

Replies to Criticisms and Comments (For criticisms and comments see *Dialogue and Universalism*, no. 3, 2012, pp. 65-132)

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I am very grateful for the many very generous remarks that the five commentators have made about my work, and grateful, too, for the searching criticisms to which they have subjected it. I will do my best to respond to these criticisms.

Krzysztof Kościuszko declares that my programme to transform universities so that the basic task becomes to seek and promote wisdom is “beautiful and noble” but also, unfortunately, unrealizable and utopian. I deceive myself in thinking the outcome would be that the wealthy would give to the poor, and the young would be able to stop the extinction of species, war, and pollution.

However, Kościuszko has massively inflated and exaggerated what it is that I argue for. It is as if he interprets me as arguing that, in order to create a wiser world it is *sufficient* to transform universities so that they come to put wisdom-inquiry into practice (wisdom-inquiry being the conception of inquiry I argue for). Given that interpretation of my argument, Kościuszko’s criticisms make complete sense. How could transforming academia of itself suffice to solve the problems of the world – inequality, war, pollution, extinction of species and the rest? Utopian nonsense!

But that is not my argument. At most I argue, far more modestly, that, in order to create a wiser world it may be *necessary* to transform universities. Without our institutions of learning being rationally designed and devoted to helping us make progress towards a wiser world, it may not be possible for us actually to make progress towards such a world. Wisdom-inquiry does not, in other words, remotely guarantee success in the real world. Academia might be utterly devoted to promoting wisdom, and it might be ignored by the rest of the world so that we continue to blunder from one disaster to another, as we do at present. On the other hand, *if* we are to create a better world, we need to learn how to do it, and that may require our institutions of learning are well-designed to help us learn how to do it.

But even this much more modest statement of my argument may overstate what it is that I argue for. Perhaps wisdom-inquiry is not even necessary for us to make progress towards as good a world as possible. Learning, fortunately, is not confined to institutions of learning. Perhaps humanity *can* learn how to tackle our grave global problems more effectively, intelligently, and humanely even without universities being rationally devoted to helping with the task.

My actual argument, even more modestly, is that, granted we seek to make progress towards as good a world as possible, it can only help to have our institutions of learning rationally designed to help with the task, and can only hinder us to have institutions of learning that are damagingly irrational when judged from this standpoint – as at present.

Kościuszko does not call into question my central argument. He calls it “beautiful and noble”. Knowledge-inquiry, by and large what we have at present, is damagingly irrational, in a wholesale, structural way, when judged from the standpoint of helping to promote human welfare, helping us to realize what is of value in life, make progress

towards a good world. In order to cure knowledge-inquiry of its damaging irrationality, we need to change it so that it becomes wisdom-inquiry. About this much, we agree.

But that suffices, I claim, to make it a matter of supreme urgency to bring about the revolution I call for. Global warming, population growth, the lethal character of modern war, habitat destruction and rapid extinction of species, depletion of vital natural resources all indicate that we face an impending global crisis. Humanity urgently needs to discover how to tackle its problems in wiser ways than at present. There can be no doubt that academia has an impact on society – via education, scientific and technological research, the media, training of doctors, engineers, lawyers and other experts, and expert advice and recommendations to government departments, industry and other influential institutions. Wisdom-inquiry, with its emphasis on public education by means of discussion and debate, would greatly enhance this impact. Even those dubious of the scale of the impact of academia on society must nevertheless admit that it does have a major impact in the long term. An industrially advanced society would, before long, begin to deteriorate if all its universities were abolished overnight. Even if we faced no grave global problems, it would still be important to have universities rationally devoted to the promotion of what is of value in life by intellectual and educational means. That we do face grave global problems makes the matter all the more important. If academic inquiry, as conducted at present in our universities, is damagingly irrational in a wholesale, structural way, then it must be a matter of urgency to put the matter right. This is not utopian. It is common sense.

Kościuszko fails to distinguish two very different potential revolutions before us. There is, first, the *academic* revolution: to transform academia so that knowledge-inquiry becomes wisdom-inquiry. Then, there is the *global* revolution: to transform the world so that problem-solving and aim-oriented rationality are put into practice in life intelligently and humanely at all levels: individual, institutional, social, national, global.

Above, I have interpreted Kościuszko as accusing me of utopianism in holding that the first revolution is sufficient to bring about the second – a thesis I very definitely do not hold. But I might be accused of utopianism on very different grounds, namely, for holding that it is possible to bring about the first revolution in our world as it is – quite apart from questions about any impact that revolution might have. It is utopian, it may be argued, to suppose that governments, corporations, establishment bodies, professional groups, even the public, would permit academics to transform universities so that they begin to put wisdom-inquiry into practice. How do I respond to this charge?

At the time of writing (2012), wisdom-inquiry is simply not on the agenda. Very few academics are aware of the argument that knowledge-inquiry – by and large what we have at present – betrays both reason and humanity, there being an urgent, coherent, decisive case for change. Many academics are unhappy with academia as it exists today, on various grounds. There are at present many diverse initiatives to change aspects of academia in the direction of wisdom-inquiry – as I indicated towards the end of my article “The Menace of Science without Civilization” (to be referred to as “Menace” in what follows). What is entirely lacking, at present, is awareness of the argument for the need to transform knowledge-inquiry into wisdom-inquiry.

Let us suppose that the case for change becomes better known. Is it utopian to suppose that the academic might begin to implement the structural institutional/intellectual changes needed for knowledge-inquiry to become wisdom-inquiry?

The great irony is that the greatest opponents of such a programme of academic change would undoubtedly be – academics! The very people who should seek to defend the idea that reason should be devoted to the interests of humanity are the ones most likely to oppose the idea, if confronted by it. Natural scientists will oppose abandoning the view that evidence alone decides what is accepted and rejected in science. They will oppose natural science playing second fiddle to social inquiry. Social scientists will oppose transforming social science into social philosophy or social methodology – the central task of social inquiry being to promote cooperatively rational tackling of problems of living in the real world. Many academics will oppose the change of status academia would encounter in becoming the public’s civil service, doing for people openly what actual civil services are supposed to do, in secret, for governments. Those with established reputations in academia will oppose the “knowledge to wisdom” revolution because it would pose a threat to their established work and reputation. Fledgling academics will oppose the revolution because it would threaten their efforts to achieve an academic career. Academia, ostensibly all about innovation and discovery, is nevertheless massively resistant to change when what is at issue is changes to the rules of the academic enterprise which decide what is to count as an academic contribution, what is to count as academic excellence. Thomas Kuhn has written powerfully on resistance to scientific revolutions in his *The Structure of Scientific Revolutions*.¹

But despite massive initial opposition, intellectual revolutions do, nevertheless, from time to time, occur. Let us suppose a critical mass of academics, including those at the top, agree that wisdom-inquiry needs to be put into academic practice. Would the rest of the world allow it to happen?

