Homeopathy and Science

1.14 Homeopathy and Science

The position of homeopathy as a science is a hotly debated topic. There is an urgent need to establish homeopathy as a science in its own right. I would like to give my personal view by placing the discussion in a wider framework. After an initial look at 'science' itself, we will consider homeopathy as a science and what that might mean for its further development.

1 Science

The term science has magical, almost religious overtones. The word "science" has been used in various combinations such as 'political science', 'library science', 'administration science', 'dairy science' and even 'mortuary science' (Chalmers). The word science is in a way abused to give a certain field recognition. In this sense, homeopathy is in good company. The term 'homeopathy' also has too much 'publicity' value, which is used in both the right and wrong context.

What is science really? Many different definitions have been put forward. Essentially, it comes down to the idea that science is the search for universal truths. "Science is theory, based on facts" (Chalmers). Davies says "Science is a structure based on facts". There are two aspects to these definitions. The first is the aspect of theory. Science is ideas, theories, models, thoughts, structures, hypothesis. It's the generalizing aspect. The second aspect refers to truth. The ideas have to be true, in accordance with some reality. This is the aspect of knowledge. In brief, science can be defined as "True ideas".

1.1 Theory Generalization

In science, it is essential to be able to generalize. Science is the search for general, universal principles in different situations. Van Peursen expresses it thus: "The strength of scientific knowledge lies in its very ability to theorise" and "This is how scientific knowledge strives for universality: the concrete example itself is not of paramount importance, but the intellect proceeds from the specific case to the general principle". Feynman writes: "This law (of gravitation) has been called the greatest generalization achieved by the human mind".

Predictability

One consequence of generalizing is that one can make predictions. General principles can tell us something about future (or previously unknown) phenomena. This predictive power makes science "effective". The same idea is expressed in the saying "Knowledge is Power".

Order, rational

In order to be able to generalize, science searches for the patterns behind the world, its 'innate order'. This is the a priori or the axiomatic aspect of science. In science therefore, the problem is not whether there is a system or whether there are laws, the question is only what are the laws. This aspect of systematic order is also expressed in the idea that science is 'rational' (which is to be distinguished from materialism). Without any order in the world, theories couldn't be constructed. In that case prediction would be impossible and the world would be chaos. We would be hopelessly lost, unable to foretell what would be the next situation and unable to manage in any foreseeable way.

Reduction

Going beyond the specific results in a reduction: the particular features of the example are discarded and the general features are placed in a theory. Reduction thus is an essential characteristic of generalization. It's a reduction from the complexity of facts into more general principles. Science is also reductive in another aspect: it reduces many questions to just a few. Every time an apple falls to the ground, one may ask why this happens. The statement 'apples fall' is the answer to all these questions while at the same time explaining the phenomena. Only one question remains now, and that is "Why do apples fall to the ground?". Many questions have been reduced to just one question.

Universal

The more generally applicable a theory is, the more universal it becomes. Feynman for example writes: 'Finally comes the universality of the gravitational law'.

Simplicity, elegance

Theory favors simplicity, whilst with decreasing specificity, predictability increases. This is why Feynman says: 'This law (of gravitation) is simple and therefore it is beautiful' and 'Nature has a simplicity and therefore a great beauty'. Here elegance and simplicity are inseparably linked. This is reflected in the saying: 'Simplicity is the hallmark of truth'. Concepts associated with generalization include abstraction, general, generalization, universal, reduction, prediction, simplicity, and aesthetic.

Scientific stages

A statement is more scientific when it is more general. The law of gravity is far more general and thus more scientific than the statement that apples fall. Based on the level of 'generality', I see the following stages in the development of a science:

Stage 0: Facts

At this stage, we are simply dealing with facts or occurrences. This stage is really a pre-scientific stage: no generalization has taken place.

Stage 0a: : Fact as such

We can split stage 0 into facts as such (Stage 0a) and the description of these facts (Stage 0b). Of facts as such we cannot communicate.

Stage 0b: Description of the fact

Stage 0b is the description of the fact: 'the apple falls'. All languages, with their concepts and categorizations, have an element of generalization in them. We ought to be able to call language 'science of common sense'. Phenomenology stands in immediate proximity to Stage 0b, since it is based on the facts, which it describes.

Stage 1: Generalities

Here the facts have been generalized. An example would be the expression 'apples fall'. Only now can we begin to talk about scientific knowledge.

