

11. *A Priori* Knowledge and Evolution of Science and Technology

Another event that took place after the creation of Adam is the uploading of knowledgebase in his biosystem. The Holy Quran narrates the story thus (emphasis in italics added).

وَإِذْ قَالَ رَبُّكَ لِلْمَلَائِكَةِ إِنِّي جَاعِلٌ فِي الْأَرْضِ خَلِيفَةً قَالُوا أَتَجْعَلُ فِيهَا مَنْ يُفْسِدُ فِيهَا وَيَسْفِكُ الدِّمَاءَ وَنَحْنُ نُسَبِّحُ بِحَمْدِكَ وَنُقَدِّسُ لَكَ قَالَتْ إِنِّي أَعْلَمُ مَا لَا تَعْلَمُونَ وَعَلَّمَ آدَمَ الْأَسْمَاءَ كُلَّهَا ثُمَّ عَرَضَهُمْ عَلَى الْمَلَائِكَةِ فَقَالَ أَنْبِئُونِي بِأَسْمَاءِ هَؤُلَاءِ إِنْ كُنْتُمْ صَادِقِينَ قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ قَالَ يَا آدَمُ أَنْبِئْهُمْ بِأَسْمَائِهِمْ قَالُوا مَا نَسْمَعُ قَالُوا أَنْبِئْهُمْ بِأَسْمَائِهِمْ قَالُوا إِنَّا سَمِعْنَا مَا نَبَّيْتُكَ وَإِنَّا لَنَجْمُونَ

2:30-33 Behold! Your Lord said to the angels: I will create a vicegerent on the earth. They said: Will You place therein one who will make mischief therein and shed blood while we celebrate Your praises and glorify Your holy (name)? He said: I know what you do not know. And *He taught Adam the names of all things*; then He placed them before the angels and said: Tell Me the names of these if you are right. They said: Glory to You, *of knowledge we have none except what You have taught us*. In truth it is You Who are perfect in knowledge and wisdom. He said: O Adam! Tell them their names. When he told them their names, God said: Did I not tell you that I know the secret of the sky and the earth, and I know what you reveal and what you conceal.

The verses reveal that the source of knowledge to both angel and human species is Allah. What Allah taught Adam constitutes the knowledge human species is entitled to get. The term “taught” may be interpreted as uploading knowledge in Adam’s biosystem. This forms the repertoire of every kind of knowledge including scientific and technological knowledge human species is entitled to get. At another place in the Quran, it is more explicitly stated that the quantum of knowledge communicated to human species is finite.

وَيَسْأَلُونَكَ عَنِ الرُّوحِ قُلِ الرُّوحُ مِنْ أَمْرِ رَبِّي وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا
17:85 “...Of knowledge it is only a little that is communicated to you (O men!).”

Viewed from the divine angle, the knowledge gifted to us by Allah is qualitatively and quantitatively very little. The use of the phrase “names of things” in verses 2:30-33 is also suggestive of very little knowledge in the eyes of Allah. It is clear from the above verses that the source of knowledge is Allah. The knowledge Allah uploaded to Adam’s biosystem is the source of *a priori* knowledge or the knowledge one inherits at birth as distinct from that he gains from experience.

The knowledge gifted by Allah to Adam is transmitted down the germ line so that it reaches generations of mankind in a phased manner as programmed. This would mean besides phenotypic characters human beings also receive knowledge at birth through germ line. Many philosophers have indicated the existence of *a priori* knowledge although its source has remained unknown. German philosopher Immanuel Kant proposed the *a priori* and *a posteriori* notions about knowledge. According to him, a proposition is knowable *a priori* if it is knowable independently of experience. A proposition is knowable *a posteriori* if it is knowable on the basis of experience [1]. Unlike the empiricists, Kant thinks that *a priori* knowledge is independent of the content of experience which is seated in one’s cognitive faculties, not any particular experience. There has been a surge of interest in the proper explication of the notion of *a priori* [2]. It is knowledge gained deductively and not through empirical evidence. The knowledge of

