Does Science Provide Us with the Methodological Key to Wisdom?

Nicholas Maxwell
University College London

Abstract

Science provides us with the methodological key to wisdom. This idea goes back to the 18th century French Enlightenment. Unfortunately, in developing the idea, the *philosophes* of the Enlightenment made three fundamental blunders: they failed to characterize the progress-achieving methods of science properly, they failed to generalize these methods properly, and they failed to develop social inquiry as social methodology having, as its basic task, to get progress-achieving methods, generalized from science, into social life so that humanity might make progress towards an enlightened world. Instead, the *philosophes* developed social inquiry as social *science*. This botched version of the Enlightenment idea was further developed throughout the 19th century, and built into academia in the early 20th century with the creation of university departments of social science. As a result, academia today seeks knowledge but does not devote reason to the task of helping humanity make progress towards a better, wiser world. Our current and impending global crises are the outcome. We urgently need to bring about a revolution in universities throughout the world so that the blunders of the Enlightenment are corrected, and universities take up their proper task of helping humanity make progress towards a wiser world.

Nearly forty years ago I discovered a profoundly significant idea – or so I believe. Since then, I have expounded and developed the idea in six books[1] and countless articles published in academic journals and other books.[2] I have talked about the idea in universities and at conferences all over the UK, in Europe, the USA and Canada. And yet, alas, despite all this effort, few indeed are those who have even heard of the idea. I have not even managed to communicate the idea to my fellow philosophers.

What did I discover? Quite simply: the key to wisdom.[3] For over two and a half thousand years, philosophy (which means "love of wisdom") has sought in vain to discover how humanity might learn to become wise – how we might learn to create an enlightened world. For the ancient Greek philosophers, Socrates, Plato and the rest, discovering how to become wise was the fundamental task for philosophy. In the modern period, this central, ancient quest has been laid somewhat to rest, not because it is no longer thought important, but rather because the quest is seen as unattainable. The record of savagery and horror of the last century is so extreme and terrible that the search for wisdom, more important than ever, has come to seem hopeless, a quixotic fantasy. Nevertheless, it is this ancient, fundamental problem, lying at the heart of philosophy, at the heart, indeed, of all of thought, morality, politics and life, that I have solved. Or so I believe.

When I say I have discovered the key to wisdom, I should say, more precisely, that I have discovered the *methodological* key to wisdom. Or perhaps, more modestly, I should say that I have discovered that *science* contains, locked up in its astounding success in acquiring knowledge and understanding of the universe, the methodological key to wisdom. I have discovered a recipe for creating a kind of organized inquiry rationally

designed and devoted to helping humanity learn wisdom, learn to create a more enlightened world.

What we have is a long tradition of inquiry – extraordinarily successful in its own terms – devoted to acquiring knowledge and technological know-how. It is this that has created the modern world, or at least made it possible. But scientific knowledge and technological know-how are ambiguous blessings, as more and more people, these days, are beginning to recognize. They do not guarantee happiness. Scientific knowledge and technological know-how enormously increase our power to *act*. In endless ways, this vast increase in our power to act has been used for the public good – in health, agriculture, transport, communications, and countless other ways. But equally, this enhanced power to act can be used to cause human harm, whether unintentionally, as in environmental damage (at least initially), or intentionally, as in war. It is hardly too much to say that all our current global problems have come about because of science and technology. The appalling destructiveness of modern warfare and terrorism, vast inequalities in wealth and standards of living between first and third worlds, rapid population growth, environmental damage – destruction of tropical rain forests, rapid extinction of species, global warming, pollution of sea, earth and air, depletion of finite natural resources – all only exist today because of modern science and technology. Science and technology lead to modern industry and agriculture, to modern medicine and hygiene, and thus in turn to population growth, to modern armaments, conventional, chemical, biological and nuclear, to destruction of natural habitats, extinction of species, pollution, and to immense inequalities of wealth across the globe.

