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Is Homeopathy a Science?—Continuity and Clash of Concepts of Science within Holistic Medicine

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Abstract The question of whether homeopathy is a science is currently discussed almost exclusively against the background of the modern concept of natural science. This approach, however, fails to notice that homeopathy—in terms of history of science—rests on different roots that can essentially be traced back to two most influential traditions of science: on the one hand, principles and notions of Aristotelism which determined 2,000 years of Western history of science and, on the other hand, the modern concept of natural science that has been dominating the history of medicine for less than 200 years. While Aristotle's "science of the living" still included ontologic and teleologic dimensions for the sake of comprehending nature in a uniform way, the interest of modern natural science was reduced to functional and causal explanations of all phenomena for the purpose of commanding nature. In order to prevent further ecological catastrophes as well as to regain lost dimensions of our lives, the one-sidedness and theory-loadedness of our modern natural–scientific view of life should henceforth be counterbalanced by lifeworld–practical Aristotelic categories. In this way, the ground would be ready to conceive the scientific character of homeopathy—in a broader, Aristotelian sense.

Keywords Homeopathy · Science · Modern natural science · Aristotle · Hahnemann

Introduction

During the last century, modern scientific medicine has undoubtedly succeeded not only to prevail economically on the global medical market and to control politically the medical education, infrastructure, and health systems of all industrialized countries of the world but also to convince the majority of enlightened people to consider it as the only true and scientific type of therapeutics. All the more it must be perceived as a kind of disconcerting puzzle that irrespective of such an ostensible success story, a considerable portion of the

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population nevertheless seems to dissent, denying the unanimous and exclusive acceptance of modern scientific medicine's monopoly. Especially in recent decades, more and more alternative therapeutic systems have been rediscovered and advocated by a growing community of self-reliant patients and health care professionals—to the dismay of conventional doctors trained at regular medical schools. For example, homeopathy, a 200-year-old system of medicinal therapeutics, is currently practised—at least occasionally—by 45–75% of general practitioners in Europe, where some 30 million people use homeopathic medicine. In India, the number of homeopathic practitioners is estimated at half a million, and in the United States, sales of homeopathic products were $400 million in 1999, while the global market for homeopathic medicines was considered to be worth $2 billion in 2007.[1]

Historically, homeopathy was founded in Germany in 1796, spread to America in the 1820s, became the major antagonist of the constitutioning process of modern scientific medicine in the 1840s (when the AMA was set up in 1847 as a means of opposing competition from homeopathy), and witnessed its heyday in the United States at the turn of the century (when 10–15% of all medical doctors of the country were graduated from homeopathic colleges). Eventually, it endured a political, economic, and personnel decline in the first, passed a slack period in the second, and enjoyed a revival of popularity in the last third of the twentieth century.[2] There was never a time when homeopathy was completely abandoned and detached from people's adoption, adherence, and recognition. In fact, up to the present day, some of its advocates claim that homeopathy is the only true and legitimate science of therapeutics.[3]

From the view of modern scientific medicine, however, such a claim can by no means be considered correct. On the contrary, it is argued that the modern concept of science requires strict compliance with methodological standards such as objectifiability, quantifiability, reproducibility, and falsifiability and that scientific medicine has to prove its statements by means of randomized controlled clinical trials. Since homeopathy seemingly fails to come up to these gold standards, its healing effects have to be classified as "nothing but placebo."

As a matter of fact, homeopathy is based on principles incompatible to the reductionistic causal–analytical approach of modern scientific medicine, and thus, inevitably, must turn out to be refractory to attempts of comprehending or testing it within a conceptual framework alien to its nature. For instance, the principle of similars ("treat likes by likes") demands from the prescriber of a remedy, on the one hand, a symptomatological knowledge of the effects of medicinal substances on healthy human volunteers and, on the other hand, a careful investigation of the actual symptoms of the patient, in order to select for each patient a remedy which is known for its evoking of symptoms in healthy humans most similar to the symptoms of the patient. Another basic principle of homeopathy, often called principle of infinitesimals, challenges the prescriber to choose the smallest dose of the remedy that is still sufficient to cure the patient. This is accomplished through successive dilutions, triturations, and succussions of medicinal substances or mother tinctures. However, this procedure of dilution, when repeated more than a dozen times, regularly leads to the intriguing fact that, through homeopathy, people are evidently cured by (or after) taking ultramolecular dilutions that, according to modern scientific theory, are calculated to contain not even one molecule of the original substance.

Given its effectiveness in at least a confined portion of diseases, the advantages of such a system of healing were numerous: from the needlessness of animal experiments, the holistic approach to human individuals, and the inexpensiveness of rare doses of tiny pellets, to the absence of side-effects or the risk of addiction, of teratogenic damage, iatrogenic harm or death, and its applicability in pregnancy and childhood. Nevertheless, to be sure, responsible homeopathic doctors are well aware that homeopathic cures are limited to

functional, dynamic diseases where irreversible organic changes have not yet occurred.[4] Auspicious benefits like these may explain a good deal of homeopathy's continuous attractiveness and good anchorage in society.

