he gave much more importance to “chronic diseases” as a privileged object of attention for doctors, because in his opinion these diseases were the greater problem for people’s health.

All chronic human diseases—even those left to themselves and not aggravated by improper treatment—show, as already mentioned, such persistence and endurance that, once they have developed (and are not *thoroughly* cured by the art), they increase more and more with the years and are not diminished, much less conquered and eradicated, by the own powers of even the most robust nature, even with the healthiest lifestyle and diet. They therefore never disappear of their own accord, but grow and worsen until death. They must therefore all have as their origin and basis persistent chronic miasmas, which enable their parasitic existence in the human organism to continually increase and grow.⁵¹

The origin of these chronic diseases is to be found in the improper treatment of what are now recognized as diseases caused by bacterial infections (scabies, syphilis, etc.): the removal at the time of acuteness, of only the external manifestations of these diseases would have determined a chronicization of the pathology with the involvement of the entire organism:

The private doctor’s excuse (for the hospital doctor has absolutely no excuse) is useless: that if it is not known—as it almost never is known until it is evident—where, when, on what occasion, and from which admittedly scabious person the infection occurred, he [the doctor] cannot tell from the current, often insignificantly small, rash whether it is really scabies, and therefore one cannot attribute to him any guilt for the disastrous consequences if he considers it to be of a different kind... This excuse, as already stated, is useless. For, first of all, if the physician wishes to proceed conscientiously and sensibly, no skin rash, none at all, of any kind, may be expelled by external means. The human skin, by itself, without the intervention of the rest of the living organism, does not produce an eruption, nor does it become diseased in any way without being caused and compelled to do so by the general, morbid condition, by the abnormality of the entire organism. In every case, an inappropriate condition of the entire, internal, living organism lies at the root, which must therefore first be considered and thus only be remedied by internal, transforming, improving, and healing medicines, after which the eruption, based on the internal disease, heals and disappears of its own accord,

⁵¹Italic added. “Alle chronischen Krankheiten der Menschen—auch die sich selbst überlassenen, nicht durch verkehrte Behandlung verschlimmerten—zeigen, wie gesagt, eine solche Beharrlichkeit und Ausdauer, daß, sobald sie sich entwickelt haben (und durch die Kunst nicht gründlich geheilt werden), sie mit den Jahren immer mehr zunehmen und lebenslang durch die eignen Kräfte selbst der robustesten Natur, auch bei der gesunden Lebensart und Diät nicht gemindert, und noch weniger besiegt und ausgelöscht werden, nie also von selbst vergehen, sondern wachsen und sich verschlimmern bis zum Tode. Sie müssen daher sämtlich festständige chronische Miasmen zum Ursprunge und zum Grunde haben, wodurch ihre Parasiten-Existenz im menschlichen Organismus sich immerdar erhöhen und wachsen zu können befähigt wird.” (*Ibidem*, vol. 1, 11, pp. 25.632/3).

without the aid of any external remedy, often more quickly than with external remedies.⁵²

This true proposition does not belong among those that should be understood, nor among those for which I demand blind faith. I demand no faith [= not-experimental belief] in it at all, and do not require that anyone understand it. I do not understand it either [its dynamics]; But enough, the fact is this and not otherwise. Only experience [medical, of complete healings that have already occurred] tells us this, and I believe it more than my own insight.⁵³

8. Doubly Negated Propositions about Nosography and Therapeutic Method

The concept of “similarity” plays a crucial role in Hahnemann’s thought. The medicines, in order to be considered as such, must experimentally produce symptoms similar to those of the disease to be treated; the experimentation of these medicines on healthy humans allows us to trace symptom profiles that indicate a disease presenting similar symptoms to that denounced by the patient.

In the above we have pointed out the word ‘similar’ because it is equivalent to “it is not true that it is not...”, i.e. a DNP. Note that “similar” does not mean “equal”, which is a concept that would lead to conceiving the action of the cure on a human body as a mechanical process. Rather, the concept is well expressed with a double negative: “not un-equal”. Also this double negation indicates that the theoretical core of Hahnemann’s medical method is based on intuitionist logic.

