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**The relation between  
philosophy, science, and technology**

**By: Professor Alsayed Naffadi**

**Professor of Philosophy of Science, Alexandria University**

**Abstract**

In this work, the author discusses the problem of the contemporary scientific and technological advancement, presenting the fears from the risks involved in this advancement on nature and humanity as a result of its continued separation from philosophy. He describes in detail in three consequent sections the relations between science and philosophy, science and technology, and between philosophy and technology. He reviews the historical side of this tri-relation and discusses contemporary philosophical conceptions that analyzed it. The author ends up by asserting the importance of reestablishing the relation between science and technology, from on side, and philosophy from the other, in order to avoid the possible harm of nature and humanity resulting from contemporary evolution of both of them.

## **The relation between philosophy, science, and technology**

**Reviewed by: Samir Abuzaid**

**Professor Naffady introduces the heart of the problem in the introductory section as follows:**

**The relation between philosophy and science is intimate, the relation between science and philosophy is also intimate, however, the relation between philosophy and technology is not so. This situation represents the lost connection between the unlimited scientific/technological advancement and human beings and its fate on this planet. Wisdom is absent from the application of the different sciences as well as from the logic of exploitation and hegemony over nature in the name of what is called today advancement and market mechanisms. Despite that science has achieved huge advancement in the beginnings of the twentieth century as well as bewildering applications in the last few decades, (such as subatomic and genome discoveries, which created what is known today by the name of the informational revolution and genetic engineering...etc), we are living in risk and anxiety.**

**Today, we live in the age of horror of weapons of mass destruction, continued anxiety from the unethical medical applications as well as genetic engineering, environment pollution, and the expected exhausting of natural resources in a few decades. In addition, we spoil the environment balance as a result of the culture of unlimited production, and consequently, unlimited consumption without considering the real needs of man to continue his live in ease and happiness.**

**Moreover, despite abundant productivity and unreasonable consumption, we still suffer from high unemployment rates and high rates of different types of crimes and we still see peoples suffer from hunger and famine, as well as bloody armed conflicts due to tribal and religious bigotry, in which advanced lethal weapons are used.**

All of this happens despite the great advancement in science and its technological application, and despite the vast accumulation of wealth in the hands of small percentage of humanity, which owns what is enough to eliminate hunger and illness from every person on the planet.

Hence, we are still in need of the wisdom of philosophy, and it is not enough to resort to a handful of philosophers to put some ethical measures of the different applications of science, such as ethics of medicine and genetic engineering, ethics of environment, and ethics of profession, etc. We are in need to restore for philosophy its lost throne and its previous effective role to participate with politicians, scientists and technocrats in drawing the map of the future, for the sake of man as such, his happiness and his good live. (Pp. 109-110)

Professor Naffady afterwards divides the paper into three basic sections. In the first, he deals with the relation between philosophy and science, in the second the relation between science and technology, and in the third the relation between philosophy and technology.

In the first section, the author starts by following the historical relation between philosophy and science, which extends back to the age of the Greeks where, as he says, "there is no Greek philosopher unless he has a theory in nature". He then sees that such a relation has been continuous till today, albeit it has taken different forms. According to De Broglie (1983: 7), at the beginnings of the twentieth century a barrier has started to erect between scientists and philosophers. Afterwards the gap has increased between them from the second quarter to the first half of the twentieth century due to the effect of Ludwig Wittgenstein (1968: 163), as well as the appearance of the 'logical positivists' who restricted the role of philosophy to the logical analysis of the scientific propositions. When Karl Popper (1963: 207) wanted to restore to philosophy its status he didn't make more than letting it play a vital role in formulating scientific assumptions introduced by scientists. In the second half of the twentieth century, an indirect relation between science and philosophy has been established in the form of a relation between philosophy of science and society.

Such a relation has been established through conceptions such as 'scientific revolutions' (Thomas Khun, 1989: 163), 'research programs' (Imre Lakatos, 1996: 96) and 'the free society' (Paul Feyerabend, 1993: 9). (Pp. 110-114)

In the second section of the paper the author discusses the relation between science and technology. The problem here, according to the author, is the differentiation between them, for, in his view, many conflate the two fields.

He starts by presenting several definitions of science. Ernan McMullin (1989: 15) advanced two meanings of science, "Science1" and "Science2". "Science1" is the final product of scientific research, which is presented in accurate phrases, definitions and theories. "Science2" includes justifications of the ways of discoveries, foundational concepts, the many different ways through which concepts gradually change to conform with new scientific problems, as well as the many non-scientific factors (such as religion, ideology and art) which affect the scientist. Hence, 'Science2" is the science that can be considered as the representative of the scientists' activities in following his aims through scientific observations and understanding the problem. "Science2", then, includes "Science1" and incorporates it, and it is much more wide and mysterious.