Regarding its status as a science, however, besides the notorious refusal of recognition on the part of modern scientific medicine, the homeopathic community still has another perennial problem unsolved within its own ranks. After the term "homeopathic" was coined by Samuel Hahnemann (1755–1843) in 1807,[5] under this newly created notion, homeopathy constituted itself as an entity (substantiality) and from hence could enter upon an impressive career throughout history and around the world. In fact, in 1898, the United States counted 127 homeopathic societies, 31 homeopathic journals, 57 homeopathic dispensaries, 140 homeopathic hospitals, and 20 homeopathic colleges—out of which Hahnemann Medical College continued to exist as the Hahnemann University in Philadelphia, keeping its original "sectarian" name till the end of the twentieth century.[6] Some hundred years later, however, around its 200th name day (2007) under different social, economical, and political conditions, the definition of homeopathy is seriously discussed and put into various contexts. As the debate set off by Julian Winston (1941–2005) and others shows, the brand-name, "Homeopathy," meanwhile has been made claim to by so many different groups and approaches that it has become difficult to find a common denominator for all peculiar currents or to comprehend a specific meaning under the different usages of the word. The present spectrum ranges from a constitutional cellular–pathological doctrine of miasms elaborated by Proceso Sáncho Ortega (1919–2005), an electro-magnetic doctrine of resonance and essences advocated by George Vithoulkas (1932–), and a psychological doctrine of delusions conceived by Rajan Sankaran (1960–) to a Thomasian doctrine of miasmatic guilt-dynamics developed by Alfonso Masi-Elisalde (1932–2003) and a speculative doctrine of group-characteristics of the elements of the periodic system invented by Jan Scholten (1951–).[7]

A corollary of the actual confusion about homeopaths' self-definition and professional identity—which brought forth an ample collection of controversial literature[8]—is a revival of the same old fundamental question that has occupied homeopaths since the beginning: Is homeopathy a science, and, if so, what kind of science? At the moment the spectrum of answers stretches from the thesis that homeopathy belongs to the hermetic–esoteric tradition of alchemy or shamanism and would be well advised to admit it and cease trying to define itself as a natural–scientific medicine[9] to the claim of homeopathy being the only form of medicine able to keep up with the modern ideal of science in the sense of a priori-certain and mathematical knowledge.[10] Between these two extreme points of view, other opinions can be found, such as that a future, evidence-based homeopathy could bring the breakthrough of being recognised as a science,[11] or the standpoint that, as a practical–therapeutic science, homeopathy has to prove its worth in practice with individual cases only and refrain from controlled clinical trials or the like.[12]

The reason why disputes of this kind—about the relationship between homeopathy and science—are so long-lived and difficult to solve is, that the notions have a history of hundreds or thousands of years and comprise many traditions and meanings. It may therefore be helpful to take a step back and try to bring to mind what these terms actually mean and what they should be: science and homeopathy.

Science

"Science" (Greek: *epistéme*) is, without doubt, a concept invented by the ancient Greeks, in the sense of rationally founded knowledge. If, in prehistoric times, there were, roughly

speaking, in all cultures two lines of propagation of knowledge, one being the technical transfer of practical experiences and craftsmanship, the other being the intellectual transmission of religious ideas and rules, in Greek antiquity, philosophy emerged as a synthesis of the two traditions of handcraft and priesthood.[13] First and foremost, Plato and Aristotle tried to bring all practical and theoretical questions and problems into a system of rational definitions, phrases, and conclusions and thus explicate them in a reasonable manner. However, the cognition-leading interest in all antiquity and the middle ages—as opposed to the present—referred to the "what" and "what for" of the observed phenomena, i.e. to their ontological and teleological (goal-oriented) dimension. With Aristotle, the all-embracing and most influential thinker and researcher of the occident, science consisted in bringing to mind and disclosing meaningful structures and processes within the scope of an eternal world order. Although his definitions and examples derived from handcraft and everyday experience, scientific activity in his sense culminated in the so-called "*theoría*", a gratifying entitative vision for the sake of itself, that was indeed considered to be the highest form of "*práxis*."

Occidental thinking more or less persisted within this scope for 2,000 years, until, in the wake of major political, religious, social, and economical changes (renaissance, reformation, discovery of America, etc.), a new interest of cognition broke its ground. From the seventeenth century—as opposed to antiquity—cognition was aimed almost exclusively at the question of the "how" and "whereby", i.e. the functional and causal explanation of phenomena. The background to the all-embracing new foundation of science by Francis Bacon (1561–1626), Galileo Galilei (1564–1642), and Isaac Newton (1642–1727) was the now awakened and henceforth, dominant interest in the manipulation and command of natural processes and objects. This was formulated in the seventeenth century paradigmatically by Francis Bacon in his expression, "knowledge is power"; by René Descartes' (1596–1659) dictum, "knowledge to make us lords and masters over nature"; and by Thomas Hobbes (1588–1679) who wrote in his 1651 *Leviathan*: "To know a thing means: to imagine what we can do with it, when we have it."[14] As a result, life processes were also increasingly attempted to be explained in mathematical and physical–chemical terms or through principles of mechanics. This new form of reductionist science reached a preliminary peak in the eighteenth century with Julien O. de la Mettrie's (1709–1751) book, "L'homme machine" (1748)—the machine man. If mathematics was the leading science of the seventeenth century, it was replaced by physics in the eighteenth century, chemistry in the nineteenth century, and biology in the twentieth century.[15]