Science without wisdom, we might say, is a menace. It is the crisis behind all the others. When we lacked our modern, terrifying powers to act, before the advent of science, lack of wisdom did not matter too much: we were bereft of the power to inflict too much damage on ourselves and the planet. Now that we have modern science, and the unprecedented powers to act that it has bequeathed to us, wisdom has become, not a private luxury, but a public necessity. If we do not rapidly learn to become wiser, we are doomed to repeat in the 21st century all the disasters and horrors of the 20th: the horrifyingly destructive wars, the dislocation and death of millions, the degradation of the world we live in. Only this time round it may all be much worse, as the population goes up, the planet becomes ever more crowded, oil and other resources vital to our way of life run out, weapons of mass destruction become more and more widely available for use, and deserts and desolation spread.

The ancient quest for wisdom has become a matter of desperate urgency. It is hardly too much to say that the future of the world is at stake. But how can such a quest possibly meet with success? Wisdom, surely, is not something that we can learn and teach, as a part of our normal education, in schools and universities?

This is my great discovery! Wisdom *can* be learnt and taught in schools and universities. It *must* be so learnt and taught. Wisdom is indeed the proper fundamental objective for the whole of the academic enterprise: to help humanity learn how to nurture and create a wiser world.

But how do we go about creating a kind of education, research and scholarship that really will help us learn wisdom? Would not any such attempt destroy what is of value in what we have at present, and just produce hot air, hypocrisy, vanity and nonsense? Or

worse, dogma and religious fundamentalism? What, in any case, *is* wisdom? Is not all this just an abstract philosophical fantasy?

The answer, as I have already said, lies locked away in what may seem a highly improbably place: science! This will seem especially improbable to many of those most aware of environmental issues, and most suspicious of the role of modern science and technology in modern life. How can *science* contain the methodological key to wisdom when it is precisely this science that is behind so many of our current troubles? But a crucial point must be noted. Modern scientific and technological research has met with absolutely astonishing, unprecedented success, as long as this success is interpreted narrowly, in terms of the production of expert knowledge and technological know-how. Doubts may be expressed about whether humanity as a whole has made progress towards well being or happiness during the last century or so. But there can be no serious doubt whatsoever that science has made staggering intellectual progress in increasing expert knowledge and know-how, during such a period. It is this astonishing intellectual progress that makes science such a powerful but double-edged tool, for good and for bad.

At once the question arises: Can we learn from the incredible intellectual progress of science how to achieve progress in other fields of human endeavour? Is scientific progress exportable, as it were, to other areas of life? More precisely, can the progress-achieving methods of science be generalized so that they become fruitful for other worthwhile, problematic human endeavours, in particular the supremely worthwhile, supremely problematic endeavour of creating a good and wise world?

My great idea – that this can indeed be done – is not entirely new (as I was to learn after making my discovery). It goes back to the 18th century Enlightenment. This was indeed the key idea of the Enlightenment, especially the French Enlightenment: to learn from scientific progress how to achieve social progress towards an enlightened world. And the *philosophes* of the Enlightenment, men such as Voltaire, Diderot and Condorcet, did what they could to put this magnificent, profound idea into practice in their lives. They fought dictatorial power, superstition, and injustice with weapons no more lethal than those of argument and wit. They gave their support to the virtues of tolerance, openness to doubt, readiness to learn from criticism and from experience. Courageously and energetically they laboured to promote reason and enlightenment in personal and social life.

Unfortunately, in developing the Enlightenment idea intellectually, the *philosophes* blundered. They botched the job. They developed the Enlightenment idea in a profoundly defective form, and it is this immensely influential, defective version of the idea, inherited from the 18th century, which may be called the "traditional" Enlightenment, that is built into early 21st century institutions of inquiry. Our current traditions and institutions of learning, when judged from the standpoint of helping us learn how to become more enlightened, are defective and irrational in a wholesale and structural way, and it is this which, in the long term, sabotages our efforts to create a more civilized world, and prevents us from avoiding the kind of horrors we have been exposed to during the last century.

