

Knowledge and the Tools of Science

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Knowledge is gained from:

- 1 Science
(includes experiment, observation and discoveries),
- 2 Inspiration, and
- 3 Revelation

But obviously (and considerably), also from written records of the results of the above.

1 Science - Experiments

As far as “science” is concerned, use of the scientific method involving *experiments* is of course always the preferred source. The appropriate experimental standard is often called, ‘*solid science*’ and is defined as *independent replicated* experiments – which is regarded as essential to avoid bias and the possibility of fraud (but which often in today’s world is ignored). Outcomes should always be regarded as provisional, subject to subsequent review based on further experimentation, or new data. Experimental evidence is by far considered the most dependable of all other possible sources of knowledge. In this respect there are many recent experiments (not particularly well known and which may be a surprise to many), which conform *rigidly* to this standard called “the scientific method” but assist both in the belief of a creator/God, and reincarnation. These are covered comprehensively in my book – See: <https://www.amazon.com/dp/B01M5CXRHA>

Science - Observation and Discoveries

Science must also include mankind’s past and recent simple *observation* of phenomenon which have led to hypotheses - which over time and with repeated observations alone have led to their reasonable acceptance as truths, e.g. a darkening sky plus wind is likely to be followed by rain or a storm. Sadly, it seems that pre-1930’s, this was the most predominant method of discovery dating from ancient man yet seems largely overlooked and ignored today.

Careful and repeated observation of phenomena in a scientifically based manner, has often led in the past to a breakthrough in understanding and belief, e.g. Newton's discovery of gravity simply by watching a falling apple. In this case a scientist though would no doubt claim experimentation a superior method, and that repeated observation may affect belief but not certainty. For example. they might say that if this was an observed behavior of an apple in Newton's day, how could he be certain the apple would not fall, or behave differently tomorrow or 1000 years from then etc.

Before leaving science and moving on to discuss the other two sources of knowledge listed above, there are many other specific yardsticks or *tools in science* worthy of mention which help scientists measure the validity of 'hypotheses' - particularly where experiments can be shown to be impracticable e.g. the behavior of sub atomic particles inside a black hole.

Science - Logical Consistency

The most popular of these yardsticks amongst scientists is logical consistency. As far as logical consistency is concerned, one looks for a logical theory which is consistent within the area covered (e.g. with gases, a theory of expansion with heat would expect uniformity for all gases without exception, and for all volumes of gas). For the universe, one would expect any laws to be inviolate and not change in an arbitrary fashion from place to place, from minute to minute, or even millennium to millennium. Logical consistency/correlation is a tool widely used in forensic science. It is also universally used for acceptance testing laboratories around the world, to vet manufactured supplies for major corporations against their trusted standard (compliant with technical specifications). Importantly in the context of this article, it can also be used effectively as a useful tool in analyzing esoteric teachings for validity; both for researching internal consistency/comparability in a forensic manner within the document concerned and/or externally with other documents which may include other works by the same author.

Science - Mathematics

Mathematics has a special place amongst scientists. As Kitty Ferguson, says "*Our faith in mathematics and logic leads us to believe that if a thing isn't mathematically and logically consistent it can't be true.*" [Ref.1 below]. The belief is so strong by scientists, that many use this yardstick as a first premise to test the validity of their theory.

Mathematics is really symbolic logic, where meanings or significance represented by symbols are attached to objects to signify meaning in a particularly clear and concise way. It therefore makes it desirable to develop equations and carry out calculations for *possible laws*, which can then be tested by observation and experiment.

Because of this, it holds a unique position as the language of science and provides a logical direct correlation with reality. In fact, there are simply no science theories which would be accepted as the "standard model" unless they can be described mathematically. Gödel's "Incompleteness Theorem" does show that there is the theoretical possibility of truths beyond the ability of mathematics to prove. However, as Barrow points out that "it may be the case that physical reality, even if it is ultimately mathematical, does not make use of the whole of arithmetic and so could be complete". [Ref. 2.]

Currently "String theory" has been developed using mathematics without any experimental or other evidence, and this is also the case for theories covering what happened before the "The Big Bang." In the case of "String Theory", the problem is that mathematics in this instance has

given a number of different solutions - as with theories concerned with existence before the "The Big Bang." However, it is noteworthy that *exceptionally* with quantum mechanics, mathematical theory has been verified by measurement to an astonishing degree of accuracy.

Finally, a particular branch of mathematics - '*Probability theory*'; is particularly useful as a test for validity of a theory and for making predictions. For example, the likely effects of global warming over future years, is now usefully presented solely on a probability basis using extrapolation of past climate and solar data inputs manipulated by various computer models. Meta-analysis of data and probability mathematics has also been found useful in analyzing data for studies ranging from determining the likely effectiveness of medicine, *to the outcome of telepathy experiments on large populations of subjects.*

In areas of science where difficulty arises due to a number of competing theories, probability theory is a useful approach. It is also strikingly useful to overwhelmingly indicate on occasions, instances where the likelihood of chance (despite false assertions by deniers) is mathematically impossible. In this respect a little-known breakthrough in probability theory applicable mainly in cosmological science was that determined by the French mathematician Emile Borei, who in 1909 determined that when the odds get above 10 to the power of 50, there is no chance whatsoever of it occurring even on the cosmic scale. This led to cosmologists such as Paul Davies and Sir Fred Hoyle independently (after carrying out appropriate probability calculations) both stating that life cannot occur spontaneously by chance. Sir Fred Hoyle colorfully said that. "*This would equate to the chance of a tornado through a junk yard assembling a Boeing 747.*" [Ref.3]