Hahnemann attributed to the principle of similarity an exclusive role in healing; he suggests that observation shows that also “Through the above-mentioned curative methods of the old school, however, not few sick people escaped their illnesses”⁵⁴; Hahnemann’s explanation for these successes is that actually the allopathic doctors made use of similar remedies to the homeopathic ones; he reports the case of the malaria treatment with quinine.

⁵²“Die Ausrede des Privat-Arzt (denn der Spital-Arzt hat vollends keine Entschuldigung) gilt nichts: daß, wenn nicht bekannt sey—wie es denn auch fast nie bis zur Evidenz bekannt werde—wo, wann, bei welcher Gelegenheit und von welcher geständig krätzigen Person die Ansteckung erfolgt sey, er es auch dem gegenwärtigen, oft unbedeutend kleinen Ausschlage nicht ansehen könne, ob er wirklich Krätze sey, man ihm also keine Schuld an den bösen Folgen zurechnen könne, wenn er ihn für andersartig halte ... Diese Ausrede, wie gesagt, gilt gar nichts. Denn, erstlich, darf, wenn der Arzt gewissenhaft und verständig verfahren will, kein Haut—Ausschlag, garkeiner, er sey von welcher Art er wolle, durch äußere Mittel vertrieben werden. Die menschliche Haut bringt aus sich allein, ohne Zuthun des übrigen, lebenden Ganzen, keinen Ausschlag hervor, wird auch auf keine Weise krank, ohne vom allgemeinen, krankhaften Befinden, von der Innormalität des ganzen Organisms dazu veranlaßt und genöthigt worden zu seyn. Allemal liegt ein ungehöriger Zustand des ganzen, innern, belebten Organisms zum Grunde, welcher daher zuerst zu berücksichtigen und also auch nur durch innere, das Ganze umändernde, bessernde und heilende Arzneien zu heben ist, worauf dann auch der, auf der innern Krankheit beruhende Ausschlag, ohne Beihülfe eines äußern Mittels, von selbst heilet und verschwindet, oft schneller, als durch äußere Mittel.” (*Ibidem*, vol. 1, 124-125, pp. 25.838/9).

⁵³“Gehört dieser wahre Satz nicht unter die zu begreifen seyn sollenden, noch auch zu denen, für welche ich blinden Glauben fordre. Ich fordre gar keinen Glauben dafür, und verlange nicht, daß dieß Jemanden begreiflich sey. Auch ich begreife es nicht; genug aber, die Thatsache ist so und nicht anders. Bloß die Erfahrung sagt’s, welcher ich mehr glaube, als meiner Einsicht.” (*Ibidem*, vol. 1, 177, p. 25.923, fn. 21).

⁵⁴“Bei den angeführten Cur-Methoden der alten Schule entrannen zwar allerdings nicht wenige Kranke ihren Krankheiten”, (O. 6th ed., “Introduction”, p. 45).

It is therefore extremely important for the well-being of humanity to investigate how these extremely rare but exceptionally healing treatments actually came about. The information we have found about this is of the utmost importance. They were never and in no way performed except with medicines of homeopathic, i.e., similar disease-causing potencies to the disease to be cured.⁵⁵

This is so true that even an older disease cannot be cured by nature itself by a new, dissimilar disease, no matter how severe, and just as little by medical treatment with medicines which are not capable of producing a similar disease state in a healthy body, such as allopathic medicines.⁵⁶

Again:

... no other medicines are taken than those which are well known ...⁵⁷;
... there is no powerful medicinal substance in the world which does not affect the mind, body and soul ...⁵⁸.

About his medicines Hahnemann says that their experimental verification is only the healing process:

Now, since, as no one can deny, the healing essence in medicines is not recognisable in itself, and in pure research, even by the most acute observer, nothing else can be perceived in medicines which could make them medicines or remedies, except that power of producing in the human body distinct changes in its condition ...⁵⁹

From that he concludes:

There is therefore no other method of applying medicines against diseases that promises help other than homeopathic medicine...⁶⁰

We remark that also Hahnemann's theory of medicines makes an essential use of DNPs of intuitionist logic.