There is no doubt in my mind that, if ever matters reach this stage, there will be massive opposition from governments, industrial and financial bosses, pundits in the media, and many members of the public. Universities, whether publicly or privately funded, would be threatened with withdrawal of funding. Research in natural science – so expensive – would be especially threatened. Governments, management, pundits and members of the public will be outraged at the idea that academics should explore questions about how people should live, what values and ideals people should adopt and pursue in life, what actions governments should take, what policies should be adopted by governments, industry and financial institutions, what public expenditure should be on health, defence, welfare, science and education, infrastructure, foreign aid, what legislation should be enacted, what changes should be made to foreign policy – all matters, many will hold, that lie beyond professional academic competence. The job of academics, it will be maintained, is to acquire *knowledge*, not advise the rest of us how we should live, what we should do, what policies we should pursue, what values act on and live by, what actions take.

In dictatorial countries wisdom-inquiry would be quite impossible – although, it deserves to be noted, knowledge-inquiry often manages to flourish quite well (as it did, for example, in the old Soviet Union). In democratic countries, there would, I imagine, be a mighty and painful struggle to get wisdom-inquiry underway. But those who think it

¹ T. S. Kuhn, 1970, *The Structure of Scientific Revolutions*, Chicago University Press, Chicago.

impossible should remind themselves of what the small band of *philosophes* achieved in 18th century France, so few in number, and entirely lacking the professional status and institutional backing that the great army of modern academics can take for granted.

It will be a struggle to get a hearing for wisdom-inquiry. Once that is achieved, it will be a struggle to overcome academic opposition. Once that it is achieved, it will be a major struggle to overcome opposition from outside universities, even in democracies. Nevertheless, in the past, greater intellectual revolutions have been brought about in far more difficult circumstances by, potentially, far fewer individuals: one thinks, here, of the scientific revolution of the 16th and 17th centuries, and the Enlightenment revolution of the 18th century. It would be very strange indeed if we have lost the capacity to bring about such changes in the 21st century, even though so many more of us are educated, and communications are so much more rapid and widely diffused. Difficult? Yes! Utopian? No!

Kościuszko concludes with a criticism of my claim that orthodox quantum theory, because of its failure to solve the wave/particle problem, “must, as a result, rely on some part of classical physics for a treatment of measurement” and is, as a result, “a severely non-explanatory, disunified theory”. Kościuszko points out that quantum field theory holds particles to be excitations of the field. This is correct but beside the point. Quantum field theory depends on measurement, and on classical physics, just as much as non-relativistic orthodox quantum theory does, and is thus just as non-explanatory and disunified.²

Małgorzata Czarnocka, rather like Krzysztof Kościuszko, begins with high praise for my work but concludes on an even more devastatingly critical note: not only is what I argue for an impossible dream – even worse, it amounts to a totalitarian world state in which scientists rule the world.

But both the praise and the criticism stem from extreme distortions and exaggerations of my argument – distortions and exaggerations in direct conflict with what I actually write, both here, in “Menace”, the article under discussion, and elsewhere. Yet again, I must plead that my argument is much more modest than it has been taken to be. I can only hope to establish this by means of extensive quotations so, the reader is warned, much of what follows will consist of quotations from both Czarnocka’s article and mine.

Near the beginning of her article, Czarnocka asserts “The ideas proclaimed in the text discussed [in] *The Menace of Science without Civilization: From Knowledge to Wisdom* are more radical than in Maxwell’s earlier works, in which he announces the necessity of a revolution only in academic researches and learning”. But this is not true. My book *From Knowledge to Wisdom*, first published in 1984, opens with the sentence “Our planet earth carries all too heavy a burden of killing, torture, enslavement, poverty, suffering, peril and death” (Maxwell, 1984, p. 1).³ And throughout the rest of the book I make it abundantly clear that the “from knowledge to wisdom” revolution is needed in order to

² See p. 9 of N. Maxwell, 1988, Quantum Propensiton Theory: A Testable Resolution of the Wave/Particle Dilemma, *British Journal for the Philosophy of Science*, vol. 39, pp. 1-50; available online at <http://philpapers.org/archive/MAXQPT.1.pdf>.

³ N. Maxwell, *From Knowledge to Wisdom*, Blackwell, Oxford, p. 1; 2nd ed., 2007, Pentire Press, London, p. 12.

correct rationality defects in academia, and thus enable academia to help promote human welfare more effectively, intelligently and humanely. The capacity of academia to help humanity create a better world is at the heart of the book.

Two or three sentences on, Czarnocka asserts “In Maxwell’s intellectual system science is seen as the fundamental means of creating a new, better, more civilized human world”. This contains a grain of truth but, as it stands, is likely to mislead, and contains the seed of subsequent distortions. I do hold that science has an important role to play. There are, first, its obvious roles: natural science improves our knowledge and understanding of the universe, and of ourselves as a part of the universe, to an astonishing extent; and natural science has, associated with it, the development of technology which can be of immense value to humanity. There is also a much less well known role that natural science can have: the astonishingly successful *methods* of science, correctly understood and generalized, could be fruitfully exploited in life to help us realize what is of value in life. So much for the grain of truth in what Czarnocka asserts. Let me now indicate where what she says distorts. For me, it is not *science* that is “the fundamental means of creating a new, better, more civilized human world”. In so far as anything has that role in my “intellectual system”, it is *wisdom-inquiry*, and wisdom-inquiry includes science but, very definitely, is not synonymous with science. As I make abundantly clear in my article (and all my writings on the subject), at the heart of wisdom-inquiry, amounting to the central, fundamental, most important part of academia, there is the intellectual activity of (a) articulating, and improving the articulation of, our problems of living and (b) proposing and critically assessing possible solutions – possible and actual actions, policies, political programmes, ways of life. This is not science at all, not even the pursuit of knowledge. Wisdom-inquiry displaces natural science from the centre of academia and pushes it to the periphery. The academic revolution I advocate diminishes the role and place of natural science. And social science ceases to be science, at the fundamental level. In all these respects, Czarnocka’s assertion is deeply misleading.

