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Science for Humanity: an Islamic Perspective

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Abstract

Scientific work is a human activity for understanding how the natural world works and is structured. Science, by itself, cannot provide an answer to the question of why human beings seek scientific knowledge. The response comes from a more comprehensive framework that defines, among other things, one's goal for scientific activity. Traditionally there have been two major responses to this question: 'science for the sake of science' and 'science for the sake of understanding God's handiwork and for taking care of humanity's lawful physical and spiritual needs'.

A third view became dominant during the twentieth century: it advocated science for its practical and material benefits. According to the first and third views there should be no limit on the kind of scientific research being done, but according to the second view scientific activity cannot have a free run.

Due to the miseries brought about by the abuse of science and its application, especially during the twentieth century, many eminent scholars throughout the world have been crying out for a new attitude toward the goal of scientific enterprise - an attitude that seeks scientific knowledge for enriching the spiritual dimension of human beings and for securing human welfare, i.e. seeking knowledge for the sake of humanity, rather than ignoring humanity. Unless this is done there will be no hope for the future of human race on the globe. It is the duty of all scientific academies and institutions to have a crusade

for realizing this change of attitude toward the goal of science.

Keywords: Science for humanity; goal of science; human welfare; values; ethical conduct; worldview.

Introduction

Science is a systematic human enterprise for understanding how the natural world works and is structured. Scientific activity is undertaken by human agents. Science thus makes no sense in human vacuum. Then the question arises as to why human beings seek scientific knowledge. Science by itself cannot provide an answer. To have a response, one needs a more comprehensive framework – a worldview – that shapes one's entire spectrum of activities, including the scientific. It is a scientist's worldview that defines the goal of his or her scientific activity.

One old popular view concerning the goal of scientific activity has been 'science for the sake of science'. It is often said that scientific activity is attractive because it is the source of intellectual enjoyment, or because it satisfies our sense of curiosity about nature and its mysteries and beauties. In this view, the most rewarding aspect of the pursuit of science lies in the aesthetics of its accomplishments, rather than in its practical results. In the words of Henry Poincaré:

Scientists do not study nature because it is useful; they study it because they delight in it, and they delight in it because it is beautiful. If nature were not beautiful, it would not be worth knowing; and if nature were not worth knowing, life would not be worth living.[1]

Here, one could ask why not science for the sake of power or wealth, as they are attractive as well. In fact, the followers of 'science for the sake of science' have often ignored the byproducts of science and its technological offspring, and the result of their work has often been abused by the powerful.

Some scientists make a distinction between pure and applied science. In their view, the applications of science can conceivably be harmful, but there is no harm in pure science. While this may have been true in older times, when scientific work had no direct contact with daily life and practical results of a scientific work took an appreciable amount of time to show up in practice, today the practical applications of a theoretical idea often emerge swiftly—today's science is the seed of tomorrow's technology.

Another traditional view about the goal of scientific enterprise is the outlook of the monotheistic religions towards nature. Here, scientific activity is for the sake of understanding God's handiwork in nature and to take care of essential needs of human individuals and human societies. Human beings are God's trustees on the earth, and they are supposed to keep the balance set by God in the cosmos and to avoid making corruption on earth.

During the twentieth century a third attitude toward science became prevalent: seeking science for its practical or material benefits. This view has become dominant among many of the contemporary governments of the world, and since a large proportion of scientific activities is currently financed by

governments and corporate industries, its effect is very visible.

The second view contains most of the important elements of the first view but goes beyond it. It does not allow scientific activity to have a completely free run. According to the first and third views there should be no limit on the kind of scientific research being done. The important point, however, is that although science can provide possibilities, it cannot by itself make choices nor can it provide limits. Those come from a meta- scientific arena.

The question of whether science by itself can guide us to good individual or societal life was brought up at an interesting debate between Bertrand Russell and Mortimer J. Adler[2], both noted philosophers. Russell believed that scientific knowledge is the only kind of valid knowledge, but he doubted that there could be universal and objective criteria for choosing between right and wrong or good and bad. He left the decision on this matter to feelings and gave moral values a utilitarian role. In 1941, people in Chicago asked Adler to have a debate with Bertrand Russell. Adler accepted to participate in the debate if Bertrand Russell were ready to take an affirmative position on some issue. Russell came up with the proposition that science is enough for the good life and the good society.

Around that time Russell had sent a letter to the New York Times in which he had reiterated his approval of the war with the Nazis. At the outset of the aforementioned debate, Bertrand Russell made the following three assertions:

(i) Science is the only objectively valid knowledge available to us.

(ii) Our knowledge of the world and of man is by itself incapable of answering any questions of value, as these are not matters of fact.