The author, afterwards, presents Paul Durbin's (1988: 269) definition of science as: "1- Scientific Products. 2- Processes of such products. 3- Organizations through which scientists and engineers perform their work". The author sees that Durbin conflates in his definition as well as his taxonomy abstract science with applied science, and that this returns to the deep interference in our time between science and technology. He also sees that Durbin has ignored some important social sciences, such as history.

Clear demarcation of science and technology, according to the author, is found in the "science of Publication", where scientists' work is evaluated through publishing. Brice (1987: 109) famously epitomizes this as: "the scientist wants to write not to read, the technocrat wants to read not to write", and he defines technology as " The sort of research in which the primary production not a paper, but a machine, medicine, product, or some sort of a process".

On the historical level, the author sees that the relation between science and technology goes back to the ancient Egyptian civilization. With respect to the Greek age he sees that the relation between them was almost absent because of the Greek tradition which viewed hand work only as a slave's profession. Such a relation has grown during both the Roman and Arab/Islamic ages. But the relation between science and technology hasn't been more clear and intimate than in the seventeenth century, the age of modern science, whereas, products of science has not been widely applied except in the nineteenth century, the age of the industrial evolution. Finally, deep intimacy to the degree of agreement between science and technology was realized in the second half of the twentieth century till our days. (Pp. 114-120).

The author introduces in the third section the relation between philosophy and technology. The problematic, here, is that the relation between the aims of each of them 'seems not to meet at all'.

"We get 'wisdom' from philosophy, and we get 'power' from technology, wisdom is wise, comes through contemplation and scrutiny of the matter, and sometimes through asceticism. Whereas 'power' is apathetic comes through utilizing whatever means that support hegemony and coercion. The author, notices that many philosophers, in the twentieth century have attacked technology, and that most of their attack has been concentrated on that "it is responsible for pollution, transforming society into an industrial counterfeit society, alienation of works, and deconstructing modern culture".

He expresses such a situation as follows: "most of the existentialists has attacked it strongly. Karl Jaspers has condemned technology widely taking it responsible for transforming the human being into a mere function in the society that degrades the human being. Whereas Nikolai Berdyaev condemned technology, "which is meant to be a way for freedom, but it turned out to be a subject that is alien from human existence". For Heidegger, "technology creates things and products that don't have a value in itself without being used by human beings".

The author adds that most of the philosophers of the Frankfurt school has attacked it. Adorno attacked technology using the term 'the artificial culture', for contemporary cultural production is a result of the industrial and technical society in which culture becomes mechanical and represents the alien industrial reality. Herbert Marcuse in his "The one dimensional man" has introduced an overall condemnation of the social system prevailing in the industrial countries, whether the social or the capitalist system. In both systems the social organization based on modern technology becomes so strong that it reaches a deep and overall control, not only on the means of production, but also on peoples feelings and values as well as their sexual desires, in favor of a handful of owners and capitalists who control, in general, the system. In addition, Erich Fromm condemns technology based on two major issues, alienation of work and its products, and alienation resulting from wide consumption.

At the end of this section ,the author points out to the advanced technology that has appeared in the latest few decades, such as the informational revolution and genetic engineering, which have a direct philosophical effect on human beings. He sees that it has a greater and more dangerous effect on man than all the previous scientific/technological revolutions. And that the most dangerous field is that of 'genetic engineering'. For, genetic engineering is based on the possibility of programming the human race in accordance to a pre-designed combination of genes. Such a possibility has produced a wave of pessimism concerning the possibility of misuses of such a technology and its possible outcomes, such as creating devastating living creatures, or disturbing the balance of nature, which jeopardizes natural evolution, and the evolution of us humans. However, the author doesn't deny the benefits of the genetic revolution, exemplified in introducing new remedies as well as increasing farm productivity, etc. But he sees that despite of all these benefits, these discoveries has put humanity in the face of new legal and religious problematic enforcing ethical and philosophical challenges with respect to its conception of family, motherhood, kinship, and the responsibility of humans about the cherished human live. (Pp. 120-15)

At the end of the paper, the author discusses the view that science and technology are a "good in itself" whereas philosophy is accused by being vague and void of direct benefit. In his view, the problem lies in that the return of philosophy is not quick as in the case of science and technology; that science depends on accumulation of knowledge whereas philosophy depends on criticism; and finally, that science has the privilege of the intact methodology, whereas philosophy is based upon logical inference which doesn't produce a general agreement among philosophers.

However, he stresses that after science has entered very dangerous areas that affect the fate of the universe in which man lives, and after technology has been a part of deep and tiny details of our live, it became urgent for philosophy to restore its throne in order to help man to find answers to his major inquiries in an age in which inquiries has increased and proliferated. (Pp. 125-127)