9. Reasoning through DNPs: *Ad absurdum* Theorems

All the above shows without doubt that Hahnemann's theory searches the solution

⁵⁵“Es ist daher äußerst wichtig für das Wohl der Menschheit, zu untersuchen, wie diese so äußerst seltenen, als ausgezeichnet heilbringenden Curen eigentlich zugehen. Der Aufschluß, den wir hievon finden, ist von der höchsten Bedeutsamkeit. Sie erfolgten nämlich nie und auf keine Art anders, denn durch Arzneien von homöopathischer, das ist, ähnliche Krankheit erregender Kraft, als der zu heilende Krankheitszustand war”. (O. 6th ed., “Introduction”, p. 57).

⁵⁶“Dieß ist so wahr, daß sogar eine ältere Krankheit durch eine neu hinzutretende unähnliche Krankheit, sey diese auch noch so stark, von der Natur selbst nicht geheilt werden kann, und eben so wenig durch ärztliche Curen mit Arzneien, welche keinen ähnlichen Krankheitszustand im gesunden Körper zu erzeugen vermögend sind, \wie die/ allöopathischen.” (O. 6th ed., § 34, p. 83).

⁵⁷“... keine andern Arzneien, als solche genommen werden, die man genau kennt ...” (O. 6th ed., § 122, p. 146).

⁵⁸“... es keinen kräftigen Arzneistoff auf der Welt giebt, welcher nicht den Gemüths ...” (O. 6th ed., § 212, p. 183).

⁵⁹“Da nun, was niemand läugnen kann, das heilende Wesen in Arzneien nicht an sich erkennbar ist und bei reinen Versuchen, selbst vom scharfsinnigsten Beobachter, an Arzneien sonst nichts, was sie zu Arzneien oder Heilmitteln machen könnte, wahrgenommen werden kann, als jene Kraft, im menschlichen Körper deutliche Veränderungen seines Befindens hervorzubringen ...” (O. 6th ed., § 21, p. 76).

⁶⁰“Es bleibt daher keine andere, Hülfe versprechende Anwendungsart der Arzneien gegen Krankheiten übrig, als die homöopathische ...” (O. 6th ed., §. 24, p. 78).

of a fundamental problem (i.e., To cure the sick) through a series of considerations almost always expressed by DNPs. All that implies that its theoretical organization is of a new kind. Indeed, since DNPs do not express objective, circumscribed facts, it is not possible to derive from them logical deductions as one does from axioms of an AO; and *viceversa* the DNPs cannot be derived from the affirmative axioms of an AO, because the latter ones produce only affirmative propositions.

In the above we saw that Hahnemann's theory is based on the resolution of a problem; hence it is problem-oriented organized. In a PO the arguments exclude from the panorama of all possibilities what is considered impossible; i.e. they are *ad absurdum* arguments, like the well-known Sadi Carnot's theorem on the efficiency of heat engines in thermodynamics and in chemistry Avogadro's argument for proving the atomic constitution of matter (Drago & Oliva, 1999).

Already in sect. 6 we have met two arguments of this kind (they are here recalled in the reverse order):

- 1) Would it not be foolish [= absurd] to not try to imitate the fire-starting with steel and stone because one cannot understand how so much bound heat is hidden in these bodies...? ...it would be just as foolish as not learning to write because one cannot understand how one person can communicate his thoughts to another using pen, ink and paper...
- 2) It [illness] could not appear at all without the consent of the entire other state of being and without the participation of the rest of the living whole... indeed, its emergence cannot even be imagined [read: it is absurd] without being prompted by the whole (disturbed) life, so intimately are connected all parts of the organism and form an indivisible whole in feelings and activity. There is no rash on the lips, no nail ulcer, without a preceding and simultaneous inner ill-being of the person.

The former one opens the path to theorize. It states that is not impossible a *theory about illness although we ignore what happens inside the ill body*. This proposition recalls Sadi Carnot's (Carnot, 1824) theorizing a decade before: although admitting to ignore the intimate nature of heat, he analyzed the conversions of heat into work and was successful in producing a new theory. The same did chemists: although ignoring how an atom is made, they successfully organized into a periodic table all elements.