mathematics (as opposed to the knowledge created by mathematics) is *a priori*. Rationalists believe that there is *a priori* knowledge, whereas empiricists believe that all knowledge is ultimately derived from some kind of external experience. The Quranic message comes as confirmation of *a priori* proposition. It also reveals its source. Although the notions of *a priori* and *a posteriori* are very much alive in contemporary philosophy and science, there has been no systematic search to find out the source of *a priori* knowledge. Our experience tells that we can access information only if it is available in our memory. It is impossible for anyone to get new information through thought process if it is not available in his memory. The knowledge one brings with him at birth well before he experiences the outside world constitutes the *a priori* knowledge. The Quranic disclosure of the divine source of knowledge to human beings explains how we obtain knowledge of hitherto unknown things and phenomena. Advancement in science and technology as well as in other fields like arts, literature, etc., must be seen in this light as programmed release of knowledge by Allah. Scientists, technologists, novelists, poets, etc., are quite aware that scientific ideas or the subject matter to write as the case may be flow into their minds at certain times of their life. They have no control over it.

The process of transmission of *a priori* knowledge can also be explained as biomimetic through germ line like the human biodiversification phenomenon. A computer or a robot can retrieve certain information only if that information is available in its memory. Likewise a human being can retrieve particular information only if it is available in his memory. Otherwise he cannot. For example only people who know your name, i.e., who have stored your name in their memories (*sadr*), can tell your name. This means only their minds can retrieve that information. To put it differently, even if the entire seven billion plus people now living in the world start thinking to find out your name, none will get it except those who know your name. That being the case how can anyone acquire new information about the universe or technology, if that information is not available in his memory? If a scientist wants to conduct an experiment, he should first get that idea. The idea may be what he derived from already available information in which case it is *a posteriori*. However on several occasions it can be new – not known yet. Idea or information of that kind cannot pop up on one's mind from thin air. It should have come from his memory. One strikes an idea when it is downloaded to his mind. (The reader may please note that the term “download” is also used in this book to mean the process of transmitting information stored in the memory (*sadr*) of an individual onto his mind (*qalb*) although the term is generally used in computer science to transfer files, programs, etc., to a computer from a server kept elsewhere). We call such events as intuition. We all experience this once in a while. Remember that our mind is constantly being bombarded with information (downloading process) we acquired from our experience (*a posteriori*) and also with new information (ideas), which we are not aware of until then. The new information also originates from our memory. It does not fall under the category of known (*a posteriori*) information which we store in our memory. The new information arrived through germ line. The source of any information other than *a posteriori* is Adam's *nafs*. As the knowledge included in Adam's *nafs* is transmitted through germ line, its release to mankind in time and space depends on how it is programmed. Both biodiversification and transmission of *a priori* knowledge must be operating in tandem so that individuals with appropriate phenotypic attributes are created

to receive certain knowledge. When certain knowledge reaches a zygote biomemetically through germ line, the individual developed from that zygote carries that knowledge. That knowledge gets stored in his memory during development. It will be downloaded onto his mind from the memory at the time stipulated in his biosoftware. Till then he will not be even aware of that knowledge. Once downloaded to the mind, it becomes a piece of known information and the individual can retrieve it from the memory any time he wants. Discovery of new information (knowledge) other than that is gained from experience happens in this way in every sphere of human activity as programmed by Allah in Adam's *nafs*. As the Quran puts it:

لِكُلِّ نَبَأٍ مُسْتَقَرٌّ وَسَوْفَ تَعْلَمُونَ

6:67 For every message there is a pre-determined time and soon you will know it.

