Science, Religion and Development

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Abstract :

The author is sharing with readers some of his thoughts on the subjects of science, religion and development. In deed these are separate subjects. However, they are not necessarily independent of one another; rather, they are interdependent in our present times..

Introduction

(Science, Art, Philosophy and Religion)

Art enables; Philosophy enlightens, Religion transcends and Science empowers. Science is a search for truth. Art is a quest for beauty. Philosophy aims to know the nature of things and of man; it is a synthesis of science and art. Religion – in its purest forms – concerns itself with the *quintessence* of man, for which we may use the word *"soul"*. Development is moving forward, advancement, progress, growing, evolving, becoming fuller, better, stronger, larger, clearer, and nobler. Even as individuals must strive to develop, so too human society as a whole has to seek to develop. Art, Religion and Philosophy all are much older than Science. Of these, perhaps, the oldest is Art. Even primitive men needed avenues for self-expression. This primal urge found fulfillment in the primitive's rock paintings and crude sculptures. The primitive also invented music. As social life evolved, ethics became necessary and ethical codes were evolved in several isolated social groups. Nature worship followed. Divinity was attributed to the mysterious forces in nature such as fire, lighting, the sun, the wind, the oceans and so on. Primitive 'religions' soon appeared on the scene. As time moved on, refinements were made. The old religions of Judea, China, Iran and India (Vedic religions) gradually established themselves. Philosophy became part and parcel of religion, as illustrated by the Indian Upanishads. Religion

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and philosophy are in a sense pre-science creations of the human genius**.** What was the effect of the impact of science on these? It is interesting to note that art was largely unaffected except for material improvements facilitated by scientific discoveries, such as better artistic tools and media. There was consequently no real conflict between art and science except some sort of polemic rivalry. Philosophy more or less acquiesced and went along with science! Not only there was little conflict, but there were also areas of synthesis between the two! But religion remained isolationist because of its dogmas. The problem boils down to this: In art, there are no dogmas. There may be rival schools of art; but no school had dogmas. The same is true of philosophy. The case of religion is, alas! Different. Take away the dogmas from religions, and, in many cases, this would lead to considerable trimming down! This is because religion is based on unquestioning faith.

Religion Based on Faith, Science Based on Reason

(*The big question is: Can the Twain Ever Meet)*

As per western thought, the so-called 'modern science' is generally supposed to have begun around A.D.1500. Galileo (1564-1642) and Newton (1642-1727) are considered to be the founding fathers. However, it is a fact that ancient science had flourished in Mesopotamia, India, Egypt and China much earlier. We remember here Aryabhata (supposed to have been born A.D 476, presumably in Kerala, who migrated to Patna at the age of nearly 20 years). Aryabhata had found out that the earth rotates towards the east and that the planets, stars and the sun do not revolve around the earth. "*Poorwabhimukham bhramati kshoni; nasti bhrama: Khagarkshanam".* However, Aryabhata's views apparently never reached the western countries, where people clung to the Ptolemian geocentric picture of the universe. It took another 10 centuries before Nicholas Copernicus1473-1543) proved that the earth revolves around the sun and not *vice versa,* as was till then supposed! But remember that Galileo himself had to take back, under duress, his support of the Copernican concept of the heliocentric universe. We see then, that science *per se,* is much older than the so-called "modern science". And yet, we must admit that of the four products of the human genius, science is the youngest and that art is the oldest and that religion and philosophy come in between!

Objectivity – The Paramount Criterion of Science?

Repeatability of an experiment, reproducibility of a result and objectivity of inference and assessment – these are generally considered to be the hall marks of science. Newtonian science was the picture of absolute order. Newton believed in determinism. Pierre Simon de Laplace (1749-1827) was the archetypal determinist. Laplace said that *if the state of the universe at any time is known and if the laws governing the universe were fully understood, then the state of the universe at any other time could be predicted accurately.* Time was considered to be linear; space and time were clearly defined. Mechanistic and mechanical approach dominated the domain of science in the 19th century. Lord Kelvin, the great physicist, said that *if a theory cannot be represented by a mechanical model, then*

that theory is defective.

Albert Einstein changed all this. Space and time were shown to be similar and we were told that it is meaningless to treat them separately! We should think only in terms of '*Space-time Continuum'*. Time is just a fourth dimension, like the three dimensions of space (length, breadth, and height). Notwithstanding all these revolutionary ideas which toppled classical physics, Einstein too was a determinist. He regarded God as a **great watchmaker and time keeper and the universe as a *clockwork mechanism.***

The real shock came with the *Quantum theory***.** Heisenberg showed that *no measurement can be absolutely accurate.* Bohr showed that *the* **Observer always interacted with and intervened in the Observation**. The experimenter is no longer considered as an outsider trying to study something apart from him. He is also part of the universe he is trying to study! As Heisenberg observed, *it is like a 'part' trying to understand the "whole"*. Gone is the certainty of Newtonian and even Einsteinian science. Gone is the pride in absolute objectivity.