The latter argument states the main thesis of his theory: *the negative symptoms coexist with the pathological state of the entire body, otherwise we would have to support the idea that "all parts of the organism were not intimately connected and do not form an indivisible whole in feelings and activity; i.e. it affirms the global nature of the entire body's life."* This global nature may be stated by the following words: "Nothing in a human body is separated from each other part"⁶¹. This proposition plays the role of the methodological principle on which the absurd is based. It is like to S. Carnot's methodological principle "The impossibility of a motion

⁶¹In ecology a similar proposition is badly stated as "All is connected"; yet this affirmative proposition is not operatively verifiable; it would be replaced by "Nothing is severed from one thing".

without an end” on which he based his *ad absurdum* proof; and it is also like to the methodological principle of Lobachevsky’s argument of the existence of his non-Euclidean geometry: “The kind of geometry of a part of the space cannot be different from that of all other parts”; and also to Avogadro’s methodological principle: “It is impossible that the macroscopical bodies is not linked to microscopic world of the molecular ratios.” Notice that these methodological principles are not proved by experimental proofs, but only by the experimental exclusion of the alternative to them. In this sense in 1775 the French Académie des Sciences has refused to correspond with anyone claiming to have invented a perpetual-motion machine.

Hahnemann also argues through at least two more *ad absurdum* arguments; the former proves that the removal of symptoms is contemporary to the removal of illness; the latter argument proves the link of symptoms and illness in both cases, their generation and their removal:

3) It is not conceivable [= It is absurd], nor can it be proved by any experience in the world that, after the removal of all symptoms of disease and the whole epitome of perceptible accidents, anything other than health would or could remain, so that the pathological change in the interior would remain unrelieved.⁶²

4) The invisible pathological change within [a patient] and the complex of externally perceptible symptoms are thus both mutually and necessarily conditioned by each other, both together forming the disease in its extent, that is, [forming] such a unity that the latter must stand and fall at the same time, that they must exist simultaneously with each other and disappear simultaneously with each other, so that what is capable of producing the group of perceptible symptoms, must at the same time have produced the corresponding internal pathological change in the body ([change] which is inseparable from the external manifestation of the disease)—otherwise the manifestation of the symptoms would be impossible—and, consequently, whoever raises the extent of the perceptible signs of disease must at the same time have raised the pathological change in the interior of the organism—because the elimination of the former cannot be conceived without [= it is absurd that the elimination of the former does not imply] the disappearance of the latter [= pathological change].⁶³

Let us recall that the main problem of Hahnemann’s doctrine is how to heal a sick person. Here we have its solution stated through the last *ad absurdum* argument: the sickness is eradicated when the set of symptoms are eliminated.

As last logical step, a PO theory applies the principle of sufficient reason to the

⁶²“Es läßt sich nicht denken, auch durch keine Erfahrung in der Welt nachweisen, daß, nach Hebung aller Krankheitssymptome und des ganzen Inbegriffs der wahrnehmbaren Zufälle, etwas anders, als Gesundheit, übrig bliebe oder übrig bleiben könne, so daß die krankhafte Veränderung im Innern ungetilgt geblieben wäre.” (O. 6th ed., § 8 p. 68).

⁶³“Die unsichtbare krankhafte Veränderung im Innern und der Komplex der von außen wahrnehmbaren Symptomen sind hienach beide wechselseitig und nothwendig durch einander bedingt, beide bilden zusammen die Krankheit in ihrem Umfange, das ist, eine solche Einleit, dafs leztermitt ersterer zugleich stehen und fallen, dafsie zugleich mit einander daseyn und zugleich mit einander verschwinden müssen, so dafs, wer (was) im Stande ist, die Gruppe der wahrnehmbaren Symptome hervorzubringen, zugleich die dazu gehörige (von der außen Krankheitserscheinung unzertrennliche) innere krankhafte Veränderung im Körper erzeugt haben mufs—sonst wäre die Erscheinung der Symptomen unmöglich—, und, folglich, wer (was) den Umfang der wahrnehmbaren Krankheitszeichen hebt, auch zugleich die krankhafte Aenderung im Innern des Organismus gehoben haben mufs—weil sich die Hebung der erstem ohne die Verschwindung der leztem nicht denken läßt.” (Hahnemann, 1810, § 12, p. 11).

doubly negated proposition which is the conclusion of this kind of argument, in order to obtain an affirmative proposition to be tested with reality and therefore decide whether the constructed theory is valid or not. We recall that the principle of sufficient reason does not express an experimental reality but an act of faith in the rationality of the world (also of the world of illnesses) with respect to the rationality of the mind producing *ad absurdum* arguments.