If the individual is not the person to release that knowledge, he will not have access to it. It will not get downloaded to his mind. He will remain unaware of that knowledge acting as mere vector to pass on that biomeme(s) to the next generation. Albert Einstein's miracle year came in 1905 when he was 26 years old and working as patent examiner in Bern, Switzerland, and *not as scientist working in a research institute or university*. He proposed that light, which in classical physics is a wave, could also be thought of as consisting of discrete bits of energy which he called quanta. The implied wave-particle duality of light became the cornerstone of the new quantum theory and this discovery earned him Nobel Prize. Einstein had that information stored on his chromosomes right from the zygote stage. It reached his memory during development and got downloaded onto his mind at the time specified in his biosoftware – when he was 26 years old!

The timing of discoveries and inventions, and step by step upgradation of our knowledge is very much evident from the history of science. The discoveries did not happen in a random fashion. We find a sequence from less developed to more developed ones over time. The timelines of discoveries and inventions indicate that. This is illustrated with the example of superconductivity (Fig. 1). Superconductivity was discovered in 1911 by Kamerlingh Onnes. He found that mercury becomes superconducting at about 4 K. Since then, discoveries of superconducting materials with higher and higher transition temperatures (T_c) have been made [3, 4, 5, 6]. The world record of T_c of near 38 °C (100 F or 311 K) as of 2013 is held by $Tl_5Pb_2Ba_2SiCu_8O_{16+}$ [3].

Many of the discoveries and inventions would also appear to us as 'accidental'. That is, the discovery that happens unexpectedly when the scientist involved is not looking for it. This is suggestive of the programmed nature of release of knowledge through persons and at times pre-determined by Allah. Louis Pasteur's discovery of cholera vaccine, Alexander Fleming's discovery of the first antibiotic penicillin, William Perkin's discovery of first artificial dye, Roy Plunket's discovery of Teflon, Friedrich August Kekule's discovery of the structure of benzene in a dream are, to name but a few, 'accidental' discoveries. In fact most of the major discoveries and inventions are 'accidental' ones. A couple of such discoveries are presented here in some detail for sample.

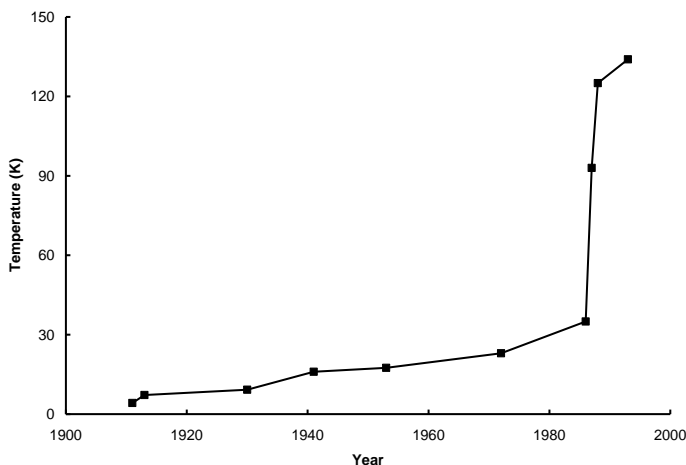


Fig. 1. Programmed release of knowledge about superconducting materials with higher transition temperatures

Source: <http://hoffman.physics.harvard.edu/research/SCintro.php> Accessed 11-12-06;
http://www.sigmaaldrich.com/Area_of_Interest/Chemistry/Materials_Science/Energy_Source_Materials/Magnetic_Materials/Tutorial/Superconductivity.html
 Accessed 11-12-06; <http://hyperphysics.phy-astr.gsu.edu/hbase/solids/scex.html> Accessed 12-12-06;
<http://superconductors.org/History.htm> Accessed 11-12-06

Kamerlingh Onnes's discovery of superconductivity mentioned above itself is one. Onnes studied the electrical behaviour of metals at low temperatures. Onnes cooled mercury to about 4 K when surprisingly, the metal became superconducting. This discovery earned him Nobel Prize in 1913. Superconductivity has been a Nobel-fertile field. The discoveries of superconducting substances in several cases have been serendipitous. In *Physics World* magazine of April 2001 issue, Colin Gough wrote about the discovery of superconducting magnesium diboride (MgB_2) thus: "One of the most bizarre aspects of this latest discovery is that magnesium diboride has been sitting on chemists' shelves for almost 50 years. No one recognized that it was even an interesting metal – let alone a record-breaking superconductor." [7].