And there is a further point. Even when the above quotation is corrected to say “In Maxwell’s intellectual system wisdom-inquiry is seen as the fundamental means of creating a new, better, more civilized human world” it still misleads. My view is that countless diverse actions need to be performed to create a better world. If I had to select one as the most important I would probably say that a new kind of government and politics is needed. Transforming academia is important, but what really matters is the transformation of our political world, and with it, our world of industry, power-production, transport, trade, agriculture, international relations.

Czarnocka goes on to say, not quite consistently with the last quotation “Maxwell postulates that philosophical ideas play a founding role in constituting a new, more civilized world. In his comprehensive vision not only sciences (and the humanities?), but also philosophy (which plays the leading role) should join transforming the human world by proposing global, systemic remedial rules. Ideas, also philosophical ones, serve in his conception as the foundation of all human activity.” So, now it is not just science, but additionally, and even more, *philosophy* that “plays a founding role” in creating a better world.

I do think that philosophy, properly conducted, is important. In a recent symposium on my work I put it like this: “The proper basic task of philosophy is to articulate our most fundamental, general and urgent problems, make clear that there are answers to these

problems implicit in much of what we do and think – implicit in science, politics, art, the law, education and so on – these answers often being inadequate and having adverse consequences for life and thought in various ways as a result. Philosophy should also try to *improve* our attempted solutions to our fundamental problems, by imaginatively proposing and critically assessing possible solutions, all the time making clear, where relevant, that different possible solutions have different implications for diverse aspects of life.”⁴ And to that I would add “philosophy should [seek] to help promote imaginative and critical discussion of aims and methods in all other human endeavours as well [in addition to science, scholarship and education] – politics, industry, law, the media, law and so on – thus helping us quite generally to put cooperative aim-oriented rationalism into practice in personal, social and institutional life, so that we may all the better realize what is of value to us as we live”.⁵ These two tasks for philosophy are of course closely connected. Implicit answers given to fundamental problems influence our aims; and (problematic) aims often give implicit (and often inadequate) answers to fundamental problems.

So Czarnocka is right to the extent, at least, that I hold philosophy, properly conducted, to be important, for both thought and life. But does this mean that, for me, philosophy “plays a founding role” in creating a better world? Well, I do hold that we suffer, at present, from having built into our institutions of learning – our schools and universities – a bad philosophy of inquiry, namely knowledge-inquiry. I argue that our capacity to learn how to make progress towards a better world would be enhanced if we put wisdom-inquiry into academic practice instead. To that extent, the philosophy of inquiry does play an important, much neglected role in our capacity to create a better world. But I would not go so far as to say that that means, for me, that philosophy is “the foundation of all human activity”. There may be a philosophical aspect (as I have characterized philosophy) to all that we think, experience and do, but that hardly means that philosophy is “the foundation” of all we do. It does not mean that all our problems are philosophical problems. Once again, what I argue for has been inflated and distorted, almost beyond all recognition.

Czarnocka goes on to say “Maxwell proposes a radical change in the contemporary civilization, an extraordinary world revolution which should begin, and in its founding level also should go on in scholars’ consciousness, in the self-conversion or conversion caused by external pressure into wise men. This revolution has to enhance the level of humanity, probably has also to change human nature—if we presume that human nature does not yet include wisdom as its necessary attribute. Is such a revolution possible? In particular, is it possible without violence?” Once again, what I actually argue for in my article, and elsewhere, is rather different, and much more modest. Confronted as we are by grave global problems, an impending crisis for humanity, we simply cannot afford to have, as our chief institutions of learning, universities that are damagingly irrational in a wholesale, structural way, when judged from the standpoint of helping to promote human

⁴ See p. 668 of N. Maxwell, 2010, Reply to Comments on *Science and the Pursuit of Wisdom, Philosophia*, vol. 38, issue 4, pp. 667-690, available online at <http://discovery.ucl.ac.uk/view/people/ANMAX22.date.html>.

⁵ See *From Knowledge to Wisdom*, 1st ed., p. 148.; 2nd ed., p. 173.

welfare by intellectual and educational means. *If* it is agreed we face severe global problems, and *if* it is agreed that academia is damagingly irrational when judged from the standpoint of helping us to tackle these problems, then that ought to suffice to establish that there is an urgent and decisive case for academic change to rid academia of its damaging irrationality. It is to be hoped that such an academic revolution would help, but it certainly will not suffice, as I have already indicated, to bring about “a radical change in contemporary world civilization”, turn scholars “into wise men” or “change human nature”.

Czarnocka then asks of the revolution in world civilization and human nature that she (mistakenly) interprets me as arguing for: “Is such a revolution possible? In particular, is it possible without violence?” My reply, clearly, has to be: since I am not arguing for this world revolution, the question of violence does not really arise.

This reply is, however, a bit disingenuous. I am, after all, arguing for a revolution in academia so that it becomes rationally designed and devoted to helping to bring about something like the world revolution that Czarnocka has in mind. We may therefore ask: is such a world revolution possible without violence?

As far as the role of wisdom-inquiry is concerned, I am very clear. In “Menace”, the article under discussion, I say “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”. This is not a call for greater violence! Our task is to make progress as best we can towards a more cooperatively rational world, and that, in the nature of things, cannot be done by means of violence. Elsewhere I have been even clearer on the point. The theme of cooperative rationality runs throughout my *From Knowledge to Wisdom*.⁶ At one point I say “putting aim-oriented rationality into practice enables us to avoid … unnecessary, destructive misunderstandings, and helps us – if we so wish – to develop gradually more cooperative ways of resolving our conflicts. In roughly increasing levels of desirability, conflicts between people are settled by: force, threat, manipulation, some more or less arbitrary procedure (such as tossing a coin or voting), bargaining, the cooperative discovery of the most desirable, just resolution. The general adoption of the aim-oriented conception of reason is in all our long-term interests in that it offers us the best hope of increasing our capacity to resolve our conflicts in rather more desirable ways – even though, of course, it provides no magic procedure for resolving conflicts”.⁷

But still, it may be objected, there is a problem of violence. Is not some force necessary in order to protect individual liberty, life, democracy and justice against those who seek to destroy these things? It is. But in all my writings on wisdom-inquiry I argue for a progressive diminishment in the resort to force – the very opposite of what has happened in recent years in connection with the horrendous “war against terrorism”.⁸ My reply to the specific point that

⁶ See for example 2nd ed., 2007, pp. 63-70, 121-122, 181, 185, 189-190, 215-218, 221-222, 275-276.