Science - 'Beauty' in physics

Beauty in physics implies simplicity, elegance, mathematical consistency and creativity. As the result of experience, many scientists consider that beauty in equations is often the best guide to the validity of a promising approach to a new discovery. James Watson mentions how beauty guided his discovery of the DNA code. Werner Heisenberg on his pioneering of Quantum theory said: - "*It was immediately found convincing by virtue of its completeness and abstract beauty*" and Edwin Schrödinger said, "*Einstein's marvelous theory of gravitation ... could only be discovered by a genius with a strong feeling for the simplicity and beauty of ideas*". In a conversation with Einstein, Heisenberg once said, "*I believe just like you, that the simplicity of natural laws has an objective character that is not just the result of thought economy. If nature leads us to mathematical forms of great simplicity and beauty", "... we cannot help thinking they are true, that they reveal a genuine feature of nature.*"

Science - Parsimony

A criterion much loved by scientists by which they test their theories, is how economical (the technical term is 'parsimonious') is a proposed theory in refining ideas to a simpler, more self-evident form. An important point is that this is not a criterion confined to science; it reflects a logical methodology and is often used as a practical test for the efficiency of design e.g. of a bridge or an engineering process. We should never seek out a complicated explanation when there is a simple, self-evident one available. With nature, experience has shown the simplest explanation almost invariably turns out to be the right one. (Occam's razor.)

2 Inspiration

Unknown to many, a considerable number of scientific breakthroughs have been discovered by inspiration leading to *new knowledge*. In some cases, as a result of dreams, in others sudden flashes of inspiration claimed while awake, but in a *somewhat unfocused state*. The most famous case of all was the ancient Greek Archimedes who while running a bath, inspirationally realized that one could determine density by noting how much water was displaced. [Ref.4]

More recently, Otto Loewi discovered that nerve impulses were transmitted chemically, not electronically, all thanks to a dream. In 1920, Loewi dreamed of an experiment he could do that would prove once and for all how nerve impulses were transmitted. He woke up in the middle of the night, excited and happy, scribbled the experiment down and went back to sleep. When he woke up, he couldn't read his notes. Luckily, he had the same dream the next night. The experiment and his later work earned him the title, the "Father of Neuroscience." [Ref. 5]

Francis Crick, the discoverer of DNA structure in 1953, while shifting around cardboard cut-outs of the supposed positions of molecules on his office table, in a stroke of inspiration realized that each pair of bases must be held together by hydrogen bonds. [Ref. 6]

Similarly, the famous 'Periodic Table of Elements' was discovered by the Russian chemist Dimitri Mendeleev while lying in bed day dreaming. Similar situations apply in the case of Niels Bohr's planetary model of the atom and Heisenberg's formulation of the basic principles of quantum physics and many other scientists who were either day dreaming or awakened from a dream where they achieved a flash of inspiration. [Ref. 7]

In each of these cases it will be noted that major breakthroughs were achieved in a partially or fully unconscious state where conscious reasoning was absent. All scientists mentioned above, claimed mystification for their insight, and disowned credit for their discoveries. It is emphasized here that the *common factor of being in a semi-trance state*, is little difference from that which applies to all forms of mediumship whether channeling, obtaining information from discarnates, dowsing or clairvoyance/remote viewing.

3 Revelation

By 'revelationary' knowledge, is meant "information" claimed as valid - gained from mystics, mediums in trance states, biblical prophets etc.

Interestingly (and to myself importantly), this is little different from accounts concerning valid information gained by primitive natives on useful medicinal cures from herbs, hunting strategies, weapons such as bows and arrows by their seers, witchdoctors etc. who commonly use chants, dances, or mescaline and other psychotropic drugs to attain trance like states. It therefore seems obvious that semi-trance states *do* help facilitate gain in universal knowledge for some who seek it, including scientists who occasionally claim inspirational science for their breakthroughs discoveries. Under these circumstances, the subconscious mind appears to come to the fore - which seems to have a more widened perception than the conscious mind, which may have of necessity adapted in the past to focus more on immediacy associated with the possibility of encountering danger and threats to our survival. My book covers (in Chapter Nine) the above in depth, analyzes why and how receipt of desired knowledge may occur, and provides a practical methodology for readers who might wish to try to attain this capability for themselves.

References:

- [1] "The Fire in the Equations" – Kitty Fergusson, (Bantam Press, 1994), Page 62.
- [2] Ibid, Page 64)
- [3] "The Paranormal is Normal" – Alastair Bruce Scott-Hill, Page 16
- [4] <http://www.scienceclarified.com/everyday/Real-Life-Chemistry-Vol-3-Physics-Vol-1/Buoyancy-How-it-works.html>
- [5] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4291908/>
- [6] <http://profiles.nlm.nih.gov/ps/retrieve/Narrative/SC/p-nid/143>)
- [7] https://www.rbth.com/arts/2016/03/07/which-russians-had-their-eureka-moments-while-asleep_573053

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