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The Metaphysics of Science and Aim-Oriented Empiricism

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Nicholas Maxwell, Philosophy, University College, London

Since around 2007, a burgeoning new field of research in philosophy has come into existence, called "the metaphysics of science" which is really the rebirth of a very old subject. I have contributed to this field in a book published by Springer in early2019:*The Metaphysics of Science and Aim-Oriented Empiricism*.

The book elaborates and extends my little-attended-to arguments of thirty years ago seeking to improve metaphysical assumptions concerning the unity or physical comprehensibility of the universe as an integral part of scientific research. The book further argues for the need to transform our universities, our institutions of learning, so that they become able to help humanity learn what it so desperately needs to learn how to resolve conflicts and problems of living in increasingly cooperatively rational ways.

I have worked in this area for some time. There have been two waves of output. The first wave of was devoted to the mind-body problem – or to the broader and more general human world/physical universe problem: How can our human world exist and best flourish embedded as it is in the physical universe? My research was devoted to this problem from about 1964 to 1968. Snippets of this work had an impact on philosophy via the subsequent publications of Thomas Nagel and Frank Jackson.

The second wave of my early work on the metaphysics of science began around1968. It began with a criticism of Karl Popper. In one way, Popper was a revolutionary; he held that theories cannot be verified in science, only refuted. In another way, Popper was highly traditional; he held the basic aim of science is truth, and the method is to assess theories impartially with respect to evidence. I discovered that this highly traditional idea is false. Physics only ever accepts unified theories even though endlessly many disunified rivals can always be concocted to be even more successful empirically. This persistent acceptance of unified theories only, when endlessly many empirically more successful disunified rivals exist, means that physics makes a persistent metaphysical assumption about the universe: it has some kind of unified dynamic structure.

Precisely because this largely implicit assumption is profoundly influential, purely conjectural, and almost bound to be false in the specific form in which it is held at any stage in the development of physics, it is vital that it is made explicit within the context of physics, so that it can be critically assessed, so that alternatives can be developed and assessed, in the hope of improving the assumption that is made.

All this leads to a new conception of science, and a new kind of science, which explicitly acknowledges the profoundly problematic aims of science, and seeks to improve aims and associated methods, as science proceeds. I have argued this point in 1972 and 1974 papers. This discovery about the irrationality of current ortho-dox conceptions of science, and the need to develop a new conception and kind of science which acknowledges the real,

problematic aims of science, and seeks to improve aims and methods as science proceeds, has implications for the whole academic enterprise.

Judged from the standpoint of helping to promote human welfare, academic inquiry devoted in the first instance to the pursuit of knowledge is damagingly irrational in a wholesale, structural way. And this damaging structural irrationality of humanity's institutions of learning is, in part, responsible for the genesis of our current grave global problems, and our current incapacity to resolve them.

We need to bring into existence a new kind of inquiry that has, as its basic intellectual aim, wisdom and not just knowledge – wisdom being the capacity, active endeavour and desire to realize what is of value in life, for oneself and others, wisdom including knowledge, technology and understanding, but much else besides. A basic task of the new kind of academic inquiry would be to help humanity improve aims and methods of great social endeavours – industry, agriculture, politics, the media, the law, economics – so that we may gradually make social progress in seeking to attain the profoundly problematic aim of a good world.

Granted that a proper basic aim of academia is to help promote human welfare, a basic task must be to (1) articulate, and try to improve the articulation of, our problems of living; and (2) propose and critically assess possible solutions – possible actions, policies, social arrangements, institutions, ways of living, philosophies of life. Inquiry as it is at present, devoted primarily to the pursuit of knowledge, can-not do this. It gives intellectual priority to tackling problems of knowledge, not problems of living. Modern science and technological research, pursued in this way, have been a mixed blessing. They have led to great benefits. They have made the modern world possible. But they have also made possible the development of almost all of our current global problems that threaten the future of humanity and our world.

For science and technology have made possible modern industry, agriculture and fishing, modern hygiene and medicine, modern armaments, which in turn have made possible population growth, destruction of natural habitats, loss of wild life and rapid extinction of species, the lethal character of modern war, the threat posed by nuclear weapons, immense inequalities in wealth and power around the globe, pollution of earth, sea and air, and perhaps most serious of all, the impending dis-asters of climate change.

We need to learn how to solve these immense problems. For that, we need in place institutions of learning rationally designed and devoted to the task. It is just that that we do not have at present. Indeed, academia as it exists at present, devoted in the first instance to acquiring knowledge and technology, is almost designed to help make matters worse, its past intellectual successes a part of what has made our current problems possible in the first place.

This discovery – or apparent discovery – that academia as at present constituted is an intellectual and humanitarian disaster, there being an urgent need for an academic revolution if humanity is going to be able to resolve the grave global problems that threaten its future, led me to publish two books on the subject: *What's Wrong with Science?* (1976), *and From Knowledge to Wisdom* (1984).

[Adapted from the Preface of N. Maxwell, *The Metaphysics of Science and Aim-Oriented Empiricism, Springer*, January 2019.]

https://philpeople.org/profiles/nicholas-maxwell

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