The task before us is thus *not* that of creating a kind of inquiry devoted to improving wisdom out of the blue, as it were, with nothing to guide us except two and a half thousand years of failed philosophical discussion. Rather, the task is the much more straightforward, practical and well-defined one of *correcting the structural blunders built*

into academic inquiry inherited from the Enlightenment. We already have a kind of academic inquiry designed to help us learn wisdom. The problem is that the design is lousy. It is, as I have said, a botched job. It is like a piece of engineering that kills people because of faulty design – a bridge that collapses, or an aeroplane that falls out of the sky. A quite specific task lies before us: to diagnose the blunders we have inherited from the Enlightenment, and put them right.[4]

So here, briefly, is the diagnosis. The *philosophes* of the 18th century assumed, understandably enough, that the proper way to implement the Enlightenment programme was to develop social science alongside natural science. Francis Bacon had already stressed the importance of improving knowledge of the natural world in order to achieve social progress. The *philosophes* generalized this, holding that it is just as important to improve knowledge of the social world. Thus the *philosophes* set about creating the social sciences: history, anthropology, political economy, psychology, sociology.

This had an immense impact. Throughout the 19th century the diverse social sciences were developed, often by non-academics, in accordance with the Enlightenment idea. Gradually, universities took notice of these developments until, by the mid 20th century, all the diverse branches of the social sciences, as conceived of by the Enlightenment, were built into the institutional structure of universities as recognized academic disciplines.

The outcome is what we have today, *knowledge-inquiry* as we may call it, a kind of inquiry devoted in the first instance to the pursuit of knowledge.

But, from the standpoint of creating a kind of inquiry designed to help humanity learn how to become enlightened and civilized, which was the original idea, all this amounts to a series of monumental blunders.

In order to implement properly the basic Enlightenment idea of learning from scientific progress how to achieve social progress towards a civilized world, it is essential to get the following three things right.

1. The progress-achieving methods of science need to be correctly identified.
2. These methods need to be correctly generalized so that they become fruitfully applicable to any worthwhile, problematic human endeavour, whatever the aims may be, and not just applicable to the one endeavour of acquiring knowledge.
3. The correctly generalized progress-achieving methods then need to be exploited correctly in the great human endeavour of trying to make social progress towards an enlightened, civilized world.

Unfortunately, the *philosophes* of the Enlightenment got all three points wrong. They failed to capture correctly the progress-achieving methods of natural science; they failed to generalize these methods properly; and, most disastrously of all, they failed to apply them properly so that humanity might learn how to become civilized by rational means. Instead of seeking to apply the progress-achieving methods of science, after having been appropriately generalized, to the task of creating a better world, the *philosophes* applied scientific method to the task of creating social *science*. Instead of trying to make *social* progress towards an enlightened world, they set about making *scientific* progress in knowledge of social phenomena. That the *philosophes* made these blunders in the 18th century is forgivable; what is unforgivable is that these blunders still remain unrecognized and uncorrected today, over two centuries later. Instead of correcting the blunders, we have allowed our institutions of learning to be shaped by them as they have

developed throughout the 19th and 20th centuries, so that now the blunders are an all-pervasive feature of our world.

The Enlightenment, and what it led to, has long been criticized, by the Romantic movement, by what Isaiah Berlin has called 'the counter-Enlightenment', and more recently by the Frankfurt school, by postmodernists and others. But these standard objections are, from my point of view, entirely missing the point. In particular, my idea is the very opposite of all those anti-rationalist, romantic and postmodernist views which object to the way the Enlightenment gives far too great an importance to natural science and to scientific rationality. My discovery is that what is wrong with the traditional Enlightenment, and the kind of academic inquiry we now possess derived from it – *knowledge-inquiry* – is not too much 'scientific rationality' but, on the contrary, not enough. It is the glaring, wholesale *irrationality* of contemporary academic inquiry, when judged from the standpoint of helping humanity learn how to become more civilized, that is the problem.

But, the cry will go up, wisdom has nothing to do with reason. And reason has nothing to do with wisdom. On the contrary! It is just such an item of conventional 'wisdom' that my great idea turns on its head. Once both reason and wisdom have been rightly understood, and the irrationality of academic inquiry as it exists at present has been appreciated, it becomes obvious that it is precisely *reason* that we need to put into practice in our personal, social, institutional and global lives if our lives, at all these levels, are to become imbued with a bit more wisdom. We need, in short, a new, more rigorous kind of inquiry which has, as its basic task, to seek and promote *wisdom*. We may call this new kind of inquiry *wisdom-inquiry*.