Until the beginning of modern times, science in a broad sense was interpreted as a methodically congeneric approach to various objects. The classic canon of education of the *artes liberales*, free arts, comprised subjects such as grammar, dialectics, and rhetoric (trivium); arithmetic, geometry, astronomy, and harmonics (quadrivium); as well as the university faculties of theology, medicine, and jurisprudence. However, the far-reaching splitting up of science into the humanities and natural sciences did not occur until the eighteenth and nineteenth centuries.

In his "Novum Organon," published in 1620, Francis Bacon had—for the purpose of an assured check on nature—propagated a restriction of the new science on cognitions attained inductively through experiment and experience. Yet, the term, "natural science," itself is only to be found after 1703.[16] In 1786, Immanuel Kant (1724–1804) made a distinction between "historical" and "rational" (or "improper" and "proper") "natural science," whereby, for him, the historical one was only a "historic doctrine of nature," "containing nothing but systematically ordered facts of natural things," whereas in the rational one, "the laws of nature which form its basis must be cognised a priori."[17]

Inside the medical world, the new form of research, based upon natural–scientific methodology and animal experiments, gained significance especially after the end of philosophy of nature. In particular, Claude Bernard (1813–1878) tightened Descartes' agenda of reducing all phenomena occurring in animals to the laws of mechanics, to the postulate of an exclusive interpretation of living organisms as physically–chemically determined formations.[18] Tying up to Kant for whom "in every doctrine of nature one can only find as much real science as there is mathematics to be found in it," Emil H. Du Bois-Reymond (1818–1896) changed this thesis in 1872 by replacing "mathematics" with "mechanics of atoms": "Natural scientific cognition of the physical world with help and in the sense of theoretical science—is tracing back the changes in the physical world to movements of atoms (...) or the resolution of the natural processes in the mechanics of atoms".[19]

Thus, natural–scientific thinking has only existed for a few centuries and, especially within medicine, on a grand scale for approximately 150 years. However, as the much longer cultural history of medicine shows, scientists and doctors have been thinking rationally long before the "invention" of natural sciences; they were just doing it differently. Natural scientificalness can therefore only be understood as a certain, relatively late and specialised form of rationality—not the other way round. This has to be kept in mind when it becomes necessary to take a stand towards heedlessly posed questions such as: "Has homeopathy been natural–scientifically proven?" or "Has homeopathy been natural–scientifically disproven?" If it turns out that homeopathy and natural science, both of which evolved at about the same time, in crucial points possess not just similarities but also differences in principle, then it cannot be expected that both horizons of affirmation and conceptual fields simply concur or translate 1:1 into each other. Because the value or lack of value of principles of a medical system cannot be assessed by another, different coordinate system, the objection of untranslatability of questionable categories into the natural–scientific pattern of terms is not yet an argument against it. In 1940, Robin G. Collingwood had already shown that any science has its "absolute presuppositions"; yet, any question as to whether one of these is "true" or "how it can be demonstrated" is a "nonsense question."[20] This short historical recapitulation may suffice to realise that natural–scientific unprovability is not the same as plain irrationality.

Modern natural science

At this point, the crucial question arises to what kind of rationality modern natural science belongs, and what it is able to grasp of the world, of life, and of humans, and in which way this is done. According to the idealised self-conception of its representatives, the natural–scientific method consists of repeated cycles of observing, establishing hypotheses, making predictions and testing them in experiments, resulting in verification or falsification, etc. However, decisive and symptomatic for the modern natural–scientific way of perceiving the world is the methodical restriction to the observation of objects that are exactly measurable, i.e. that can be quantified and reproduced. Thus to natural sciences, especially to physics, primarily only measured values exist, while for their relations mathematic formulas and equations are looked for and developed. Therefore the world of physics neither consists of humans, animals, and plants, nor of houses, tables, and cups, not to mention ideas, values, and illnesses to be cured, but rather exclusively of masses (inertia), forces, fields, waves, impulses, angular momentums, energies, coordinates of space and time, and their mathematical relations.

Contrary to general belief, not even the term "matter" (*material*) can be deduced from physics alone. To the philosopher of science Wolfgang Stegmüller (1923–1991), it was the "staircase wit of the twentieth century" that the term "matter" is science's most puzzling item although everybody believes to know what it means.[21] Contrary to the logic of our everyday language where each proposition on an attribute has to refer to a corresponding thing, physics apparently does without "material substrate" or "carrier of (changing) attributes" respectively. For example, in physical field theory, it does not matter whether one talks about field-producing masses or considers particles merely as nodes or singularities in a field. Because of the relational character of physical equations, for classical electrodynamics as well as for quantum theory, there are logically equivalent formulations which either focus on the concept of particle or on the concept of field. Thus physics does not describe the physical world around us at all but instead a stylized artificial world.

