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## Towards An Open-Minded Science<sup>1</sup>

*If scientists abandon metaphysical and spiritual reflection, they will cut themselves off from society*

We are a group of scientists from the most diverse scientific and cultural backgrounds. We share the belief that religious or metaphysical ways of thinking should not, a priori, interfere in the ordinary practice of science. However, we also consider that it is legitimate, indeed necessary, to reflect, a posteriori, on the philosophical, ethical and metaphysical implications of scientific discoveries and theories. Indeed, to fall short of doing so would be to isolate many scientists and science itself from a large proportion of society.

It is a debate which includes the most diverse opinions. Whereas Richard Dawkins has famously asserted that it has been possible to live as a perfectly fulfilled atheist since the publication of Darwin's Origin of Species, Arthur Eddington, on the other hand, has written that since 1926, the year of the synthesis in quantum mechanics, intelligent people can once again believe in the existence of God. But there is no shortage of biologists who affirm the compatibility of Darwinism with a belief in a creator, and physicists for whom quantum physics in no way diminishes the credibility of materialism.

Today the legitimacy of this debate in France as in the USA and other countries faces two types of confusion. These are linked to the intense media attention that has surrounded the so-called Intelligent Design movement. This movement transgresses the limits of science as it counts numerous creationists who deny some of the basic tenets of modern science. In addition the movement has an unhealthy political agenda of modifying science education in American schools.

The first confusion is between creationists and those who completely accept the theory of evolution while submitting different hypotheses regarding its mechanisms, including the possibility of internal factors. The term creationist should only be used to describe those people who deny a common ancestor to all the main forms of life on earth or who deny that evolution led the original forms of life to present day beings. If we don't apply this rigour regarding the use of these terms, all Jewish, Muslim, Christian or Deist scientists could be described as Creationist because they believe in a creating principle. And the majority of the founders of modern science, including Newton, Galileo, Descartes also, for the same reason. We can see how this leads to a tremendous degree of confusion.

The second confusion is even easier to make as it concerns the use of the same term: 'design'. For example, one needs to distinguish between those who say that progress in astrophysics does not exclude the philosophical idea that the universe is designed and the Intelligent Design movement. Hence, in 1999, the American Association for the Advancement of Science (AAAS) one of the world's largest scientific organisations, which edits the journal Science organised a three-day conference on Cosmic Questions which included a entire day dedicated to debating Is the Universe designed ? Of course, none of the proponents of the Intelligent Design movement were part of this meeting. It was a meeting between professional astronomers. This area stems from research carried out in the 1980s that found that the universe appeared to be fine-tuned for the appearance of life. Moreover, the slightest modification in the constants of the universe would render it incapable of developing any form of complexity. This area of research, which concerns the Anthropic Principle, has given rise to numerous publications in peer review journals. For some scientists the fine-tuning of the

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<sup>1</sup> English translation of an article in French that appeared in Le Monde , on February 23, 2006.

universe lends renewed possibility to the hypothesis of the existence of a creator (without in any way providing proof thereof). Others have vehemently rejected such hypotheses. It is a good example of debates about the philosophical and metaphysical significance of major scientific discoveries. These sorts of debates take place within the context of the main stream academic community and those involved should not be mistaken with those who deny the fundamental basis of science as creationists do. It is essential, on this point, to make clear that the acceptance of methodological materialism which is at the basis of method used in most scientific disciplines (in the eyes of many of its specialists quantum Physics is an exception to the rule) should not be presented as leading to, or validating, philosophical materialism.

We wish, therefore, to assert with force that:

– To evoke the existence of a movement such as the Intelligent Design movement to discredit certain scientists who affirm that recent scientific discoveries lend more credibility (without ever providing proof) to non-materialistic philosophies is to create a confusion which should be condemned.

– Accusing some scientists, as this has been the case recently in France, of taking part in a campaign of 'spiritualist intrusion' into science is unethical and runs against the freedom to debate which must exist on the philosophical and metaphysical implications of recent discoveries in science. It is also an example of double standards as these same people do not accuse Richard Dawkins of being involved in 'materialist intrusions' into science.

– Acting in this way is to do a disservice to science. At a time when the young are lacking in motivation to take up scientific careers, and when science is subject to numerous criticisms, often abusive, or ill-informed, science needs to be as open as possible (among other things to the question of meaning) and should not seal itself off in a way which is characteristic of scientism.

– In France, the Interdisciplinary University of Paris (UIP), whose activities we have all participated in, has brought this debate into the public sphere during its ten years of existence. The UIP has done this in an open and rigorous manner and we think that this approach should be supported.

We hope, with this common declaration, to help the French public and the French media in particular to avoid the confusions mentioned above; to be interested in the richness of contemporary debates in the philosophical and metaphysical implications of scientific discoveries made in the 20th century; to respect all the authors of this debate so long as they base their arguments on facts that are accepted by the entire scientific community.

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