Laminations of Scientific Knowledge

The modern scientist now lives in a world of *Quantum uncertainties***!** The cocksureness of the 19th century scientist and his conviction that all knowledge would ultimately be obtained through the methods of science are now gone. And yet, we must remember that science has been one of the most facilitating agencies for development. Science has helped ameliorate the living conditions of man. The blessings of science are innumerable, such as electricity, modern medicine, aeroplanes, cars, rockets, green revolution, computers, Internet, and so on. *How were all this made possible if scientific knowledge, burdened with Heisenberg errors, was destined to be inaccurate?*. There is no enigma here. Heisenberg principle only says that absolute accuracy is impossible. Such absolute accuracy is not needed in any scientific or technological innovations! We can make do with the infinitesimally small uncertainties that characterize measurements in our macroscopic world. (The situation is different in the submicroscopic world of electrons and the like! We need not bother ourselves with that now!).

The point to be noted is that the aura of perfection that used to be ascribed to all scientific knowledge is now removed by a scientific theory (Heisenberg indeterminism) itself! It is interesting to note that Bohr's complementary principle and Heisenberg's uncertainty principle and Observer—observed interaction all had earlier been put in a different form by the great German philosopher Immanuel Kant (1724-1804) in the 18th century. Kant classified knowledge as noumena and phenomena**.** The former represents absolute knowledge and is unattainable. The latter (phenomena) represents scientific knowledge. Noumena describe "things-in-themselves". Phenomena describes "things-as-they-appear-to-us".

A young Indian intellectual giant by name **Sankara** (780-812) had stated much the same thing in the 9th century. He said that there are two kinds of truths – *paramarthika satta* **(**absolute truth) and *vyavaharika satta* (relative truth). The former is *SATTYAM* (truth) and the latter is *MITHYA* (illusion). Sankara declared:

"*Brahma Satyam, jaganmithya*"**.** The parallels in the thoughts of Sankara, Kant and Bohr are mind-boggling indeed! The scientist is now ready to shake hands with the philosopher!

The Role of Religions

In the 19th century, religion and science were really at loggerheads with each other. The theory of evolution propounded by Charles Darwin (1809-1892) was bitterly opposed by religious leaders. The reason for this conflict could be traced to the dogmas in religions. Further, religion is based on faith and science upholds reason above all. The conflict was inevitable at that stage. Many scientist argued that, since religions were evolved or founded in pre-science eras, when human knowledge was limited, religions themselves were limited.

Now we seem to know better. Science has shed its attitude of know-all. There are realms beyond science, and it is precisely here that religions are relevant. The sober view now is that science and religion, or reason and faith, for that matter – need not be mutually exclusive or contradictory, and that they can be complementary. However, a big problem remains. How can we overcome the dogged and exclusive self-righteousness of religious fundamentalism? How can we eliminate bigotry and fanaticism?

Religions have, of course, played a major role in human lives. They provide a great civilizing influence. They preach love, compassion, truthfulness and so on. They also provided codes of ethics for individual conduct and social modes of behaviour. As the great Einstein put it. "*Science without religion is lame, and religion without science is blind!"*.

Paradigms of Political and Economic Development

From early times, man tried various politico-economic systems, from monarchy, oligarchy, feudalism, capitalism, communism, socialism and democracy. No system has been found to be perfect! Welfare states remain utopias in the dreamlands!

It is easy to list the priorities: Elimination of hunger, wants and poverty; equal rights for women; protection of children from exploitation; a more equal distribution of wealth among nations and peoples; elimination of disease; affordable but efficient health care for all; education for all; equal opportunity for all etc. How to achieve all this?

Another concept that surfaces from time to time is the **Concept of One World.** Can we abolish national boundaries and form a World Government? Can we relegate passports and visas into the dustbin of history and enable any man to go anywhere, work anywhere and settle down anywhere or not settle down in any one spot? Can we evolve a world with unlimited and unhindered mobility of man of his planet? Can we evolve a uniform code of conduct, a uniform ethical code? Will man ever have a Common law-and-justice system, applicable universally? All thinking persons, whether they be a scientists, religious leaders, scholars, artists, poets, statesmen, planners, or plain simple citizens, must seriously address themselves to such issues.

Conclusion

We are now at the threshold of great changes – ***Social quantum jumps,*** in fact. Science has facilitated man-to-man contact on an unprecedented scale. The jet plane has brought nations and peoples together. Telecommunication has shrunk the world to a global village. Mutual understanding must perforce result, at least in the long run. **Internet** and computers have virtually eliminated distances in time and space. A huge amount of knowledge is now available at our fingertips. Genetic engineering is opening out new vistas of supreme wonder and at the same time, serious risks too. Knowledge is exploding at an exponential, bewildering rate. **Can Wisdom keep pace with Knowledge?** It is in this background that we should think about a holistic developmental strategy, synthesizing the best elements of art, science, philosophy and religions.

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"Prayer is the most powerful form of energy that the mind can ever produce. In prayer, we augment our finite minds with the infinite source of all energy. It cannot happen that anyone can pray, even for a single moment without producing some good result.

by Alexis carrel, a Nobel Prize winner for medicine".

"Feel, my children, feel for the poor, the ignorant, the downtrodden.

Swami Vivekananda

Concern for man and his fate must always form the chief interest of all technical endeavours……

Never forget this in the midst of your diagrams and equations'

by Albert Einstein (1879-1955)