For this reason it is all the more amazing that our modern consciousness—from our cosmological view of the universe and secular view of humankind to our attitude towards issues of the educational or health system and finally to modern medicine—nevertheless is predominantly affected by natural science and therefore supposed to be well-founded. Materialists pretend only to believe in what can be proven by laws of physics and mathematics. Students of medicine no longer need to pass a compulsory "examen philosophicum," as it was the case until the 1860s in Germany but an "examen physicum" instead. And molecular biologists, self-organization theorists, and chaos researchers keep showing us how life, culture, and religion as well as our behaviour, emotions, and ways of thinking can be explored and explained in a natural-scientific way. It seems that modern natural scientists perceive themselves, first of all, as being in charge of all areas of our existence; secondly, of being capable to grasp all things of our lifeworld; and thirdly, as being competent to render a final judgement on all these topics. On the same non-reflected precondition of an inflated claim of validity on the part of hard science, natural-scientifically oriented doctors occasionally try to conduct scientific studies on homeopathy. Certainly they do measure data of single parameters within a standardized setting and lump them together with data collected from other therapy methods. However, and this is the crucial point, usually they do not consider particular peculiarities, neither on the part of the patients nor of the therapeutic method examined.

Oddly enough, today hardly anybody notices that there is a serious difference between the essence of an object (or the object itself) and measured data of this object. The German language covers this distinction by dint of the terms "das Physische" (the bodily) and "das Physikalische" (the physicalistic), while in English both notions are expressed by the same word "physical." Apparently, this equalization that is even defended by some modern philosophers is based on the conviction that the physical (the bodily) around us (cars, animals, plants, etc.) is exactly what the science of physics examines and concisely defines. Therefore, science would be nothing but a continuation of our everyday thinking, and the "bodily" would just be the "physicalistic" which has not been brought to itself yet—the same way it is assumed that devices like microscopes or telescopes would only extend and refine our usual perception. Thus, the scientist appears to observe the same world as the person in the street but only more accurately and more detailed.

However, these claims ignore the fact that looking through a scanning tunnelling microscope one may, indeed, be able to see molecules but not tables, stones, clouds, or rivers. However, even more serious than this discontinuity in perception is the discontinuity of the mode of description. While we describe cars, animals, and plants in a natural language, we do describe the result of dispersion experiments in a cloud-chamber in a

highly theoretical, formalized language of mathematics which has totally different characteristics than natural language. But between the natural and formal languages, there is no continuum; instead, there is a distinct gap which accounts for the difference between "bodily" and "physicalistic" objects. When a physicist describes his "objects" by way of differential equations, these are mathematical functions which project extensionally defined sets onto each other, i.e. these are mathematical relations.[22]

However, here, none of the relates are distinguished as something ontologically original or a substantial entity, as is the case with natural language where a predicate always relates to a subject and stands for its attribute. Precisely this ability, to identify something as something, is what philosophers from Aristotle to Peter F. Strawson (1919–2006) recognized as the world developing power of the natural language.[23]

But if physics does not describe the lifeworld surrounding us but instead a factitiously constructed artificial world, and if in addition—due to the success of the natural sciences—the humanities are under enormous pressure to adopt the natural–scientific method in their field (see historicism, behaviorism, experimental psychology, socio-biology, and cognitive sciences, for example), one may ask what has become of our familiar and lively world, for which natural science obviously has no language. As, from the nineteenth century, rationality has been put on a level with natural–scientific explainability, by this fateful short-circuit, elementary dimensions of life such as human acting, feeling, and thinking, but a fortiori the arts, culture, faith, love, and ethics, or phenomena like sickness, health, and healing disappear in a grey area of alleged irrationality and arbitrariness for which, in a strict sense, there should not exist any scientific categories.

This loss of our world, however, is homemade, so to say. It is self-inflicted by the mental reduction of all phenomena of life to quantifiable measuring data. This can be demonstrated by a glance into the history of science—provided that one goes back to the time before the so-called scientific revolution of the seventeenth century, to the comparatively homogenous period of 2,000 years that was predominantly shaped by Aristotelism.

Aristotle

Quite rightly Aristotle (384–322) is considered to be the founder of the "science of the living." Contrary to Plato (427–347), his teacher, whose philosophy culminated in a rather static doctrine of ideas, Aristotle's issue was the explanation of movement (Greek: *kinesis*), in fact in its broadest sense, i.e. not only the movement from one place to another but also the becoming and passing off as well as the quantitative und qualitative changing (Greek: *alloíosis*, *metabolé*). As basic categories for scientific assessment of these phenomena, Aristotle used the terms, potentiality (Greek: *dýnamis*, Latin: *potentia*) and actuality (Greek: *enérgeia*, Latin: *actus*). This way, movement of any kind could generally be understood as the actualization (realization) of a potentiality (potential). Aristotle intentionally conceived his theory so broadly that—contrary to modern natural science which only knows and observes spatial translocations from A to B—it could be applied to any kind of movement, to the growing of a plant as well as to the alteration of a feeling or the change of seasons.