But what is wisdom? This is how I define it in *From Knowledge to Wisdom*, a book published some years ago now, in 1984, in which I set out my 'great idea' in some detail:

> "[wisdom is] the desire, the active endeavour, and the capacity to discover and achieve what is desirable and of value in life, both for oneself and for others. Wisdom includes knowledge and understanding but goes beyond them in also including: the desire and active striving for what is of value, the ability to see what is of value, actually and potentially, in the circumstances of life, the ability to experience value, the capacity to use and develop knowledge, technology and understanding as needed for the realization of value. Wisdom, like knowledge, can be conceived of, not only personal terms, but also in institutional or social terms. We can thus interpret [wisdom-inquiry] as asserting: the basic task of rational inquiry is to help us develop wiser ways of living, wiser institutions, customs and social relations, a wiser world." (*From Knowledge to Wisdom*, p. 66.)

What, then, are the three blunders of the Enlightenment, still built into the intellectual/institutional structure of academia?

First, the *philosophes* failed to capture correctly the progress-achieving methods of natural science. From D'Alembert in the 18th century to Karl Popper in the 20th, the widely held view, amongst both scientists and philosophers, has been (and continues to be) that science proceeds by assessing theories impartially in the light of evidence, *no permanent assumption being accepted by science about the universe independently of evidence.* Preference may be given to simple, unified or explanatory theories, but not in

such a way that nature herself is, in effect, assumed to be simple, unified or comprehensible.

This orthodox view, which I call *standard empiricism* is, however, untenable. If taken literally, it would instantly bring science to a standstill. For, given any accepted fundamental theory of physics, T, Newtonian theory say, or quantum theory, endlessly many empirically more successful rivals can be concocted which agree with T about observed phenomena but disagree arbitrarily about some unobserved phenomena, and successfully predict phenomena, in an *ad hoc* way, that T makes false predictions about, or no predictions. Physics would be drowned in an ocean of such empirically more successful rival theories.

In practice, these rivals are excluded because they are disastrously disunified. *Two* considerations govern acceptance of theories in physics: empirical success and unity. In demanding unity, we demand of a fundamental physical theory that it ascribes *the same* dynamical laws to the phenomena to which the theory applies. But in persistently accepting unified theories, to the extent of rejecting disunified rivals that are just as, or even more, empirically successful, physics makes a big persistent assumption about the universe. The universe is such that all disunified theories are false. It has some kind of unified dynamic structure. It is physically comprehensible in the sense that explanations for phenomena exist to be discovered.

But this untestable (and thus metaphysical) assumption that the universe is physically comprehensible is profoundly problematic. Science is obliged to assume, but does not know, that the universe is comprehensible. Much less does it know that the universe is comprehensible in this or that way. A glance at the history of physics reveals that ideas have changed dramatically over time. In the 17th century there was the idea that the universe consists of corpuscles, minute billiard balls, which interact only by contact. This gave way to the idea that the universe consists of point-particles surrounded by rigid, spherically symmetrical fields of force, which in turn gave way to the idea that there is one unified self-interacting field, varying smoothly throughout space and time. Nowadays we have the idea that everything is made up of minute quantum strings embedded in ten or eleven dimensions of space-time. Some kind of assumption along these lines must be made but, given the historical record, and given that any such assumption concerns the ultimate nature of the universe, that of which we are most ignorant, it is only reasonable to conclude that it is almost bound to be false.

The way to overcome this fundamental dilemma inherent in the scientific enterprise is to construe physics as making a hierarchy of metaphysical assumptions concerning the comprehensibility and knowability of the universe, these assumptions asserting less and less as one goes up the hierarchy, and thus becoming more and more likely to be true, and more nearly such that their truth is required for science, or the pursuit of knowledge, to be possible at all. In this way a framework of relatively insubstantial, unproblematic, fixed assumptions and associated methods is created within which much more substantial and problematic assumptions and associated methods can be changed, and indeed improved, as scientific knowledge improves. Put another way, a framework of relatively unspecific, unproblematic, fixed *aims* and methods is created within which much more specific and problematic aims and methods evolve as scientific knowledge evolves. There is positive feedback between improving knowledge, and improving aims-and-methods, improving knowledge-about-how-to-improve-knowledge. This is the nub of scientific rationality,

the methodological key to the unprecedented success of science. Science adapts its nature to what it discovers about the nature of the universe.