(iii) Our decisions or questions of value, as opposed to questions of fact, are determined by our feelings.

Adler mentioned that the Nazis and the Allies had opposite feelings about which party in that war had right on its side. On what grounds did Lord Russell think that his feelings were right, and Hitler's were wrong? If he could not provide objective grounds for asserting that rightness was attached to one set of feelings and wrongness to the opposite, then either force would be the arbiter or there should be objective criteria, which Russell was dismissing, in the determination of right and wrong. If force is not allowed to decide who is right or wrong, there has to be valid knowledge other than empirical science.

This anecdote indicates that the popular view that all of reality is accessible through science is simply an assumption which needs to be justified. Furthermore, there are some questions concerning scientific activity that science cannot answer. For example, we have to explain why science is successful. Why is mathematics, which appears to be a product of the human mind, so successful in describing the physical universe? Science cannot answer these questions, as well as some of humanity's "ultimate questions" such as What are we doing here?, What is the purpose of life?, What is the basis for ethical values?, What is beauty?, etc. To answer these meta-scientific questions, we need a larger framework that can

deal with the whole spectrum of human experience. Thus, science has to be embedded into a worldview—an underlying metaphysics.

The difference of opinion about the goals of scientific activity is rooted in the difference in the worldviews of the scientists involved. Alfred North Whitehead has put the matter elegantly:

The mentality of an epoch springs from the view of the world which is, in fact, dominant in the educated sections of the communities in question. There may be more than one such scheme, corresponding to cultural divisions. The various human interests which suggest cosmologies, and are influenced by them, are science, aesthetics, ethics, religion. In every age each of these topics suggests a view of the world[3].

Science, Humanity, and the Contemporary World

There is no doubt that modern science has brought enormous benefits to human beings. It has given us insights about the structure of the universe and it has affected almost all areas of our lives. But, unfortunately, such science has also been used to the detriment of humanity and its environment. It has, for example, been used for the development of weapons of mass destruction and the pollution of our environment, and many scientists and engineers have been heavily involved in these destructive works.

The most important consequences of the improper use of science and technology have been:

- extravagant exploitation of natural resources
- widening the gap between the rich and the poor
- pollution of the environment
- undermining the spiritual dimension of humankind
- development of weapons of mass destruction
- extinction of many species.

In my humble view, all the unpleasant consequences of current science are rooted in the dominance of a worldview among contemporary scientists that has the following characteristics:

(i) neglect of humanity due to excessive specialization

(ii) neglect of moral issues in the scientific enterprise

(iii) thirst for power and wealth

(iv) neglect of higher orders of reality

(v) neglect of humanity's ultimate concerns.

In short, empiricist epistemology, naturalist ontology, and relativist ethics have yielded knowledge without wisdom, power without virtue, and comfort without peace of mind—all detrimental to humanity's felicity and welfare.

There are several major causes for the neglect of concern for humanity's long-range interests in the contemporary scientific enterprise.

1. Neglect of Humanity Due to Excessive Specialization

Before the development of modern science, all fields of knowledge were considered branches of the same tree, and scientists tried to have a unitary view of nature. Today, due to excessive specialization, there is fragmentation of knowledge both across disciplines and within disciplines. This has resulted in a lack of integral vision in individual scientists, leading to a society of individuals pursuing their personal interests. This, in turn, has led to three important consequences:

(i) It has deprived scientists a holistic view of nature.

(ii) It has deprived scientists the opportunities to pay attention to those elements which relate their discipline to a larger whole.

(iii) It has resulted in physical and natural sciences that are more or less divorced from what is going on in the humanities and what is actually needed by human societies.

2. Neglect of Moral Issues in the Scientific Enterprise

It is a commonly held view in the scientific circles that science and ethics are two independent spheres of human concern. Thus, 'normative statements' cannot be derived from 'factual statements'. This had led to the idea of the value-neutrality of science, which has been effective in marginalizing ethical considerations and has led to the spread of moral relativism in modern societies and has weakened ethical concerns in the scientific enterprise.

The idea of value-free science is a myth:

● Ethical codes like honesty, impartiality, and integrity function as a quality control mechanism in the scientific enterprise.

● Value-judgments can affect a scientist's line of research or his/her choice of theories. For example, Einstein and Heisenberg had a special emphasis on the simplicity of physical theories. On the other hand, Dirac emphasized on the beauty of physical theories. Pragmatic considerations are some other people's criterion for the choice of theories.

● Value-judgments affect decision making in the applications of science and technology. The outcome of certain applications of science and its technological offspring could affect a scientist's decision about

his/her line of research.