Aristotle's rootedness in the world of the living and his technical–practical approach to nature is shown also in another basic term he uses in his physics, the term of "essence" (Greek: *ousía*, Latin: *essentia*). Each being which actually exists can be understood as composed of its matter (Greek: *hýle*, Latin: *materia*) and its form (Greek: *morphé*, Latin: *forma*). Matter and form, however, are merely reflective terms which cannot exist independently by themselves. Consequently—contrary to modern materialism—it is not

(wrongly) claimed that something like matter can exist as such, but that everything we ever are able to observe, understand, and imagine, due to the hereby aligned form always is a something, a being, and therefore a matter which has been formed already. Following this, to become (Greek: *génesis*) represents the transition from the uncertainty (potentiality) of a primary matter into the certainty (actuality) of a form, and thus is finally something like a transition (*kínesis*) from nothingness to being. Of this, however, only the result can be clearly described which has the being as its form.

Contrary to this concept of movement, in modern physics there are only transitions from definite states to other definite states. Here, Aristotle's problem of *kínesis* does not occur at all. This kind of blind spot is a corollary which is inherently due to mathematical formulation. Mathematical functions always combine definite conditions with each other. This is the reason why Aristotle excluded the application of mathematics to *kínesis*—nota bene, not because of his ignorance of mathematics but rather because of his insight into its limitations. "In fact, none of the mathematical objects move," he wrote in his treatise on the movement of animals.[24] Therefore, to grasp the concrete "becoming," Aristotle was forced to abandon mathematics—despite or particularly because of the seeming "timelessness of mathematical objects."[25]

This notion of movement undefinable in a mathematical way can become directly relevant to homeopathy when one considers that Aristotle, in an analogue way, regarded the transition of a human's healthy state to a sick one (and the other way round) as a qualitative change (*alloíosis*), so that also this form of movement (*kínesis*) was accessible to scientific understanding by means of his categories. In contrast, when applying the categories of natural science, one can but try to either describe complex processes like becoming ill or recovering on a level of translocations of molecules or avoid such "unscientific" terms altogether. Consequently, it is most significant that the term, "healing," no longer exists in modern medical dictionaries—since it eludes the natural–scientific form of rationality.

Another category of Aristotle's science which has been eliminated by modern natural science is of major importance to homeopathy: the goal-orientation (teleology) of all being. Based on the lifeworld's way of experiencing oneself and the world in the Greek *pólis* and his primarily technical–practical attitude towards nature, Aristotle conceded to each being the striving for a goal (Greek: *télos*), however, in different grades: from the blind aiming of a stone at the center of the earth to the unconscious striving of animals for self-preservation and reproduction of the breed, and finally to humans' conscious pursuit of happiness and knowledge. In Aristotle's doctrine of the four causes, which comprises the material, effective, formal, and final cause, the cause of purpose (*causa finalis*) even plays the most important, leading role. As he explains by the example of a house which owes its existence to the four causes, without the intention of the owner–builder (*causa finalis*) the stones and beams (*causa materialis*) would not have been put together by the craftsmen (*causa efficiens*) in accordance with the architect's plan (*causa formalis*).

In most cases, a certain goal can be reached by different means, and certain means may serve different goals. To be full, one can eat sausages as well as cheese; a hammer can serve to put nails into a wall and also to break a windowpane. Thus, contrary to the causal conjunction of cause and effect, there exists a contingent relationship of goal and means, which means that there may be other, alternative solutions, too. In today's terminology this is called a many-to-many-relation. Therefore, there cannot be unambiguousness in teleological thinking.

Teleology is a form of "hypothetical necessity" (Greek: *anánke ex hypothéseos*), which is fundamentally different to the "causal–mechanical" necessity. For example, for a saw to function as a saw, it must be made of iron—but not necessarily of iron because any other

stiff material would do as well. However, an understanding of the purpose of a saw allows us to consider iron a useful material and to say: if the saw is made of iron (and not of rubber or water or the like), it can or will work as a saw—if nothing intervenes. Aristotle conveyed this term of "hypothetic necessity" to nature and separated it from the "mechanically" acting necessity to which modern physics confines itself. He considered nature to be connected both with history as well as with meaning. Its beginning as such can be elucidated only by knowing the end. Only in the light of the purpose which comes to the fore at the end (when it has been realized) will it be possible to judge whether or not its generating causes and principles made sense, and in such a way we can "comprehend" nature.[26]