⁷ *From Knowledge to Wisdom*, 1984, pp. 109-110.

⁸ See, for example, N. Maxwell, 2007, *The Disastrous War against Terrorism: Violence versus Enlightenment*, ch. 3 of *Terrorism Issues: Threat Assessment, Consequences and*

Czarnocka raises can be put like this. We do not know how effective wisdom-inquiry pursued in universities around the world would be in helping us to make progress towards as wise a world as possible, but that should not deter us from making the attempt. As I used to tell my students, things are too desperate for us to be able to afford the luxury of pessimism. A wiser world cannot be achieved by violence.

Czarnocka goes on to say “One might argue that ideology proposed by Maxwell is a good one, tending to solve human problems, to create a more civilized world. However, such a solution does not finish the dispute, but leads to other questions. There are no universal agreement what are serious human problems nowadays, that is, problems bothering all humanity regardless of race, social class, culture, style of live, nationality, ethnicity, and, in general, interests related with every kind of human membership.” As I explain in my article, it is in part because people do not agree about what our problems are, what our aims, ideals and values should be, that we need to put aim-oriented rationality into practice, as depicted in diagram 3. I remark “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.” And I add “This hierarchical methodology is especially relevant to the task of resolving conflicts about aims and ideals, as it helps disentangle agreement (high up in the hierarchy) and disagreement (more likely to be low down in the hierarchy).” That I recognize that there are disagreements and conflicts about what our problems are, what our aims should be, and put forward a methodology (aim-oriented rationality) designed to help resolve such disagreements and conflicts is entirely ignored by Czarnocka.

Next, Czarnocka asks “Is not the calling for wisdom incompatible with the rigid, unchangeable area of human nature? Wisdom in the sense favored by Maxwell requires above all the suppression of egoism: people would neglect their current, in principle, egoistic individual interests, their habits, usually their styles of life and would become wise, fighting for the better future of all humanity.” In my article, I characterize wisdom as “the capacity to realize what is of value in life, for oneself and others”. Wisdom, in this sense, does not require the suppression of egoism. On the contrary, it requires that we should pursue our very best interests. It is just that we should not do this if it involves trampling over the interests of others; we should take the interests of others into account. The real contrast I draw is not between selflessness and selfishness, as Czarnocka in effect assumes, but rather between cooperating with others, and being unable so to cooperate. Once again, Czarnocka distorts what I actually say.

Czarnocka goes on to make three remarks that I find quite astonishing. She says “In short, for Maxwell wisdom approximates practical, non-intellectual wordly wisdom … Maxwell does not explicitly include in welfare individual spiritual feelings and factors which—as it is sometimes believed, even in the present highly consumptive Western culture—are indispensable for really good life … his vision of welfare depreciates the

autonomy and, in consequence, the validity of the spiritual dimension of human life.” I find all this really rather extraordinary. I make clear that wisdom, as I conceive of it, is “the capacity to realize (apprehend and create) what is of value in life” – that is, realize means *both* apprehend, experience or become aware of what is of value *and* create or make real what is of value. The intellectual, cultural or spiritual aspects of what is of value are involved just as much as the practical, welfare aspects. I stress that wisdom-inquiry is a kind of synthesis of Rationalism and Romanticism, the latter taking “its inspiration from art, from imagination, and from passion”. I add “Wisdom-inquiry holds art to have a fundamental rational role in inquiry, in revealing what is of value, and unmasking false values”. And I go on “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?*)”. None of this sounds as if I concentrate exclusively on practical, non-intellectual, worldly wisdom, as Czarnocka maintains. But what makes her charge really strange is that I devote a whole section of my article to “Inquiry Pursued for Its Own Sake”, as the section is called, to inquiry devoted to helping us apprehend or experience what is of value, the intellectual, cultural or spiritual aspect of what is of value. And I argue that wisdom-inquiry does better justice to this aspect than knowledge-inquiry does. And I give a number of reasons in support of this claim. I say, for example, that “From the standpoint of inquiry pursued for its own sake, the intellectual or cultural aspect of inquiry, what really matters is the desire that people have to see, to know, to understand, the passionate curiosity that individuals have about aspects of the world, and the knowledge and understanding that people acquire and share as a result of actively following up their curiosity”. I remark that one way in which wisdom-inquiry does better justice to inquiry pursued for its own sake is by “recognizing that passion, emotion and desire, have a rational role to play in inquiry, disinterested research being a myth”. And I quote Einstein’s declaration that “The most beautiful experience we can have is the mysterious. It is the fundamental emotion which stands at the cradle of true art and true science”. I go on to argue that “In order to enhance our understanding of persons as beings of value, potentially and actually, we need to understand them empathetically, by putting ourselves imaginatively into their shoes, and experiencing, in imagination, what they feel, think, desire, fear, plan, see, love and hate. For wisdom-inquiry, this kind of empathic understanding is rational and intellectually fundamental” in a way it is not for knowledge-inquiry. All this makes nonsense of the claim that I neglect the intellectual, cultural or spiritual aspects of what is of value and concentrate only on practical welfare aspects. If what I say elsewhere is taken into account, it becomes even more absurd: see for example my attempt at characterizing what I conjecture to be of value in existence in chapter 10 of my *From Knowledge to Wisdom*, or chapter 4 of my *Cutting God in Half – And Putting the Pieces Together Again*, or chapter 2 of my *The Human World in the Physical Universe*. Or see the whole of my *What’s Wrong With Science?*, the subtitle of which is *Towards a People’s Rational Science of Delight and Compassion*.⁹ When my

⁹ N. Maxwell, 1976, *What’s Wrong With Science?*, Bran’s Head Books, Hayes, UK; 2001, *The Human World in the Physical Universe: Consciousness, Free Will and Evolution*, Rowman and Littlefield, Lanham, Maryland; 2010, *Cutting God in Half – And*

From Knowledge to Wisdom was first published in 1984, it received a glowing review in *Nature*, in which the reviewer said “Nicholas Maxwell has breached the conventions of philosophical writing by using, with intent, such loaded words as ‘wisdom’, ‘suffering’ and ‘love’. ‘That which is of value in existence, associated with human life, is inconceivably, unimaginably, richly diverse in character.’ What an un-academic proposition to flow from the pen of a lecturer in the philosophy of science; but what a condemnation of the academic outlook, that this should be so”¹⁰ That hardly sounds like an author concerned exclusively with the practical aspects of welfare.