One day Sir William Crookes (1832-1919) was passing a high voltage current through a discharge tube (later known as Crookes tube). He found that photographic plates kept nearby had become fogged. To prevent further fogging, he removed the box from there and kept it in another room. For some reason or the other, this strange phenomenon did not arouse the curiosity of that renowned scientist to probe further. Certainly, the time had not come for the discovery of X-rays or Crookes was not the person assigned that job by Allah. Shortly after that in 1885, Wilhem Konard Roentgen was using a Crookes tube for his experiments at the University of Wurzburg. He also happened to notice the same effect on photographic plates as Crookes observed. But this time the phenomenon aroused the curiosity of the observer. Roentgen preferred to cover the tube with black paper to prevent any light coming from it rather than removing the photographic plate from its place. To his great astonishment, the photographic plate still got fogged as mere covering of the tube was insufficient to prevent the rays coming from it. He thus discovered one of the most fascinating natural phenomena useful to mankind – the X-rays [8].

See what Anthony Hewish, the discoverer of the first pulsar in 1967 and Nobel laureate from Cambridge University, says about his discovery, “I only wish I could say that we were looking for pulsars at the time, but the truth is that my colleagues and I were studying quasars, the mysterious radio galaxies situated far beyond the confines of the Milky Way, when the first pulsar unexpectedly placed its signature upon our records. By an extremely fortunate twist of fate, the new radio telescope that we were using was ideally suited to pick up the rapid succession of faint radio pulses that characterise these fascinating objects” [8].

What about the Nobel Prize itself? This prize was instituted by Alfred Nobel with the enormous fortune he could make from an accidental discovery. The Nobels were manufactures of liquid nitroglycerine, a powerful explosive that is dangerous to handle. One day, Alfred Nobel, one of the sons, was lifting a bottle of nitroglycerine. As he did, he spilled some of it on a fine powder of kieselghur. Instead of exploding, it formed a paste with the powder. The mixture was still explosive but considerably safer to handle. Alfred Nobel thus discovered the dynamite that brought him a fortune.

The evolution of science and technology thus takes place as the result of programmed release of knowledge by Allah to the persons selected by Him. We call those persons scientists. What prophet is to religion Islam, scientist is to science. Divine information on language, new literary ideas, arts, etc., is also released through that process to the people selected for the purpose and those areas of human knowledge are also developed the same way. To put it differently, none will get information about a hitherto unknown phenomenon or new ideas unless God wills it (Q. 2:255).

وَلَا يُحِيطُونَ بِشَيْءٍ مِّنْ عِلْمِهِ إِلَّا بِمَا شَاءَ ۗ

2:255 “....Nor shall they obtain ought from His knowledge except as He wills....”

Here the statement “as Allah wills it” denotes “as Allah programmed it”. The world, however, do not accept the truth that the source of knowledge is Allah. They consider science and technology as well as other areas of knowledge as merely products of human intellect and effort. No person has any ability other than what Allah has given him. None can claim of any ability as self-created. Any such claim or ego arises out of sheer ignorance of facts and consequent susceptibility to satanic influence. Unless one studies the Quran, he will not be able to understand and realize this. The Quran alone gives us information on the source of knowledge man receives. We are mere creations of Allah. We acquire our physical abilities (phenotype) from the divine program (biomemome) stored in a microscopic biochip (zygote). We also receive new knowledge that way from the zygote. We do not generate anything; the divine biosoftware does it.

An important purpose of giving us scientific and technological knowledge by Allah is to enable us to utilize the resources He has provided on Earth for our requirements during the test programme. Scientific knowledge also improves our comprehension of Allah’s messages conveyed through the Quran and it makes us realize the infinite knowledge, wisdom and power of our Creator Allah.

References

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