Since a teleological view on nature is not primarily anticipating (like modern natural science) but rather reconstructive; the future, in a strict sense, may not be predictable. In the stage of planting a tree, it cannot be determined exactly what shape it will adopt. On the other hand, the term "*essence*" or "*ousía*" does allow a containment and specification of propositions about the further development of a subject or a process. Since the potentialities of any being are limited, its actualisations also take place within certain limits (Greek: *péras*). These can be known once one has analyzed its essence. Just as it is a dog's nature to bark and not to sing, the seed of an apple tree will never develop a plum tree, and in the same way, the engineer knows what qualities are inherent in a certain material and for what it can be used due to these qualities. From this perspective even the "unrealized potentialities" of a substance fulfil clear identity criteria. However, it should be considered that one can be aware of a potentiality only if it has been realized before. Only those may claim that they "can play" the piano who have actually played the piano before. With regard to homeopathy: that a certain remedy will evoke or heal a certain symptom can be claimed only if this drug has actually done this before, as in drug proving. In this respect, with Aristotle, actuality always precedes potentiality.[27]

Out of Aristotle's numerous inspirational thoughts, a last one should be selected which most likely will also be interesting to homeopathy. In regard to matter (*hýle*), the form (*morphé*) is emergent, i.e. the latter cannot be deduced from the former. For instance, one cannot determine the use of a computer by looking at the way it is wired or the use of a bulb by looking at its components. On the other hand, matter is not only a ground of potentiality for the form but also its impediment. The bulkiness of matter compared to the form, and the fact that it is incomputable and unpredictable—a well-known fact in handicraft—is another issue which today is no longer considered adequately and grasped conceptually by natural science. Instead, one tries to get rid of the problem by eliminating as junk all materials which show the smallest aberration from a pre-determined standard and substituting them with replacement parts which must be as perfect as possible.

Since the view by natural science is so fixed on the computability of the material, technical catastrophes in cosmonautics or nuclear power plants are ascribed in public to human error rather than to the irrescindable contingency of matter and its principally resistant character, even when the real cause might have been the brittleness of a seal ring or the like. This issue may concern homeopaths insofar as those seduced by the ideals of modern natural science and convinced of the calculability of the material world, will rather blame themselves than the drug, the patient, or the basic conditions when therapy fails. Those who think and act in Aristotle's categories, however, might consider the resistance or dispersiveness of the material as the cause.

As a matter of principle, homeopaths should welcome Aristotle's concept of the non-computability of matter since it allows for the scientific phrasing and explanation of the decisive difference between their individualizing practice and scientific medicine's generalizing theory.

Two kinds of science

After this confrontation of modern natural science and Aristotle's science of the living, the characteristics of these two prototypes of science may be summarized like this:

1. Aristotelian science derives its notions, principles, and concepts from human self-experience within a lifeworld perceptible by the senses and bases its explanations of different natural phenomena and technical processes on the paradigm of goal-oriented striving and manual production of means for certain purposes.
2. Modern science is guided by the secular interest in command of nature and thus selectively observes and investigates only those aspects of the world which can be measured and weighed and brought into relation with each other in a mathematically exact way.

Hahnemann, the founder of homeopathy, lived and acted in a way at the interface between these two big blocks of traditions of science. Even though some roots of the modern type of natural science can be traced back to the thirteenth century,[28] experimenting, measuring, and using mathematics to study nature became the new scientific paradigm among scholars and patrons only in the seventeenth century, a topic of discussion among the broad public only in the eighteenth century,[29] and a major issue for medicine not before the nineteenth century.[30] However, Aristotelism left its mark on teaching at the universities until well into the eighteenth century, on the faculties of medicine in many cases in combination with Galenism and humoral pathology—targets of Hahnemann's polemics throughout his life.

The Age of Enlightenment, in which Hahnemann was born, was downright fraught with the impetus—dazzled by the tangible success of natural science in technology, agriculture, and economy as well as inspired by the belief in continuous, ever-lasting advancement—to illuminate as many not yet "enlightened" areas of life as possible in a rational way. Rational, however, from now on meant above all causal–mechanical. In analogy to Newton, who had founded modern physics as a natural science, Kant intended to turn metaphysics into a strictly a-priori science, and therefore Hahnemann considered it his task to elevate medicine to the position of a positive science following these two paragons.[31] At the time around 1800 it was—contrary to nowadays—not clear at all that "scientific medicine" would become tantamount to "natural–scientific medicine" one day. The excessive pluralism of healing systems, which made Hahnemann despair of medicine in the early years after his graduation,[32] was rather mirroring the general atmosphere of upheaval, which literally called for a new uniform paradigm.

Homeopathy

On this note, Hahnemann was very progressive when he opted—as far as possible—for the natural–scientific method in his days, which half a century later in fact bestowed medicine a universal and uniform paradigm, which today is accepted worldwide, thanks to Rudolf Virchow (1821–1902), Robert Koch (1843–1910), and others (cellular pathology, bacteriology, etc.). Thus, Hahnemann had tried to base his new doctrine of therapeutics on criteria that finally became standard only long after his death.

While conducting drug provings, he used healthy persons, single remedies and strict methodical and dietary instructions in order to approximate the new ideal of natural–scientific experiments, according to which only one variable of a substrate as homogenous as possible is to be varied under constant basic conditions, and the result be read off.

Empiricism, an influential current of thought at that time particularly in England, which later also turned out to be trendsetting, was joined by Hahnemann insofar as he too—regarding drug proving, case taking, and follow-up examination—believed in the possibility of pure, unquestionable observations. This was fairly in line with the natural–scientific model of registering objective measuring data using technical devices.