Czarnocka then says “Should we agree—in order to accept Maxwell’s project—that there is the one universal model of welfare and happiness, common for all humanity? Should we promote the model developed in Western liberal culture as the only formula of welfare and happiness?” I have I hope already said enough to make clear that aim-oriented rationality and wisdom-inquiry are designed to help all of us to live as “richly diverse” lives as we may wish as long as we do so in such a way that we are in accord with – we do not trample over – the lives of others.

Czarnocka goes on to say “He does not take into consideration that civilizations, societies and social structures are immensely complex systems linked by internal interactions, and having diverse sources of dynamizing. Especially, he neglects the role of political authorities, capitalists and their mercenaries who subordinate—manifestly or in various hidden ways—the rest of humanity.” I have no idea where Czarnocka gets this idea from. A major part of the point of the academic revolution I argue for is to bring into existence a kind of academia devoted to helping populations discover how to bring effective pressure on governments, capitalists, banks, and others, so that policies may be pursued effective in progressively resolving current global problems, and helping us make progress towards as good a world as possible. It is precisely because of the immense complexity of our global world, and the power of vested interests concealed, often, behind smokescreens of deception, that we so urgently need to learn how to deal, intelligently and effectively, with this complexity and these powers, which in turn requires that we have an academic enterprise devoted to the task

Czarnocka then says “Maxwell regards sciences as responsible for all current human troubles. More concretely, in his view only scientists oriented by knowledge-paradigm, and not by wisdom-paradigm cause the approaching civilizational catastrophe. And only scholars (only scientists?) might remedy the evil by a global intellectual revolution, which would change radically the current global civilization”. But this, once again, blatantly misrepresents what I actually say. What I do say is that “global problems have been made possible by science”, and “made possible” very definitely does not mean solely “responsible for”. It very definitely does *not* mean “only scientists...cause the approaching civilizational catastrophe”. In fact I go on to say “Some blame science for our problems, but this profoundly misses the point”. And to attribute to me the view that “only scholars might remedy the evil” is absurd. This is to attribute to me the view that wisdom-inquiry *suffices* to bring about a better world which, as I have already explained,

Putting the Pieces Together Again: A New Approach to Philosophy, Pentire Press, London.

¹⁰ C. Longuet-Higgins, 1984, For Goodness Sake, *Nature*, vol. 312, p. 204.

is nonsense. I do not even hold that wisdom-inquiry is *necessary*. My thesis, far more modestly, is that it can only help to correct the damaging, structural irrationality of knowledge-inquiry. Our situation is too urgent, too desperate, for us to continue to overlook this source of assistance.

Czarnocka says next “Maxwell ascribes to science power and the possibility of deciding about the world. However, science has not, never had and cannot have the status of a universal ruler”. This is so blatantly at odds with what I do say in so many ways I hardly know where to begin. First, the transition from knowledge-inquiry to wisdom-inquiry removes science from its central place and role in academia. This is, in part because social science ceases, fundamentally, to be science at all, and becomes the enterprise of articulating problems of living and proposing and criticizing possible solutions. It is also, in part, because natural science ceases to be intellectually fundamental. Social inquiry, pursued in the way I have indicated, becomes intellectually more fundamental than natural science. All this is made abundantly clear in my article. So, at most, it is *academics* (who are not scientists) who are to rule the world. But this too is blatantly at odds with what I actually say. I say repeatedly that a basic task of wisdom-inquiry is to help promote more cooperatively rational tackling of problems of living – hardly compatible with *ruling*. And I say “What really matters, of course, is the thinking we engage in as we live, at the individual, social and global level, guiding our actions. It is this socially active thinking we need to improve. The whole point of academic thought, from the perspective of wisdom-inquiry, is to help improve humanity’s socially active thinking guiding action. Academic problem-solving is a specialized bit of human problem-solving quite generally; there thus needs to be a two-way interaction between the two, in accordance with rule (4). The proper basic task of universities is public education about what our problems are, and what we need to do about them, by means of discussion and debate. Universities need to become somewhat like a people’s civil services, doing openly for the public what actual civil services are supposed to do, in secret, for governments. Academia would have just sufficient power to be independent of government, industry, the military, the media and the public, but no more.” What really matters, and what is really fundamental, is the thinking we engage in as we live, guiding our actions – which involves, if anything, a diminishment in status of academia, and certainly not an increase in power. Wisdom-inquiry academia is there to help, to be called upon to assist us in our efforts to solve our problems of learning. It has as much to learn from us non-academics, as we have to learn from it (interactions going in both directions). All this is utterly at odds with Czarnocka’s claim that I hold that scientists, or academics, should rule the world. Czarnocka goes on to claim that I assert that academics should rule the world in points 18 and 19 of my list of changes that need to be made, in my view, to academia. But there I speak of *virtual* governments, taking *virtual* actions and proposing *virtual* legislation. Their role is to propose, to argue for, to suggest and criticize, “free of the constraints of power” as I say, not of course, to *enact*, to *enforce*. I say, quite explicitly, to repeat: “Academia would have just sufficient power to be independent of government, industry, the military, the media and the public, but no more”.

It goes on, but I have said enough, I hope, to make clear that Czarnocka distorts and misrepresents what I say in my article to a quite extreme extent.

I come now to Szymon Wróbel's article. Wróbel is correct in pointing out that, unlike some other critics of Rationalism or the Enlightenment – Nietzsche, Michel Foucault, Jacques Derrida and others – I hold that we suffer, not from too much reason, but from not enough. In my view, what is widely taken to be rationality, whether by those who support it or deplore it, is actually a characteristic kind of *irrationality* masquerading as rationality.

Wróbel is also correct in pointing out that there is an overlap in Habermas's views and mine. Habermas's *intersubjectivity* and *communicative reason* have some things in common with my *person-to-person understanding*.¹¹ But there are also dramatic differences. I have found nothing like my central argument, which takes us from standard to aim-oriented empiricism, to aim-oriented rationalism and wisdom-inquiry, in Habermas.