This application of the principle of sufficient reason appears in the period 4) provided that one reads it in the reverse order: as first, the *ad absurdum* argument stated in its last proposition; then, the intermediate proposition based on the word “*müst* (exist simultaneously)”, which, as a modal word, is equivalent to DNP; and at last, the first proposition where the application of the principle of sufficient reason has changed the word “*müst*” into the affirmative “are (conditioned by each other)”.

In conclusion, Hahnemann’s theory includes all the logical steps of a PO theory, also the sophisticated step of philosophical nature.

All in the above constitutes evidence for the logical rigor of Hahnemann theoretical research; he represented his theory according to exactly a PO, since all its logical steps are applied. Let us compare his rigor with the that of three scientific (and mathematical) theories of his time: Sadi Carnot’s thermodynamics (which represented the first physical theory independent from Newton’s paradigm), Avogadro’s theory (which first introduced the atomic hypothesis in science) and Lobachevsky’s geometrical theory (which represented the first mathematical theory independent from the two thousand years old mathematical paradigm of the Euclidean geometry). All these theories do not explicitly express the last step of PO (although this step may be induced by an accurate reading of their texts).

10. Conclusion

Our investigation showed that no romanticism, no irrationalism, no abstract elaboration of symptoms is present in Hahnemann’s main writings; who rather considered over all the experimental facts, i.e. the observed symptoms, on which he based the theory, and the healings. In short, our study qualifies homeopathy as *a theory based on empirical observations and experimental results of healings sick people*⁶⁴.

By adding to it an efficiency in healing sick persons⁶⁵ we obtain the two necessary criteria to be fulfilled at Hahnemann’s time by a theory in order to be considered a scientific one (apart Kant’s and Comte’s criterium of scientificity, i.e. in addition the theory has to be mathematized through infinitesimal analysis). Hence, according to the criteria of scientificity of its time homeopathy was a correct scientific theory.

⁶⁴Rather than a follower of Romanticism in medicine, Hahnemann wanted to give sensory evidence. This attitude makes him a follower of the British Empiricism. This hypothesis is defended by (Barbera, 2001).

⁶⁵An example among many: on several occasions homeopathy successfully treated soldiers that in camps were affected by infectious diseases killing almost more persons than the battles. In 1821 homeopathy was introduced in Naples by the medical practices of Austrian army. Let us recall also the claimed efficacy of homeopathy in healing animals. At present, homeopathic medicine is widely used in veterinary medicine, both for pets and commercial breeding. Two important texts in the field of veterinary medicine are those by (Del Francia, 2018) and (Madrewar, 2022).

In addition, our analysis made reference to the contemporary scientific theories. The accusation to homeopathy to be extraneous from a scientific method results from a preconception due to Newtonian scientific-philosophical paradigm; that actually does not include the entire science, because it did not take into account the many alternative scientific theories which were contemporary to Hahnemann's one and that in general restarted to make science by coming back to conform themselves to the experimental method against the Newtonian theory which was also abstractly philosophical in nature (remember, for example, Newton's absolute space or force-cause; or Maupertuis' principle of least divine action in mechanics). Hence, the surprising novelty of homeopathy has to be attributed to the great distance of its foundations from those of the Newtonian paradigm. Therefore, homeopathy theory is not a theoretical oddity but is different from Newtonian paradigm and rather is similar to the alternative theories that born around the French Revolution by first of all privileging the empirical basis of the theory.

Beyond to be a theory in an experimental sense, is Hahnemann's Homeopathy an alternative scientific theory also in a *foundational* sense? In other words is it characterized by the two same fundamental choices—a problem-oriented organization and potential infinity—of the alternative theories of its time?

It surely relies on a problem and its logical development includes all the steps of a PO theory.

In addition its notions are based on PI, except for some ones.

