

Editorial

Science Versus Scientism

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“The central problem of our age is how to act decisively in the absence of certainty.”

Bertrand Russell

Science and scientific temper simply mean curiosity. They are efforts to get to know the secrets of Nature. Many a time, Nature refuses to fully divulge her secrets when one goes very close. Children, before they start schooling are curious, but when they come out they become, by and large, just repetitive robots because of their brainwashing in schools about the accepted norms in science. Occasionally, there are exceptions, but their numbers are very small. To swim against the current is not easy, either. Research depends on grant money; most grants come either from the government or industry. Both masters would like their interests guarded. Refutative research, which tries to demolish the scientific myths, is not funded and so is nipped in the bud. Publishing the data from those studies is almost impossible in the present atmosphere^[1]. Even one's position in a University might be threatened!

Scientism, on the contrary, is like a powerful religion that tries to influence people's understanding of this Universe in the accepted norms. Any attempt to show evidence to the contrary is being hushed up with all the might at their command. Scientism was helped by the early successes of technology based on the present scientific paradigm. Society venerates science for the simple reason that we have the telephone, electricity, easy transportation, satellites, space ships, nuclear war heads and the computers *et cetera*, thanks to the conventional scientific paradigm. In addition, there is this big money business in scientific technology. Powerful countries are sold to scientism because they have been able to build destructive weapons, thanks to scientism. These weapons give the countries enormous powers to dominate the world. The lure of medals and prizes and the large amount of

money involved in some of the prizes like the Nobel have even made people fake research findings or plagiarize them from others without acknowledging the original source^[2].

That is how science got a clean chit from society. Let us examine the present strong pillars of science to see how strong and solid they are. The Big Bang, origin and evolution of the human species, the relativity theory and, quantum mechanics are those four pillars^[3]. Reductionism and statistics are the pillars of medical science and biology^[4]. Darwin's theory of evolution is found wanting in many areas. *Evolution inside a species is different from evolution of a new species; a bird from a fish, for example.* The latter needs thousands of biochemical reactions that individually will have no *survival advantage* when the ultimate new species arrives by accident^[5]. The efforts by Richard Dawkins to sell Darwinism to the public are not very scientific either. One example of the very complicated eye developing from a small depression in the earlier species looks rather too simplistic^[6].

The relativity theory, first developed by a German physicist, Lorenz along with the French mathematician, Poincare, had a significant contribution also from the famous Irish mathematician, Fitzgerald^[7]. Albert Einstein, the deified guru of physics, had very little to do with it. Einstein, however, had contributed immensely to Brownian movement, photoelectric effect and movement of ions in solutions^[8]. Einstein giving away his Nobel Prize money to his first wife, whom he had divorced by then, gives credence to the view, held by some close confidants, that the original Nobel paper of Einstein did have his wife's name as the first author, which must have disappeared later^[9].

Be that as it may, the question raised by Professor Dingle of the London University about the theory remains unanswered so far^[10]. The assumption in the theory that there is same velocity of light independent of the direction of measurement

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with respect to the motion of the earth has recently been found to be inconsistent^[11]. The jewel in the crown of physics, the quantum theory, does not seem to have much connection to reality. We still do not have answers to questions like a) what is a wave function, b) In the Schrödinger's equation what are the waves "of" and what are the waves "in", and third c) what is an electron^[12].

The basic problem in the theory of evolution would be, if we accept that there is no *design* and there is no *teleology* as sold by the scientific establishment, to explain the prior existence of the DNA! The accepted laws of chemistry need chance collisions between simpler constituents^[13]. Darwin's book *Descent of Man* makes it mandatory for us to discount any design. Dawkin's book *The Blind Watchmaker* makes an effort to whitewash these questions!^[14] Lamarck must have had his last laugh in his grave when he came to know that rats developed diabetes following destruction of their pancreas by drugs: they then passed the disease on to their offsprings - evolution through inheritance of acquired characteristics - Lamarckism^[15]. One would benefit a lot by understanding the word *Entelechy* - spontaneous development of order, as opposed to *entropy* - disorder, first coined by the German biologist, Driesch (1867-1941)^[16].

NASA claims that there is no life anywhere outside the Earth, but they could not discount bacterial life deep down the surface of Mars. There are some indicators to that possibility in the recent works. Mathematics, the foundation of all sciences, including the King of sciences, physics, cannot explain many of our experiences in life. Let me quote Albert Einstein himself here: "Insofar as the propositions of mathematics give an account of reality, they are not certain; and insofar as they are certain, they do not describe reality"^[17]. If there is no *design*, how could a high school student, Ramanujam, write down large number of new and original theorems, some of which he could prove but, some others he simply *stated as true*, and were later proved by other mathematicians at the Cambridge University?^[18]

The remarkable picture of that gigantic explosion, the Big Bang that began the Universe: the latter expanding ever since, is understood even by a school boy/girl. What happened before the Big Bang?^[19] Maddox, the then editor of *Nature*, in 1989 did write that Big Bang theory would be forgotten by 2000 AD. Edwin Hubble did put forward arguments against the theory but the big one bangs on!^[20] The *Tired Light* hypothesis shows that the Universe is not expanding. All that we can say about the universe today is that it is very, very old.