Stage 2: Classification
At the second scientific stage, the various different generalities are classified, tabulated, categorized and organized into a system. In physics, one might think of Mendeleyev's periodic table, which arranges all the elements in a specific sequence. Stage 2 (and 3 and 4) is the result of theory formation and conceptualization. In the midst of many generalities, the scientist will recognize the underlying principle. The transition usually happens after lengthy speculation, in dreams, or by intuition and inspiration. Such classifications make it possible to predict the existence and even the characteristics of unknown elements.

Stage 3: Theory
At this stage a theory is formulated, which both supports and predicts the classification. In quantum mechanics, Schrödinger's equation predicts the existence and sequence of the elements. The theory makes further predictions possible that can be tested. This is also the stage at which the basic scientific concepts become clearer and more distinct. It becomes obvious which concepts are essential and which are superfluous. In physics 'falling' is not one of the basic concepts, but speed and acceleration are. In some instances these basic concepts are quite self-explanatory, as in the case of speed. Frequently however, they do not seem to be so easy to grasp through mere 'common sense'. We have learned that apples do not fall because they are apples but because they have weight. More precise is the statement that 'apples have mass'. The term mass however is no longer self-explanatory but requires knowledge. We know that hydrogen also has mass but hydrogen doesn't fall on the contrary it rises in spite of its mass. The basic concepts frequently become partially clear as early as at stage 2. A good classification depends on understanding which characteristics and factors are most essential.

Stage 4: Comprehensive theory
This is the last stage in science, where all partial theories are combined into one comprehensive, unifying theory. The transition from Stage 3 to 4 is a gradual process. It becomes obvious that more and more theories can be subsumed under one common theory. In physics for example, Maxwell managed to bring all the theories on electricity together under the common denominator of electromagnetism. One unintentional side effect of this theory, which turned out to be correct, was the prediction that light consists of electromagnetic waves. The ultimate goal is to bring all phenomena and theories under one common denominator, one comprehensive theory - the universal theory.

We can categorize all the different sciences on the basis of the stages they have reached. Physics is in stage 3 and in the process of moving forward into stage 4. Biology is in stage 2 with its taxonomy of plants and animals. Most of the other sciences including conventional medicine are in stage 1. Physics, a science in stage 3, has a great predictive capacity, which has, for instance, produced cars that work well. Sociology as a science in stage 1 has a small predictive capacity without significant impact. It is therefore not yet in the position to create smoothly functioning societies.

1.2 Truth, knowledge
The second aspect of science is that it has to be true. Its statements and theories have to tally with reality, agree, be right or true. As Chalmers says, 'science is based on facts'. The statements and theories have to be deduced from, or empirically tested on the facts, occurrences and phenomena.

Induction
The determination of the truth of a scientific statement can take two forms. The first is the derivation of a general principle from particular events. This happens with the help of the principle of induction: one apple falls, so does the next one and the next one, 'thus' all apples will fall. The general principle is induced from the repetition of the same event. The observed facts, occurrences or phenomena are generalized into a principle, law or theory.
Induction is needed for the transition from stage 0 (facts) to stage 1 (generalizations) in a science. It is also possible for general principles to be only partially true. The truth of the principle gets a more statistical form; it's true in x% of the cases. Statistics are not more than just genuine healthy common sense in a mathematical disguise (Paulos). Because statistics are more precise than our (statistical) intuition, it is a useful tool for clarifying 'ambivalent' situations.
In philosophy induction is debated often. The problem is how one can know that the generalization will not fail next time. Even when all apples have fallen until now, how can one be sure that the next will fall also? Induction cannot be derived from other principles, so it has an axiomatic character.

Deduction
Deduction is in a way the opposite of induction. Deduction is the transition of classification and theory to facts. From the theory that all apples will fall, one can deduce that 'this particular apple' has to fall. The deductions from theories are predictions and they can be tested to see if they are true: one can observe if the apple 'really' falls.

Testing
When the prediction turns out to be true the theory is confirmed, when the prediction is false the theory is disproved. By testing the predictions of a theory its validity can be ascertained. Theories become stronger with more confirmations and fewer disprovings.

Confirmation
Confirmation of a theory looks simple, facts appear not debatable. However they are often quite ambivalent, complicated or dependent on theory and are thus disputable. In the case of the theory of 'all apples fall' the facts of apples falling or not are obvious. But the discovery of the new element Kurchatovium is more problematic. It was discovered by finding six cases out of a million elementary particle decays that confirmed the prediction of how that element would decay.
Another problem with confirmation is the same as the problem with induction: however many times a theory will be confirmed, it still can be the case that it won't be confirmed next time.

Falsification
This has led Popper to stress disproving, or falsification as he used the term, as a central procedure for validating theories. First of all a theory has to be able to be disproved to be called a scientific theory, according

to Popper. Falsification has one advantage over confirmation: one instance of falsification can decide a theory. One apple not falling rules out the theory "All apples fall". Falsification has the same problem as confirmation: it cannot avoid the problem of the reliability of "facts": when the facts are uncertain, the falsification also becomes uncertain.