3. Thirst of Power and Wealth

Whereas traditional science was seeking to read the book of nature as God's handiwork, the dominant tendency in the modern era has been to advance knowledge for the enhancement of political and economic power and to look upon nature as a commodity to be exploited. Schumacher has put the matter elegantly:

The old science – 'Wisdom', or 'science for understanding'—was primarily directed 'towards the sovereign good', i.e. the True, the Good and the Beautiful, the knowledge of which would bring both happiness and salvation. The new science was directed mainly towards material power, a tendency that has meanwhile developed to such lengths that the enhancement of political and economic power is now generally taken as the first purpose of, and main justification for, expenditure on scientific work. The old science looked upon nature as God's handiwork and man's mother; the new science tends to look upon it as an adversary to be conquered or a quarry to be exploited[4].

The misuse of science and its technological offspring during the twentieth century led to both human and environmental catastrophes. This created serious discontent among some of the noted scientists of our era. In his letter to Einstein in 1954, Max Born complained about the evils of modern science:

I read in the paper recently that you are supposed to have said: 'If I were born a second time, I would become not a physicist, but an artisan'. These words were a great comfort to me, for similar thoughts are growing around in my mind, in view of the evil which our once so beautiful science has brought upon the world[5].

This was said at a time when the scale of the misuse of science was negligible relative to what we are witnessing today.

In our era there are two main considerations for the promotion of science and technology: 'seeking science for the sake of science' and 'seeking science for material goals and power'. The present industrial West has fallen into the trap of "technopoly" – to use Neil Postman's term – and it has become a paradigm in which whatever can be done must be done. Furthermore, with the emergence of big science, the goals of scientific and technological research are increasingly set by industry or governments whose objective is not truth but knowledge and power. It is forgotten that science and technology are supposed to secure humanity's welfare and so their goal must be the good of humanity. This may require some constraints on certain areas of knowledge.

4. Neglect of Higher Orders of Reality

Modern science confines itself to the material real and confers reality only to those things that can be rooted in sense data. Empirical verification is the court of ultimate appeal. In the words of Bertrand

Russell:

Whatever knowledge is attainable, must be attained by scientific methods; and what science cannot discover, mankind cannot know[6].

Therefore, spiritual realities are considered either as unreal or reducible to physics. This has led to the neglect of God and the spiritual dimension of humankind and the separate development of science and culture, and it has led to the confinement of human beings to the material realm, with no higher aspiration than fulfilling their material needs. But, this would put human societies into unhealthy competition for material causes, with no end in sight. The unrest and nihilism we witness in our time is the result of neglecting God and the spiritual dimension of human beings.

5. Neglect of Humanity's Ultimate Concerns

A dominant outlook among contemporary scientists is that science can adequately account for everything. But, due to the limitations of its scope, science cannot present a comprehensive picture of the world. As we mentioned earlier, it cannot handle moral queries, and it leaves many of the so-called 'ultimate questions' of humanity unanswered. Reflection about these questions can have lasting effects on human behavior and on decision making—including decisions concerning the scientific enterprise. As Richard Feynman put it:

But if a thing is not scientific, if it cannot be subjected to the test of observation, this does not mean that it is dead, or wrong, or stupid. We are not trying to argue that science is somehow good and other things are somehow not good. Scientists take all those things that can be analyzed by observation, and thus the things called science are found out. But there are some things left out, for which the method does not work. This does not mean that those things are unimportant. They are, in fact, in many ways the most important[7].

Islam, Science, and Humanity

The Noble Quran refers to natural phenomena as the signs of God and recommends the study of various phenomena of nature as a path towards knowing and serving God. To quote the Quran:

"Say, behold what is it that is in the heavens and the earth..." (***10:101***)

and

"Say, travel in the earth and see how He originated the creation." (***29:20***)

In the Quranic view, the study of nature is not for its own sake; rather, it is supposed to serve as a means of bringing one closer to God. The Muslim scientists of the past believed that God's wisdom is reflected in His creation. Similarly, the founders of modern science did not pursue the study of natural

phenomena to understand nature per se or for the sake of their own gratification, but as a means of proximity to God.

In the Islamic outlook, science is framed within a theistic worldview that considers God the Creator and Sustainer of the universe. This view does not confine existence to the material realm, it has a telos for the created world, and admits a moral order. The received view of science, however, is indifferent with respect to all these points.

The Islamic view and the received view of science share the same methodology, i.e. they both involve experimentation, observation, and theoretical work. Their difference is in the underlying worldview which affects their outlook towards God, the cosmos, and humanity, and affects their decisions concerning the practical consequences of their scientific work. Contrary to what some scholars think, I do not think that the commitment of Muslim scientists to the Islamic worldview would dissuade them from being equal partners in the world scientific community. The history of the glorious Islamic civilization is a good witness to this claim.