Wróbel goes on to make a number of points with which I can only disagree. He says “It seems, therefore, that for Maxwell there are two kinds of knowledge and two types of rationality – the knowledge in the traditional sense that is instrumentally used to describe the reality and the reflexive knowledge serving social goals that may one day aspire to become wisdom. The first type of knowledge corresponds to strategic rationality and the second to communication rationality as understood by Habermas.” I don't go along with the two kinds of knowledge and reason that Wróbel has in mind here. I do argue for (at least) two kinds of *understanding*: scientific and person-to-person, but that is rather different. I also argue that these two kinds of understanding are intimately inter-dependent. Both are fundamental, and both are involved, however adequately or inadequately, in the two kinds of inquiry I discuss.¹² I do appeal to two inter-related notions of rationality – problem-solving and aim-oriented rationality – but these are not the two notions that Wróbel attributes to me.

Wróbel declares “What bothers [Maxwell] is not the lack of knowledge but knowledge based on narrowly understood rationality which is existentially and socially useless”. But my objection to knowledge-inquiry is not that it is based on a “narrowly understood rationality” but that it is *irrational*. It violates *three* of the four elementary rules of reason I indicate; and it violates aim-oriented rationality in a quite elementary fashion in misrepresenting the real, problematic aims of science. In addition, I would never say that scientific knowledge, acquired within the framework of knowledge-inquiry, is “socially

¹¹ In construing reason to be *social* in character, Habermas is not, however, making an original point. Something like this can be found in J. d'Alembert, 1963, *Preliminary Discourse to the Encyclopedia of Diderot*, Bobbs-Merrill, New York, (originally published in 1751). Popper, too, is at pains to stress the *social* character of reason: see K. R. Popper, 1962, *The Open Society and Its Enemies*, vol 2, Routledge and Kegan Paul, London, pp. 216-220 and 224-228 (originally published in 1945).

¹² See, for example, *From Knowledge to Wisdom*, 1st ed., pp. 184-189 and 264-267; or 2nd ed., pp. 206-213 and 285-288. See also *The Human World in the Physical Universe*, ch. 5.

useless". Quite a lot, no doubt, is, inevitably and quite properly¹³, but much scientific knowledge is, in my view, of profound social value. And we need to remember that science is of human value in *three* ways: intellectually, practically via technological and other applications, and methodologically (as a guide to how we should go about learning or making progress quite generally).

Wróbel declares that "it is impossible to claim that there exists a general structure of reasoning", and to back this up he cites criticism of classical reason, and critical remarks of Rorty, Sellars, Davidson, Wittgenstein, Kuhn, Feyerabend and Foucault. I take this to mean that what I have to say about scientific method, scientific rationality, and rationality more generally, cannot be adequate, cannot be sufficient for what I set out to do. This is a charge that it is very difficult for me to answer, as Wróbel here makes no specific criticism of my views at all. I can but point out that I have argued, at some length, that aim-oriented empiricism succeeds in solving a range of fundamental problems that have defeated rival views¹⁴, and is a considerable improvement over the views of Popper, Kuhn and Lakatos. As for rationality, the conception that I require for the argument I develop is one which holds that there are rather general methods, strategies or rules which, if put into practice, give us our best chance of solving our problems or realizing our aims. They guide us, but do not prescribe what we must do, and are not infallible. They are meta-methods, in that they presuppose there is a multitude of methods we can already implement successfully in performing diverse actions in the real world, and these meta-methods of reason help us marshal what we can already do to solve new problems, perform new actions, realize new or modified aims. The specific notions of rationality my argument appeals to are generalized from the progress-achieving methods of science. The specific four rules of rational problem solving I cite are, I claim, uncontroversial to the point of banality. It is all the more striking that knowledge-inquiry violates *three* of these rules in a wholesale, structural way. Astonishingly, Wróbel makes no comment on this central plank of my argument. There is certainly not a hint as to how the arguments of Rorty, Sellars and company have the slightest bearing on the validity of the four rules, or on the disaster of academia violating three of them in a structural way.

Wróbel suggests that wisdom conceived of as "the capacity to realize what is of value in life" falls short of Aristotle's notion of knowing how to live well. I am puzzled as to how this can be. If "living well" and "knowing how to live well" are of value, then they come within the compass of wisdom, as I have characterized it.

I am very surprised that Wróbel should say "following the reading of *From Knowledge to Wisdom* we are left with no clues how on earth the *growth of knowledge* is supposed to reconcile with the *growth of wisdom*". What wisdom-inquiry consists in, how it differs

¹³ We cannot always know, in advance that scientific research will result in socially valuable knowledge, and if we restricted research to that which we know will result in knowledge of value, scientific progress of a valuable kind would be undermined.

¹⁴ See N. Maxwell, 1998, *The Comprehensibility of the Universe: A New Conception of Science*, Oxford University Press, Oxford; 2004, *Is Science Neurotic?*, Imperial College Press, London, especially the appendix; *From Knowledge to Wisdom*, 2nd ed., ch. 14; 2012, Has Science Established that the Cosmos is Physically Comprehensible?, in *Recent Advances in Cosmology*, Nova Science, New York: <http://arxiv.org/abs/1210.1747>.

from knowledge-inquiry, how objections are to be countered, problems solved, and a host of other relevant matters, are discussed in great detail in that book. But as Wróbel says nothing about what his *problem* is in reconciling the growth of knowledge and wisdom, it is, once again, impossible for me to respond.

I am also somewhat astonished that Wróbel should say “Maxwell also leaves out an often discussed thesis put forward by sociologists of science according to which specialization is at the heart of modern abstract systems. The fact that all one can hope for in such a system is acquiring an expert position within one or two petty fields of modern system of knowledge means that for the majority the abstract systems remain vastly impenetrable.” *Three* of my four rules of rational problem-solving are designed to counteract specialization: one rule, only, recommends it. Wróbel might have a look at my article “Science, Reason, Knowledge and Wisdom: A Critique of Specialism”,¹⁵ published long ago in 1980 (and originally intended to be a chapter of *From Knowledge to Wisdom*).