The million dollar question as to how the world began remains unanswered!^[21] Big bang and the Black holes make good material for lay books that are sold like hot cakes and make their authors very rich, but most of that stuff is still in the realm of science fiction!^[22, 23].

Science deals with our five senses only. What the senses cannot measure and observe does not make science in the present paradigm. However, the observers' consciousness impinges on the findings. An electron is what it is depending on who looks at it! When no one is looking at the electron, no one knows what the electron does!^[24, 25]. There are a lot of things in this universe that our five senses cannot realize and they exist all the same. Science does accept that what is known today could be proven wrong or replaced by a new theory tomorrow, but to say that what we don't know today (or what does not fit into the present paradigm) is unscientific is illogical. But that is exactly what scientism is trying to do.

To give a few day-to-day examples: we are not able to measure our thoughts, our emotions, and many of our actions based on those emotions and thoughts. Do they, then, fall out side the realm of science? Do thoughts exist? Do emotions have any role in human physiology?^[26] If the answer is yes, then we need a change of paradigm in science, at least in medical science, where the RCTs (randomized controlled studies) have been sold as the last word in medical research. The truth is that there is everything wrong with this approach. No two human beings could be compared based on a few of their phenotypical features. The results are there for all to see. Most, if not all, RCTs have given unreliable results in the long run. But look at the following in the encyclopedia of RCTs published by the establishment!

"A major difficulty in dealing with trial results comes from commercial, political and/or academic pressure. Most trials are expensive to run, and will be the result of significant previous research, which is itself not cheap. There may be a political issue at stake (cf. MMR vaccine) or vested interests (cf. homoeopathy). In such cases there is great pressure to interpret results in a way which suits the viewer, and great care must be taken by researchers to maintain emphasis on clinical facts.

Most studies start with a 'null hypothesis' which is being tested (usually along the lines of 'Our new treatment x cures as many patients as existing treatment y') and an alternative hypothesis ('x cures more patients than y'). The analysis at the end will give a statistical likelihood, based on the facts, of whether the null hypothesis can be safely

rejected (saying that the new treatment does, in fact, result in more cures). **Nevertheless this is only a statistical likelihood, so false negatives and false positives are possible.** These are generally set at an acceptable level (e.g., 1% chance that it was a false result). However, this risk is cumulative. **There is a tendency for these two to be seized on by those who need that proof for their point of view.**"^[27].

Before we do more damage to mankind by blindly following the reductionist paradigm, at least in medical sciences, let us think of a new paradigm.

Let research be directed to find out the myths and dogmas in the present paradigm and to replace them with newer ideas and findings that might make life easier for mankind. Of course, it might destroy our "rice bowl" for the moment, but we might get a bigger bowl in future. Scientific temper should make us identify the false dogmas and enable us to destroy them. Science is change and what does not change is not science. Professor John O'M Bockris so beautifully describes the new paradigm shift that is needed in science in his classic *The New Paradigm*^[8]. What does not change becomes religion. That is why I sometimes feel, that scientism is a kind of religion we are made to follow blindly. Present science is excited about nanobots but does not bother about our giga problems like environmental pollution, abject poverty of the majority, preventable illnesses which kill the poor and unemployment of the majority!

It is preposterous that medical science does not worry about health promotion, while it goes overboard about disease interventions, many of which make the patient worse! Sir William Osler had warned us not to intervene when the patient is doing well, but that is exactly what we do today! Medicine does not believe in the wellness concept. Everyone is ill unless proved otherwise is the present paradigm, thanks to the total body scanners. Routine check up is the biggest medical industry, while we know that predicting the future is impossible in a dynamic human system using a few data of the initial state. Even changing those parameters might not hold good as time evolves^[28]. Changing those parameters might even harm patients in the long run, while it is mandatory to do so, if the patient is symptomatic and is suffering, because doctors are here to "cure rarely, comfort mostly but to console always."

The effort here is not to belittle the great strides science has made in the last two centuries. The stress here is to let the reader know that there is so much noise in this area that almost drowns the signal! Unless we silence those noises and try to pick

the signals, science will not progress and mankind will still be in the dark^[29,30]. Even if one person is stimulated to think on those lines, the purpose of writing this will have been achieved, despite the fact that 99% of the readers would be angry or unhappy about the contents. Conventional journals would hesitate to publish this piece for obvious reasons - their peer reviewers will not permit it and the editors dare not take the responsibility themselves!

"Certainty generally is illusion and repose is not the destiny of mankind."

Oliver Wendell Holmes Jr

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