Bayes
Chalmers shows that new theories are reinforced as much through proof as established theories are weakened through falsifications. In reality both confirmation and falsification play a role in the validation of theories. And both validate a theory in a more or less probable way, depending on the reliability of the facts. Bayes has discovered a theorem (Chalmers) to ascertain the probability of theories. In normal language it means that the probability of a theory becomes higher when it predicts something right and the more unexpected the prediction the more the probability of the theory is raised.

Bayes' theorem goes like this
P (Theory Final) = P (Theory Initial) * P (experiment new) /* P (experiment old).
P stands for probability and is expressed in values from 0 to 1.
Bayes' theorem makes these qualitative statements more quantitative (Chalmers). Instead of deciding if a theory is right or wrong it ascertains the probability of the theory. This is much more in accordance with the reality of scientific development.

1.3 Paradigms
Paradigms play an important role in science. Paradigms are a sort of general starting point, which give scientific research direction. They are like axioms. Often they are just assumed and not clearly articulated and it is difficult to discuss them. Sometimes however, they tend to obstruct progress. Examples of this are 'the earth is the centre of the universe' and 'the earth is flat'.

An example of such a paradigm is 'what you see is what there is'. Galileo, with his newly developed telescope, was able to see Jupiter's moons. Many scientists doubted this discovery due to the tacit assumption that the naked eye is the most reliable source of information and that everything that stands in between the naked eye and the object can only distort an accurate view. Galileo succeeded in proving that the telescope can provide better observations only after many arguments and demonstrations of contradictions arising from observations with the naked eye.
We can say that science needs just two paradigms or axioms. The Order paradigm is stated as "The world has an innate order" and it makes generalizations possible. The second is the Truth paradigm: "There is such a thing as truth". Without them, science is not really possible. There's another paradigm in the science of our time: "Only the material world can be the object of science". It can be called the materialism paradigm. But this paradigm isn't needed at all for science.

2. Homeopathy as science

Homeopathy as a science is almost as old as modern physics. During the early years, between 1800 and 1870, homeopathy progressed enormously. From 1900 until 1970, it was sailing in more tranquil waters before entering another stormy phase of development. Apart from the most recent developments, homeopathy for the most part is in the first scientific stage, that of generalizations.

2.1 Theory Generalization

Stage 1: Generalization
By far the greatest part of homeopathic knowledge consists of drug pictures. Their symptoms tend to be generalizations, such as 'Sulphur loves sweets' and 'Pulsatilla is yielding'. The bulk of homeopathic literature consists of Materia Medica and repertories, which contain this kind of information.
The information comes from provings and clinical experience. Provings are methods of induction. Clinical information is a form of confirmation. Recently more sophisticated forms of using clinical information have been tried. One is using a single case in a time line (Kramer). Rutten suggests using the likelihood ratio. The predominant research form of regular medicine is the Randomized Clinical Trial, formerly also called double blind studies. An example is the research of Reilly on hay fever.

Confusing fact and generalization
Confusion emerged in homeopathy between stages 0 and 1, between fact and generalization as we can see in our earlier Materia Medica's. They consist of enumerations of facts, of symptoms, that the provers experienced during the provings. But they have been presented as generalizations, as general symptoms of the remedy. We encounter this error again and again in homeopathic literature. Kent writes in his 'Lesser Writings' that homeopaths must not move away from the 'facts': 'Throw aside all theories and matters of belief and opinion and dwell in simple fact'. Shepperd expresses this in even fewer words: 'Homeopathy is based on facts, not theory'. There is a desire to remain 'factual' (Shepperd): "Theory is usually the product of the impatient intellect, of the desire to get rid of the phenomena". Hahnemann confused fact and generalization. In §138 of the Organon he states that by definition each symptom or occurrence during a proving belongs to the remedy. In this way he gives each symptom general value and avoids the difficult problem of induction.

Stage 2: Classification
Over the last decade, homeopathy has shown new developments of classification. This has brought homeopathy its rapid development. But it's not new. Hahnemann drew up his classification of Psora, Sycosis and Syphilis. Farrington and Leeser discussed themes and pictures of plant families. Vithoulkas listed the general characteristics of all the Kalis (Morrison).
The modern ways of working with classification are much more systematic. Mangialavori works with families. Sankaran has developed the classification of kingdoms, family themes and the miasms. Scholten classified all the remedies from the mineral kingdom through group analysis and the theory of the elements (Minerals, Elements) and plant family themes.