1) "Vital force". But Hahnemann introduced it not before the fourth edition of *O.* in the aim of representing the body's global power of healing. This notion is similar to the celebrated notion of Newton's mechanics, force-cause. Maybe his purpose was to present his theory at the same metaphysical level of the paradigmatic theories, the only ones appreciated in the times of Restoration. However his notion of force is not the idealistic notion of the latter theory; indeed, vital force does not causes the illness. It rather seems to correspond to modern notion of energy.

2) "Infinitesimal dose". This notion was introduced, not by Hahnemann but his followers (maybe in order to present the theory at the same mathematical level of the celebrated theories, and hence to conform to Kant's and Comte's appraisal of what is a science).

3) "No change [of health into illness] is without cause." Here Hahnemann is inaccurate; he admits in an ideal way a cause, but (see fn. 33) he states that this cause is not in general known. Leibniz more accurately said "reason". Maybe the word "cause" is a grant to the common language of his time.

4) Chronic disease, which however is verified a posteriori by the healing sick persons.

In conclusion, the distance of Homeopathy from the alternative theories to Newton's paradigms, is not great and may be overcome by some improvements of not major importance. It is substantially a PI and PO theory.

Owing to the difference in the couples of choices on the fundamental dichotomies Homeopathic medicine is incommensurable with the medical theories similar to the Newtonian paradigm. It is incommensurable also with the subsequent biochemical medicine. Notice that the latter one originated from chemistry, which, as we have seen in the above, was born as an alternative science. Biochemical medicine a priori assumed as principles-axioms the results of chemistry (AO); hence it represents an absorption operation of an alternative science into a conservative scheme.

From the chemical properties of the substances, it deduces the remedies which react (according to classical logic) in a mechanist way to the actions of pathogenic agents. In addition, it saw the human body as a merely place of medicines' reactions with pathogenic agents; hence, its basic choices is AO. The cure does not take into account the specific nature of the human organism and the individuality of the patient; hence its fundamental choice is for abstract notions with respect to the body's life: its choice is therefore AI⁶⁶. Being its fundamental choices AO and AI, it has the opposite choices to homeopathy's ones which are PI and PO, and hence it is incommensurable with it.

Note that an essential fault currently imputed to homeopathy is the lack of this experimental evidence of its medicines' effects; this is considered a so serious lack to exclude it from the number of true sciences. All was stated in the above does not concern the efficacy criteria of homeopathic medicines. In the history of science various theories were methodologically and logically well-founded, but later were not found to be experimentally valid: for example, in theoretical physics the theory of ether. However, whether the medicines of a theory are methodologically well-founded or not is a question to be examined with other tools than those of present paper.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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⁶⁶Hahnemann had anticipated this polemic, but without qualifying the opposite medicine to homeopathy more than allopathic medicine: "Es giebt nur zwei Haupt-Curarten: diejenige welche all ihr Thun nur auf genaue Beobachtung der Natur, \auf/ sorgfältige Versuche und reine Erfahrung gründet, die (vor mir nie geflissentlich angewendete) homöopathische und eine zweite, welche dieses nicht thut, die (heteropathische, oder) allöopathische. Jede steht der andern gerade entgegen und nur wer beide nicht kennt, kann sich\dem Wahne hingeben, daß \sie/ sich je einander nähern könnten oder wohl gar sich vereinigen ließen \-/ kann sich \gar/ so lächerlich machen, nach Gefallen der Kranken, bald homöopathisch, bald allöopathisch in seinen Curen zu verfahren; dieß ist verbrecherischer Verrath an der göttlichen Homöopathie zu nennen!" (O. 6th ed., §52, p. 100). There are only two main types of treatment: the one that bases all its actions solely on precise observation of nature, on careful experimentation, and pure experience, the homeopathic (never diligently used before me), and a second that does not do this, the (heteropathic or) allopathic. Each is directly opposed to the other, and only those who are ignorant of both can indulge in the delusion that they could ever approach one another or even be combined—can make themselves so ridiculous by proceeding in their treatments, sometimes homeopathically, sometimes allopathically, according to the patient's preference; this is to be called criminal treason against divine homeopathy!

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