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## Editor's Note

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Before the advent of modern science philosophy contained all sciences. The part related to natural and mathematical sciences was called natural philosophy. Another part was metaphysics which dealt with the most fundamental concepts of existence, like matter, space, time, causality, etc.

A century after the advent of modern science, metaphysics lost its status in science and was replaced by an empiricistic philosophy. There were several causes for this:

- The relation of metaphysics with religion.
- The growth of the attachment of scientists to specialties .
- The lack of involvement of later philosophers with scientific problems.
- The great success of science in explaining natural phenomena.
- The popularity of the standard empiricism-the view that science is based exclusively on evidence
- The advent of the standard quantum mechanics

Thus, most of the scientists left philosophical discussions, and limited themselves to comparing their empirical results with the standard quantum theory.

But, during the last three decades of the twentieth century the situation changed in favor of philosophy, as it turned out that:

- Some eminent scientists confessed that they had used some philosophical considerations in their decisions .
- It turned out that empirical data don't determine theories. Thus, at any time, several theories can explain certain empirical data.
- All physicists use some metaphysical principles ,consciously or unconsciously , in their theory making. In the words of **George Ellis** (a prominent contemporary cosmologist): *"What I want to bring into the open is the fact that we are using philosophical criteria in choosing our models. A lot of cosmology tries to hide that."* (1)

Furthermore, weak philosophy could lead to poor physics. In the Words of **Werner Heisenberg** (an eminent physicist of the twentieth century) :*"I believe that certain erroneous developments in particle theory – and I am afraid that such developments do exist – are caused by a misconception by some physicists that it is possible to avoid philosophical arguments altogether. Starting with poor philosophy, they pose the wrong questions. It is only a slight exaggeration to say that good physics has at times been spoiled by poor philosophy."* (2)

Due to the aforementioned reasons, there has been a revival of philosophy (including metaphysics) in some of the most important Western universities.

Furthermore , some scientific Journals have started to have philosophical discussions in physics, cosmology, biology, etc. In addition , some conferences have been held between physicists and biologists with philosophers in U.S.A. and U.K. , and some common degrees are being offered on physics and philosophy.

**Nicholas Maxwell** (an eminent contemporary philosopher of science) believes that there were two causes for the decline of natural philosophy (which combined science with philosophy): The acceptance of empiricism and the inability of philosophers in solving philosophical problems of science. **Maxwell** believes that a revolution should take place for returning to natural philosophy: *"Many see modern science as having serious defects, intellectual, social, moral. Few see this as having anything to do with the philosophy of science. I have argued that many diverse ills of modern science are a consequence of the fact that the scientific community has long accepted, and sought to implement, a bad philosophy of science, namely standard empiricism. The scientific community urgently needs to bring about a revolution in both the conception of science, and science itself. Standard empiricism needs to be rejected, and the more rigorous philosophy of science of aim-oriented empiricism needs to be adopted and explicitly implemented in scientific practice instead. The outcome would be the emergence of a new kind of science, of greater value in both intellectual and humanitarian terms."*(3)

**Maxwell** argues that neither analytic philosophy nor continental philosophy are relevant to science , and that they should be replaced by natural philosophy:

*"Neither analytic philosophy, nor Continental philosophy, have much to say that is relevant to, or of interest to, science. And even most philosophy of science, from its emergence in the 20<sup>th</sup> century, fails to be of interest to scientists..."*

*The splitting of natural philosophy into science and philosophy arose out of intellectual blunders and failings. Once these are put right, it becomes obvious that natural philosophy needs to be resurrected."* (4)

Although the current interaction between physicists and philosophers in the West has been very fruitful , this interaction has not been reflected in the Islamic

physics and philosophy departments, and this could cause a lag in our scientific development.

The purpose of dedicating a particular issue of this Journal to the interaction of philosophy and science is to reflect this positive development to our scientific and philosophical societies, in order to encourage them to join this important development. This revival is an important step in our participation in the upgrading of the contemporary science.

#### References:

- (1) W. Wayt Gibbs, "Profile: George F. R. Ellis", in *Scientific American*, 273, No.4, (1995), 55.
- (2) Heisenberg, Werner, *Physics Today*, March 1976, Vol. 29(3), 32.
- (3) Maxwell, Nicholas, "Do we need a scientific revolution?", *Journal of Biological Physics and Chemistry*, 8 (2008), p.105.
- (4) Maxwell, Nicholas, "In Praise of Natural Philosophy: A Revolution for Thought and Life", *Philosophia*, 40(4), December 2012, pp. 4 and 10.