Classification of remedies
Remedies can be classified. The most obvious way is the chemical and biological classification. The principle of Perfinity (see Classification and Perfinity) predicts that the best classification on one level (the material world) will have a high chance of being the best classification at other levels (remedy pictures). That explains the success of the use of botanical and zoological families. Many family pictures have been made by Mangialavori, Sankaran and Scholten. And many remedy pictures have been predicted successfully.
With Bayes' theorem the probability of these theories can be ascertained.
An example of the Element Theory (Homeopathy and Elements) makes this more explicit. The experiment is a case of a patient with severe tinnitus, where the theory of the Elements leads to the successful prescription of Cadmium carbonicum. The chance of finding this remedy with the old theory is very low, let's say 1 in 4000 (one out of 4000 remedies). The chance of finding this remedy with the Element Theory is moderate, let's say 50%. The probability of the Element theory is low before being tested, let's say 1/1000, "almost unbelievable". From this we can calculate the new probability of the Element theory:

P (Theory Final) = P (Theory Initial) * P (Experiment New) /*
P (Experiment Old). P (Theory Final) = 1/10000 * 50% /* (1/4000) = 0,2.

With the above experiment, the value or truth of the new theory has increased from 0.01% to 20%. With each successful experiment the value of the hypothesis increases quickly.

Classification of pictures
The pictures of remedies in our Materia Medica's are a set of unrelated symptoms. They are like colored spots on a painting that have no connection at all. No real picture arises.
For computers that will suffice, but humans are not good at remembering encyclopedias. Humans think in pictures. The need for meaningful pictures has found expression in many ways. For the last twenty years, homeopathy has been moving towards transforming remedy pictures into genuine pictures. The old proving pictures with rows and rows of unrelated symptoms are being changed into coherent, relevant pictures. Vithoulkas developed his 'Essences', Sankaran his 'Basic delusion', 'Situational material medica' and 'Vital sensation', Mangialavori developed his 'Themes', Scholten his 'Concepts' and 'Essences'. It's a process of abstracting from the symptoms. The goal of this process is to develop a central theme, from which all the symptoms can be deduced logically. It makes remedy pictures shorter and more understandable. The trick is to do it in such a way that no essential information gets lost.

Advantages of Stage 1- Provings and clinical information:
They can be used where no remedy picture or essence is available at all, in a kind of "no man's land".

Advantages of Stage 2 - Classification
• The first advantage is the generalizing as such, raising the scientific level.
• Classification enables the prediction of remedy pictures. It is possible to describe remedies without going through the lengthy processes of provings and clinical cures.
• It also means that the pace at which new remedies are added to our armory has been accelerated considerably.
• Classification reduces the number of essential symptoms. The sub-divisions within the classifications make a good classification of symptoms both necessary and possible. The pictures become much easier to understand.
• Classification expands the number of possible symptoms and possible expressions enormously. More cases can be understood.
• Classification makes differential diagnoses clearer and simpler.
• A greater number of remedies become easier to handle and to remember.

Coalescence with remedy classification
The classification of remedy pictures goes together with the classification of remedies in families. For the comparison of remedy pictures a more abstract level of looking at symptoms and syndromes is needed. The goal is a framework of symptoms and syndromes. This is achieved in the 'Element theory' of Scholten, where the possible field of symptoms is found in the periodic table of elements.

2.3 Paradigm
Obviously, homeopathy is based on the general scientific paradigms, such as order and truth. But homeopathy does not conform to the materialism paradigm of the mainstream of our culture.
Already Hahnemann's 'vital force' and 'dynamis' are not compatible with the materialism paradigm.
Homeopathy cannot be restricted to the material world. Emotions and thoughts are at the core of its field of research. The worlds of emotions and thought are different from the material world and cannot be restricted to that world. They refute the materialistic paradigm.

3 Conclusion
The development of homeopathy as a science is necessarily a development towards more generalization. I say 'necessarily' because every science develops towards increasing generalization. The increasing generalization makes predictions possible. The result is that homeopathy has suddenly progressed very fast. The development of Family themes and the theory of the Elements show that very clearly. In a short time, the quantity of homeopathic remedies has increased considerably, while the understanding of the remedies has deepened. Practice has been greatly simplified through the proper understanding of the remedies. That does not mean that the methods of the first scientific stage, such as provings and cured cases, have become redundant. But compared with the picture formation and classifications of the second scientific stage, they are slow and restricted.
The scientific aspects of homeopathy have progressed particularly through the pursuit of generalizations. This adds coherence to the older fragmented information and makes homeopathy more accessible to scientists from other disciplines.

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