Wróbel declares: “It remains a mystery how Nicholas Maxwell plans to reconcile the idea of good life based on wisdom with the requirements of liberal society and liberal principle of justice. Yet another is whether he aims to sacrifice the ideal of a liberal society, with its principle of impartiality and neutrality at the helm, in order to boost the state with wisdom and ethics.” I am baffled. What kind of good life would one have that is not based on a liberal society and justice? The good life of an autocrat, a plutocrat, or a dictator? As for the idea that liberalism demands that impartiality and neutrality be at the helm, that seems to me to be a misconception about what we should take liberalism to be. Liberalism for me is based on the idea that what is of supreme value in existence is the individual person – the flourishing of the individual life. But it is also, for me, based on the idea that much that is of most value in life is only realized to the extent that we live together – if not in friendship, and with love, then at least in a just and cooperatively rational way. Judgements of value are at the heart of liberalism, properly conceived; such judgements cease to be mere prejudices when they are subjected to the scrutiny of aim-oriented rationality.¹⁶

Wróbel goes on to declare: “When Maxwell posits that „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”, and when he adds that „Wisdom-inquiry embodies a synthesis of traditional Rationalism and Romanticism”, this certainly should read as an expression of his noble moral demands. However, he does not say a thing about how to fulfill these demands.” Not true. I have demonstrated that academic inquiry as it exists by and large today is deeply flawed, in a major, structural and very damaging way when judged from the standpoint of helping to promote human welfare, and I have spelled out in considerable detail the changes that need to be made if we are to have an academic enterprise well-designed and properly

¹⁵ N. Maxwell, 1980, Science, Reason, Knowledge and Wisdom: A Critique of Specialism, *Inquiry*, vol. 23, pp. 19-81.

¹⁶ What I say here, so briefly, about values and liberalism, is spelled out in more detail in my *From Knowledge to Wisdom*, ch. 10.

functioning when judged from this standpoint.¹⁷ Given all this, I find it astonishing that Wróbel should declare that I do “not say a thing about how to fulfill these demands” of what I set out to do. I have made it entirely clear that aim-oriented rationality and wisdom-inquiry, if put into practice in universities around the world, would be no instant, magic cure of all the world’s ills. Appreciating *that*, however, does not seem to me to be sufficient grounds for turning one’s back on the gross and damaging irrationality of academia today, and following instead the advice of a Leo Strauss.

Andrew Targowski does not just write about wisdom. In his article, he tells us about an undergraduate honours course in wisdom he set up and taught at Western Michigan University in the Spring of 2012. He is to be congratulated for this initiative. In his article, Targowski also gives a brief sketch of the recent history of the academic study of wisdom, and indicates his views about the nature, role and value of wisdom, how it differs from knowledge and intelligence, and how it can be conceived of in both personal and social terms.

A few years ago, Robert Sternberg remarked “If there is anything the world needs, it is wisdom. Without it, I exaggerate not at all in saying that very soon, there may be no world.”¹⁸ It is no doubt considerations along these lines that have led Sternberg, Targowski and a number of others, in recent years, to take up the academic study of wisdom, and develop courses devoted to teaching for wisdom in universities. If the world is to acquire vitally needed wisdom – so it is implicitly assumed – we first need to know what wisdom is, and how it is to be acquired. We need more *knowledge* about wisdom.

I view this growing research programme into improving knowledge about wisdom with mixed feelings. It is undoubtedly, from my point of view, a step in the right direction. But it is also, as I see it, a somewhat inadequate response to the impending crises we face. It is very much a knowledge-inquiry initiative. For, the basic idea is: If we are to become wiser, we must *first* improve our *knowledge* about wisdom. That is the central tenet of knowledge-inquiry: *first*, acquire knowledge; *then* apply it to help solve social problems.

What we need is something much more radical. Instead of improving knowledge about wisdom, and teaching for wisdom, within the current framework of knowledge-inquiry, what we need to do is bring about the comprehensive intellectual/institutional revolution in academia so that the whole enterprise becomes rationally devoted to seeking and promoting wisdom by intellectual and educational means. Improving *knowledge* about wisdom within the current framework of knowledge-inquiry is not an adequate substitute for wisdom-inquiry.

At this point I should perhaps confess that, for me, wisdom is very much an after-thought, a side issue. My central concern is the damaging irrationality of science, and of academic inquiry more generally, when judged from the standpoint of helping to promote human welfare, and the urgent need to bring about an academic revolution so that we may come to have universities rationally devoted to helping us achieve what is of value

¹⁷ See especially my *From Knowledge to Wisdom*.

¹⁸ R. J. Sternberg, 2003, *Wisdom, Intelligence, and Creativity Synthesized*, Cambridge University Press, New York, p. xviii.

in life. When I first spelled out this argument in my first book *What's Wrong With Science?* In 1976, I made no use of the notion of “wisdom” at all. Only later, for my second book published in 1984, casting around for a word to stand for the basic aim of the kind of inquiry I argued for – to help enhance “the capacity, and the active desire, to realize what is of value in life, for oneself and others”, did it occur to me that I might employ the word “wisdom” to stand for this capacity, this aim. I did so reluctantly, well aware that “wisdom” comes with all sorts of undesirable associations.¹⁹

So, I am enormously encouraged by those who, like Sternberg, Targowski and others, seek to improve academic *knowledge* about wisdom, and promote teaching for wisdom, within the current framework of knowledge-inquiry. But at the same time I am firmly of the view that something much more radical is required if humanity is to learn how to make progress towards a wiser world.²⁰

I come, finally, to Anna Michalska’s essay. Michalska begins with an exposition of the conception of science I advocate – aim-oriented empiricism (AOE). She clearly thoroughly understands the basic idea. I might myself formulate some things slightly differently, and there are one or two points of fine detail with which I disagree. For example, the metaphysical thesis at the top of the hierarchy of theses of AOE is, despite what Michalska says, a thesis about the entire cosmos: it asserts that the cosmos is such that we can acquire some knowledge of our local circumstances. It is not always appreciated that even our most trivial items of common sense knowledge imply some knowledge of the entire cosmos. I would ordinarily be said to know that this pebble, that I hold in the palm of my hand, will continue to exist for the next minute. But this implies that nowhere in the universe is there an explosion which will travel at near infinite speed to engulf and destroy the earth and the stone in my hand in under a minute. I only know the statement about the pebble if I know what it implies, the statement about the cosmos. Thus, even our most trivial items of common sense knowledge contain some implicit knowledge about the entire cosmos.