This hierarchical conception of physics, which I call *aim-oriented empiricism*, can readily be generalized to take into account problematic assumptions associated with the aims of science having to with *values*, and the *social uses* or *applications* of science. It can be generalized so as to apply to the different branches of natural science. Different sciences have different specific aims, and so different specific methods although, throughout natural science there is the common meta-methodology of aim-oriented empiricism.

So much for the first blunder of the traditional Enlightenment, and how to put it right.[5]

Second, having failed to identify the methods of science correctly, the *philosophes* naturally failed to generalize these methods properly. They failed to appreciate that the idea of representing the problematic aims (and associated methods) of science in the form of a hierarchy can be generalized and applied fruitfully to other worthwhile enterprises besides science. Many other enterprises have problematic aims – problematic because aims conflict, and because what we seek may be unrealizable, undesirable, or *both*. Such enterprises, with problematic aims, would benefit from employing a hierarchical methodology, generalized from that of science, thus making it possible to improve aims and methods as the enterprise proceeds. There is the hope that, as a result of exploiting in life methods generalized from those employed with such success in science, some of the astonishing success of science might be exported into other worthwhile human endeavours, with problematic aims quite different from those of science.

Third, and most disastrously of all, the *philosophes* failed completely to try to apply such generalized, hierarchical progress-achieving methods to the immense, and profoundly problematic enterprise of making social progress towards an enlightened, wise world. The aim of such an enterprise is notoriously problematic. For all sorts of reasons, what constitutes a good world, an enlightened, wise or civilized world, attainable and genuinely desirable, must be inherently and permanently problematic. Here, above all, it is essential to employ the generalized version of the hierarchical, progress-achieving methods of science, designed specifically to facilitate progress when basic aims are problematic. It is just this that the *philosophes* failed to do. Instead of applying the hierarchical methodology to *social life*, the *philosophes* sought to apply a seriously defective conception of scientific method to *social science*, to the task of making progress towards, not a *better world*, but to better *knowledge* of social phenomena. And this ancient blunder, developed throughout the 19th century by J.S. Mill, Karl Marx and many others, and built into academia in the early 20th century with the creation of the diverse branches of the social sciences in universities all over the world, is still built into the institutional and intellectual structure of academia today, inherent in the current character of social science.

Properly implemented, in short, the Enlightenment idea of learning from scientific progress how to achieve social progress towards an enlightened world would involve developing social inquiry, not primarily as social *science*, but rather as social *methodology*, or social *philosophy*. A basic task would be to get into personal and social life, and into other institutions besides that of science – into government, industry, agriculture, commerce, the media, law, education, international relations – hierarchical,

progress-achieving methods (designed to improve problematic aims) arrived at by generalizing the methods of science. A basic task for academic inquiry as a whole would be to help humanity learn how to resolve its conflicts and problems of living in more just, cooperatively rational ways than at present. The fundamental intellectual and humanitarian aim of inquiry would be to help humanity acquire wisdom – wisdom being, as I have already indicated, the capacity to realize (apprehend and create) what is of value in life, for oneself and others.

One outcome of getting into social and institutional life the kind of aim-evolving, hierarchical methodology indicated above, generalized from science, is that it becomes possible for us to develop and assess rival philosophies of life as a part of social life, somewhat as theories are developed and assessed within science. Such a hierarchical methodology provides a framework within which competing views about what our aims and methods in life should be – competing religious, political and moral views – may be cooperatively assessed and tested against broadly agreed, unspecific aims (high up in the hierarchy of aims) and the experience of personal and social life. There is the possibility of cooperatively and progressively improving *such philosophies of life* (views about what is of value in life and how it is to be achieved) much as *theories* are cooperatively and progressively improved in science.

Wisdom-inquiry, because of its greater rigour, has intellectual standards that are, in important respects, different from those of knowledge-inquiry. Whereas knowledge-inquiry demands that emotions and desires, values, human ideals and aspirations, philosophies of life be excluded from the intellectual domain of inquiry, wisdom-inquiry requires that they be included. In order to discover what is of value in life it is essential that we attend to our feelings and desires. But not everything we desire is desirable, and not everything that feels good is good. Feelings, desires and values need to be subjected to critical scrutiny. And of course feelings, desires and values must not be permitted to influence judgements of factual truth and falsity.