The Islamic conception of knowledge does not confine knowledge of reality to that obtained through experimentation and theoretical reasoning alone, and does not consider the scientific study of the world exhaustive. Rather, by accommodating revelation and intuition, it encompasses spiritual as well as physical aspects of humanity and the cosmos, and it claims that there is more to reality than meets human eyes.

The contemporary view of science promotes the value-neutrality of science, but the Islamic view of science integrates knowledge with values. This is done in such a way that leads to accountability and responsibility of a scientist at all stages of his or her life, and it takes place at the metaphysical level of science. In the secularist vision, ethics plays at most a utilitarian role. In the Islamic worldview, however, the concept of moral values is linked to the concept of the world's telos. Thus, in a world free of a telos, moral law has no intrinsic value. It has only a regulatory role in society. The neglect of moral values in the contemporary scientific arena is partly due to the neglect of teleology in the modern secular science.

In the contemporary world, science is sought for the control and manipulation of the natural world and human societies. In a theistic context, however, science is sought for understanding the natural world and for solving individual and societal problems—goals which lead to God's pleasure. Here, nature is viewed as a trust from God which should be handled properly. Thus, all plans for scientific progress and technological innovations should be harmonious with the cosmic order.

Because of the limitations of its scope, science can only respond to certain questions of human concern. It cannot present a comprehensive picture of the world. It simply leaves unanswered many questions that arise in science itself. Furthermore, it is silent about the meaning and purpose of human life and about morality. But, science framed in a more comprehensive framework, does not confine reality to the empirical realm and works within a more inclusive metaphysical framework in which higher levels of

reality are recognized. Such a framework can shine light on our meta-scientific questions. In the words of George Ellis:

We should use broad criteria that take into account the whole range of human experience, and not just that part which can be scientifically described[8].

Conclusion

We mentioned that scientific knowledge and its technological offspring have brought humanity both blessings and curses, and that the weight of the curses threatens the future of the globe. We also reiterated our view that all of this is due to the divorce of knowledge from wisdom, and that this, in turn, is rooted in the dominance of a secularistic worldview in academic circles.

The scientists following this worldview are content with the results of their work, forgetting that science should serve humanity, rather than damaging human beings. In a theistic context, however, science is accompanied by wisdom. It is used for solving individual and societal problems—goals which lead to God's pleasure and humanity's welfare. Here, nature is viewed as a trust from God which should be handled properly. Thus, the training of committed believers and the formation of healthy societies is one of its primary objectives. This means that knowledge in general, and the sciences of nature and their practical byproducts (technology) in particular, should be developed in such a way that

(i) they satisfy the spiritual needs of individuals and societies;

(ii) they provide the basic physical needs of individuals and societies;

(iii) they safeguard the society against evil forces;

(iv) they give priority to the broad interests of humanity over the narrow interests of scientific fields;

(v) they not admit potentially dangerous undertaking without enough precautions and assurances.

To change the prevalent situation there is an urgent need for a change in the general outlook to science and technology and their role in human societies. If the orientation of science is changed from a mere tool for the exploitation of nature and increase of power to an understanding of nature and the provision of proper human needs, then science and technology can be helpful in establishing virtuous and prosperous societies. Under this more inclusive worldview, scientists would combine science with wisdom and creativeness with compassion to produce fruitful and lasting results. As Victor Weisskopf put it:

Science cannot develop unless it is pursued for the sake of pure knowledge and insight. It will not survive unless it is used intensely and wisely for the betterment of humanity and not as an instrument of domination. Human existence depends upon compassion and curiosity. Curiosity without compassion is

inhuman; compassion without curiosity is ineffectual[9].

Under the dominance of this worldview, scientists would adopt a self- imposed code of ethical conduct, would not venture into the unknown simply in the name of scientific advancement, would feel responsibility for their work, and would work to lessen the miseries of life. Similarly, academic circles would adopt measures to implement ethical codes of conduct.

In short, science for humanity has human felicity and welfare as its boundary condition, to use mathematical terminology. But, science without concern for humanity has no such boundary condition. Its goal is simply scientific advancement or material power or wealth. The evils brought about by the abuse of science during the last century show that humanity cannot afford the luxury of unrestrained research in science and technology.

The long-term interests of humanity necessitate a radical change in the received worldview of scientists toward a broader worldview that seeks science to serve humanity and not the other way around. It is the duty of all scientific academies and institutions to advocate this attitude regarding the goal of science.

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