Michalska goes on, in section 2 of her essay, to make a number of interesting points about implications that AOE may be held to have for a variety of issues having to do with such matters as rationality, the heuristics of problem solving, decision making and planning, the physical comprehensibility of the universe, the relationship between science and the philosophy of science. The key feature of AOE that I wish to stress is this: the basic aims of science are permanently and profoundly problematic; we need, therefore, to try to *improve* the aims (and associated methods) of science as we proceed; the best way to do this is to represent aims – or problematic assumptions inherent in aims – in the form of a hierarchy, these aims (or assumption) becoming less and less problematic as we go up the hierarchy. This provides us with a framework of relatively unproblematic aims and methods (high up in the hierarchy) within which much more problematic aims and

¹⁹ For an account of my struggles to develop and communicate the “knowledge to wisdom” argument, see N. Maxwell, 2012, Arguing for Wisdom in the University: An Intellectual Autobiography, *Philosophia*, vol. 40, no. 4; available at <http://discovery.ucl.ac.uk/view/people/ANMAX22.date.html>.

²⁰ For a more detailed expression of my reservations, see N. Maxwell, forthcoming, Misconceptions concerning Wisdom, <http://philpapers.org/archive/MAXMCW.1.doc>.

methods (low down in the hierarchy) may be improved as we proceed, there being, as Michalska stresses, something like positive feedback between improving knowledge, and improving aims and methods – improving knowledge about how to improve knowledge. In order to appreciate what it is that has made it possible for science to be so successful – the rationality of science – it is essential that we see the philosophy of science (the study of the aims and methods of science) as an important, integral part of science itself. We need to recreate natural philosophy!

Michalska goes on to argue that AOE demands a new theory of language. Quine's theory cannot do justice to AOE, but Habermas's theory can. I am not sure that I can follow Michalska here into this linguistic territory. It has always seemed to me that *the* great sin of philosophy is to put forward a *theory* of meaning, of language, which then, in a subtle, underhand way, becomes something quite different, a *criterion* of meaningfulness and a tool to demolish philosophical problems. This is the great flaw in David Hume's *Treatise*, in many ways that rare thing, a work of philosophy exhibiting great intellectual integrity. The flaw is everywhere apparent in Wittgenstein, and in the works of the logical positivists and logical empiricists, including Carnap and Quine. I am not convinced that AOE creates any special problems for the theory of meaning and language, but certainly any theory that hopes to be adequate must be able to accommodate linguistic activity associated with AOE, and science. I am not convinced that, for this, one needs to appeal to Habermas.

Michalska next declares that my conception of philosophical analysis is very similar to that of Collingwood's. There are some things in Collingwood's work that I admire, so I am happy to entertain the possibility that we have the same conception of philosophical analysis. However, from what Michalska has to say about Collingwood, I did not recognize my own views about philosophy, already hinted at above.

In the final section of her essay, Michalska is critical of my “from knowledge to wisdom” thesis. I found her criticism puzzling, and I am not sure I have understood it. She says I hold that knowledge-inquiry needs to be “replaced by wisdom-inquiry as entailed by AOE”. But I would never hold that AOE *implies* wisdom-inquiry. She says that my “diagnosis is that the whole philosophical tradition we subscribe to is more or less permeated with the fallacious supposition that scientific method … is the very essence of rationality”. But this is not my diagnosis at all. Quite the contrary, I take scientific method as I construe it in terms of AOE as a paradigmatic exemplification of rationality. The conception of rationality I espouse, *aim-oriented rationality* (AOR), is a generalization of AOE. Here, I tread a path parallel to Popper's, as I have explained elsewhere.²¹ Just as Popper generalized falsificationism, his conception of scientific method, to arrive at critical rationalism, so I generalize AOE to arrive at AOR. And it is AOR that is at the heart of wisdom-inquiry, not AOE, as Michalska seems to suppose. Michalska goes on to ask of wisdom-inquiry “Where did all the feedback loops go?”. They are still there. My fourth rule of rational problem-solving requires specialized and fundamental problem-solving to influence each other. All the arrows of influence in diagram 1 go in both directions. AOR inherits from AOE all the feedback loops inherent in the latter. Michalska says I hold that “science should devote itself to advancing mere

²¹ See my *Arguing for Wisdom in the University*.

technicalities”. But, as I have already mentioned, there is a whole section of “Menace”, my article under discussion, devoted to arguing that wisdom-inquiry does better justice to inquiry pursued for its own sake than does knowledge-inquiry – and I make it clear that that includes natural science. Michalska asks “how can one simply make a list of the most urgent, global problems to be solved—AIDS epidemics, climate change etc.—and expect that all scientist gather together to find a universally applicable cure for these?”, the presumption being that I hold that this is what wisdom-inquiry should do. There are at least two things wrong with this. First, I state very clearly in “Menace” that it is *human actions* that, fundamentally, solve our problems of living – even when new scientific knowledge and technology are required. Wisdom-inquiry, fundamentally, seeks to help solve problems of living by imaginatively articulating and critically assessing possible actions, policies, political programmes, philosophies of life – not exactly *science*. Second, I state very clearly that getting a clearer idea about what our problems of living are is absolutely basic to wisdom-inquiry. My first rule of rational problem-solving, basic to wisdom-inquiry, says “*Articulate, and try to improve the articulation of, the problem to be solved*”.²² The basic idea of aim-oriented rationality (AOR) is that, because aims in life are often inherently problematic, we need to try to *improve* aims as we act, the hierarchical meta-methodology of AOR, inherited from AOE, being designed specifically to help us to do just that. As we improve our aims, so we improve the way we formulate our *problems*. I do, of course, begin my article with a list of what I take to be major problems facing humanity, but I do that to motivate what follows: it is not intended to depict how wisdom-inquiry should proceed. Once again, Michalska seems to have misunderstood quite seriously the character of wisdom-inquiry. What she singularly fails to do is criticize my two arguments that highlight the damaging rationality defects inherent in knowledge-inquiry – defects which require, for their removal, the adoption and implementation of wisdom-inquiry.

²² In addition, there will be feedback in both directions between social inquiry and natural science, in accordance with rule 4 of rational problem-solving. As a result of improving our understanding of what our problems of living are, we may well come to change priorities of scientific research; and as a result of improvements in scientific knowledge, we may well come to change our ideas about what our most urgent problems of living are.