Wisdom-inquiry embodies a synthesis of traditional Rationalism and Romanticism. It includes elements from both, and it improves on both. It incorporates Romantic ideals of integrity, having to do with motivational and emotional honesty, honesty about desires and aims; and at the same time it incorporates traditional Rationalist ideals of integrity, having to do with respect for objective fact, knowledge, and valid argument. Traditional Rationalism takes its inspiration from science and method; Romanticism takes its inspiration from art, from imagination, and from passion. Wisdom-inquiry holds art to have a fundamental rational role in inquiry, in revealing what is of value, and unmasking false values; but science, too, is of fundamental importance. What we need, for wisdom, is an interplay of sceptical rationality and emotion, an interplay of mind and heart, so that we may develop mindful hearts and heartfelt minds (as I put it in my first book *What's Wrong With Science?*). It is time we healed the great rift in our culture, so graphically depicted by C. P. Snow.

The revolution we require – intellectual, institutional and cultural – if it ever comes about, will be comparable in its long-term impact to that of the Renaissance, the scientific revolution, or the Enlightenment. The outcome will be traditions and institutions of learning rationally designed to help us realize what is of value in life. There are a few scattered signs that this intellectual revolution, from knowledge to wisdom, is already under way. It will need, however, much wider cooperative support – from scientists,

scholars, students, research councils, university administrators, vice chancellors, teachers, the media and the general public – if it is to become anything more than what it is at present, a fragmentary and often impotent movement of protest and opposition, often at odds with itself, exercising little influence on the main body of academic work. I can hardly imagine any more important work for anyone associated with academia than, in teaching, learning and research, to help promote this revolution.

Notes

[1] *What's Wrong With Science?* (Bran's Head Books, 1976), *From Knowledge to Wisdom* (Blackwell, 1984), *The Comprehensibility of the Universe* (Oxford University Press, 1998, paperback 2003), and *The Human World in the Physical Universe: Consciousness, Free Will and Evolution* (Rowman and Littlefield, 2001), *Is Science Neurotic?* (Imperial College Press, 2004), *Cutting God in Half – And Putting the Pieces Together Again* (Pentire Press, 2010).

[2] See, for example, "Science, Reason, Knowledge and Wisdom: A Critique of Specialism", *Inquiry 23*, 1980, pp. 19-81; "What Kind of Inquiry Can Best Help Us Create a Good World?", *Science, Technology and Human Values 17*, 1992, pp. 205-227; "What the Task of Creating Civilization has to Learn from the Success of Modern Science: Towards a New Enlightenment", *Reflections on Higher Education 4*, 1992, pp. 139-157; "Can Humanity Learn to Become Civilized? The Crisis of Science without Civilization", *Journal of Applied Philosophy 17*, 2000, pp. 29-44; "A new conception of science", *Physics World 13*, no. 8, 2000, pp. 17-18; "Do We Need a Scientific Revolution?", *Journal of Biological Physics and Chemistry*, vol. 8, no. 3, September 2008, pp. 95-105. All my articles are available online at http://philpapers.org/profile/17092 .

[3] But see note 4.

[4] Note that the outrageous claim with which I began – my claim to have discovered "the key to wisdom" – has become, step by step, very much more modest, even if still a claim concerning a matter of very great importance. I now claim only to have discovered how to correct mistakes made by Enlightenment *philosophes* when they developed their magnificent idea that we need to learn from scientific progress how to achieve social progress towards a wise, enlightened world. Why then did I make the outrageously immodest claim at the beginning of this paper? It is a desperate attempt to catch the reader's attention. The present paper represents one more attempt of mine to alert philosophers to the damaging philosophical blunder inherent in the intellectual/institutional structure of academia as it exists at present, the vital need, for the future of humanity, to bring about an academic revolution so that the basic task becomes to devote reason to helping humanity make progress towards a wise world. Doubtless, this paper will fail in this objective, as all my previous publications, so far, have failed as well.

[5] For further details see my *The Comprehensibility of the Universe: A New Conception of Science*, Oxford University Press, 1998; *Is Science Neurotic?*, Imperial College Press, 2004; and *From Knowledge to Wisdom*, especially chs. 5, 9, and 2nd ed., ch. 14.