Hahnemann definitely shared the scientific ideal of space–time–invariant laws of nature and thus had certainty and predictability in mind when he reformed medicine. This is shown frequently in his works, for example, when he stated that homeopathy will some day "approximate mathematical sciences in terms of reliability."[33] All that was still missing were exact "observations" of further drug provers, he went on to say. This again casts a significant light on Hahnemann's backing of the natural–scientific method of induction, another progressive method at the time, according to which universal laws ought to be derived from a set of individual observations by means of generalization.

These examples may give an overview on a selection of scientific elements to be found in Hahnemann's concept of rational therapeutics. This alone, however, did and does not suffice to establish homeopathy. If it did, homeopathy would long have been recognised by universities' medical schools and become mainstream medicine respectively.

As a whole, Hahnemann's healing system was rather held together by the brace of rationalism, an eighteenth century school of philosophy, which assumed that the world is based on reason, which man—by means of his reason—is able to recognise. This concept of reason, however, was not confined to natural–scientific categories, and so it could focus on virtually all areas of life, such as nature, culture, religion, anthropology, ethics, etc. As Hahnemann was partly rooted in this tradition as well, which in turn was a kind of modern descendent of Aristotelism, he could still concurrently use notions and patterns of argumentation that in a way were incompatible with the natural–scientific approach, which was increasingly infiltrating medicine.

Notions such as pathogenetic or medicinal "potencies" literally reveal the Aristotelian category of "potentiality" (Latin: *potentia*) on which they are based, while the same word is contained in notions such as "dynamis" or "dynamic," yet in Greek (Greek: *dynamis*). Hahnemann's notion of "life force" in turn seems to be an attempt at a rationalistic version of Aristotle's concept of "Entelechía" (Greek: *entelecheía*: the goal-oriented striving of creatures), which in the wake of Newton's physics, however, had to be expressed in natural–scientific terminology and thus in terms of "force." Also the principle of similars does not fit the natural–scientific set of terms in the end, yet it does correspond to the Aristotelian-scholastic concept of analogy and the ancient conclusion by analogy. To establish the principle of similars as the only possible and true healing principle, Hahnemann was ultimately forced to draw on doctrines of rationalism, such as a benevolent and wise creator and the high spiritual and moral destination of mankind,[34] which are all based again on the Aristotelian doctrine of teleology.[35]

As these examples show, homeopathy has at least two roots that can be historically traced back to different traditions of science. On the one hand, as a practitioner, Hahnemann could still—during the time of upheaval around 1800—draw on the primarily lifeworld–practical categories of Greek, Latin and Arab classics, in short, on Aristotelism. On the other hand, as a theorist, Hahnemann was already gripped by the impulse to turn medicine into a natural science in the sense of predictable, mathematical secure knowledge. In this respect, homeopathy combines both progressive–scientific and traditional–teleological elements—in a complex blend that proves to be hard to untangle. Therefore, it is susceptible to all sorts of interpretations and "enhancements." This is the background of the current debate on homeopathy,[36] which is unlikely to be resolved in the near future.

The perspective of history of science

From the perspective of the history of science, above all three things should be considered:

1. It is to be maintained that homeopathy is a practical activity (Greek: *práxis*) for the sake of healing sick humans. Its success in the treatment of individual patients and its world wide spread and popularity speak for themselves.[37] By sticking to a method which is structured and comprehensible according to traditional scientific criteria, homeopathy is a practical science—at least in the classic Aristotelian sense. To realise and acknowledge this is not easy today, as we are much too focused on natural science. However, it would be a solid position. On the other hand, it can only be advised against the temptation to claim more about homeopathy than its principles allow justifying. Ideals like "certainty of healing" should reasonably not be defined in a deterministic or strictly mathematical sense, for example.
2. The propagation of the claim that homeopathy ought to be a natural science in a modern sense is understandable from Hahnemann's point of view. Due to the era's general optimism of progress, it was still unthinkable that the use of natural science would not only bring benefits to humanity but also perils and catastrophes. Today, however, this labelling seems much less attractive than it used to be.

What seemed to be progressive and promising about the principles of natural science at the beginning of modern times has now, from a post-modern perspective, become a victim of deconstructivism.[38] Constructivism has exposed empiricism to the charge of being a naive illusion, with the argument that every observation is far more construction on the part of the subject than just neutral perception of objects.[39] The natural–scientific method of induction and falsification has been debunked as egotistic ideology by theorists of science like Thomas S. Kuhn (1922–1996) or Paul K. Feyerabend (1924–1994), the more so as from a historic perspective real-world scientific production follows more social and monetary interests than pretended criteria for the establishment of truth.[40] The concept of linear causality, calculability, and predictability of the world, on which Newtonian physics rests, has finally been put into perspective by chaos research to the effect that so-called islands of order turn out to be only special occurrences of artificial closed systems within a universe of non-linear processes.[41] As can be seen, natural science is today, considering its foundation and follow-up costs, not without its crisis and critics and is possibly no longer the best ally for holistic physicians.

3. Against the background of ecological catastrophes and alarming side effects of drugs dispensed by conventional medicine, the long run damages of an unchecked dominance of natural science over all areas of life today are looked at evermore critically. Hence, not only homeopathy, but also society as a whole faces the challenge of a better balanced relationship between natural–scientific theory and lifeworld practice. When the predominance of natural–scientific theories regarding the modern view of the world and our actions are ever more clearly coupled with the danger of a physical, psychological, and mental world loss, this theory-loadedness of our reference to the world requires a counterweight of complementary approaches to life that assign lifeworld practice a higher weight.

For example, what a human, a teacher, or a homeopath is, we know best and most intimately when we are one ourselves; when we—through our own practical execution—

understand its essence, are able to deal with it, and, if possible, conceive it in scientific terms. In contrast, theoretical physics understands nothing of practical and living things, in fact cannot even say what matter is. Hence, we cannot expect it, or the physics-orientated natural science, to ever elucidate the essence of homeopathy or the like. Once one has understood that performing a science is itself a human activity, which always presupposes human beings (whom it tries to comprehend) and their practices, however, the first step towards a redefinition of the status of natural–scientific theory in our lives as well as in medicine has been taken. In this context, lifeworld–practical categories, as presented in Aristotle's "science of the living," may in future rise to unexpected relevance. From that, as has been shown in this paper, homeopathy could only profit.

Endnotes

1 See Schmidt, "Merging with the University of California."
2 See Coulter, "Divided Legacy"; Schmidt, "Die Entwicklung der Homöopathie."
3 See Gypser, "Homöopathie."
4 See Schmidt, "Taschenatlas Homöopathie," 10–19.
5 Hahnemann, "Gesammelte kleine Schriften," 461. Hahnemanns definition read: "Homeopathic is what tends to evoke a hómoion páthos, i.e. a similar ailment."
6 See Rogers, "An Alternative Path."
7 See Schmidt, "Taschenatlas Homöopathie," 86–95.
8 See http://www.grundlagen-praxis.de—Click on "News" and "Grundlagendebatte"; Habich, Kösters, and Rohwer, "A step forward."
9 See Wichmann, "Defining a different tradition."
10 See Fräntzki, "Die Idee der Wissenschaft."
11 See Schüppel, "Evidenzbasierte Homöopathie."
12 See Gypser, "Homöopathie."
13 Mason, "A history of the Sciences."
14 Hobbes, "Leviathan," 13.
15 Paradigmatic protagonists for seventeenth century's mathematics were Descartes, Leibniz, and Newton, for eighteenth century's physics Newton and Huygens, for nineteenth century's chemistry Dalton and Liebig, and for twentieth century biology Watson & Crick, Eigen, and Eccles.
16 See Ritter and Gründer, "Naturwissenschaften," 642.
17 Kant, "Metaphysische Anfangsgründe der Naturwissenschaft," A IV–VI.
18 Bernard, "Introduction a l'etude de la medecine experimentale," 69 and 80.
19 Du Bois-Reymond, "Über die Grenzen des Naturerkennens," 6.
20 Collingwood, "An Essay on Metaphysics," 33.
21 Stegmüller, "Hauptströmungen der Gegenwartsphilosophie," 2, 585.
22 Mutschler, "Naturphilosophie," 90–96.
23 Strawson, "Einzelding und logisches Subjekt," 175.
24 Aristotle, "De motu animalium," 698a27.
25 Leiber, "Kosmos, Kausalität und Chaos," 101–104.
26 Mutschler, "Naturphilosophie," 133–151.
27 Spaemann and Löw, "Die Frage Wozu," 51–78; here 57.
28 Robert Grosseteste (1168–1253), Roger Bacon (1214–1292), and William of Ockham (1285–1349) may be considered forerunners of modern natural science.
29 See Shapin, "The Scientific Revolution"; Schreier, "Geschichte der Physik"; Agassi, "Science and Culture."
30 See Porter, "The Greatest Benefit to Mankind"; Eckart, "Geschichte der Medizin."
31 Schmidt, "Hahnemann's Concept of Rational Therapeutics," 81–87.
32 Jütte, "Samuel Hahnemann."
33 Hahnemann, "Organon der Heilkunst" (1842), § 145/1. Until 1833 he used the term "certainty."
34 See Schmidt, "Believing in order to understand."
35 Schmidt, "Anthropology and Medicine," 288–296.

36 See http://www.grundlagen-praxis.de; Habich, Kösters, and Rohwer.
37 Dinges, "Weltgeschichte der Homöopathie."
38 Walach, "Wider naiven Empirismus und verkleidete Machtansprüche," 72–75.
39 Foerster and Glasersfeld, "Wie wir uns erfinden"; Glaserfeld, "Konstruktivismus statt Erkenntnistheorie."
40 Kuhn, "The Structure of Scientific Revolutions"; Feyerabend, "Against Method."
41 Küppers, "Chaos und Ordnung."

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