

Prospects of a Resurgence of Commonsense Realism in Modern Physics

by

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Abstract

The majority of people nowadays neither know nor care what Theoretical Physics is or what it does. In the subject itself, confusion reigns supreme. Many professionals believe that it has gone beyond any prospect of repair with more and more theoretical patching and that nothing less than a whole new philosophical approach – a new *paradigm*, in effect – is now long overdue.

In this paper, we seek to address this problem with a proposed radical solution along the lines initiated by Mach. Bypassing the mystifying ‘Positivism’ of the Copenhagen approach, we suggest mobilising a new philosophical underpinning for physics. This is the commonsense realism, or relational holism, that is based on a philosophical discovery by the Oxbridge neo-Machians of the early twentieth century but which, despite its vital logical relevance to Physics, is still virtually unknown in that subject.

Transcript of talk (*verbatim*)

My dear friends and colleagues, here is a rather important question. What do modern physicists mean when they talk about ‘realism’? Certainly, it is nothing like what ordinary people regard as realism. So, what is it? To answer this, we need to remind ourselves of what physics *is*.

What we now call ‘physics’ was founded on the atomistic theory of the Greek philosopher, Democritus, in the 4th century BC. This was then introduced to the West by the French philosopher, René Descartes in the seventeenth century AD. Ever since then, the question physics has been designed to answer was: How do our ideas of things in the world relate to those things as they *really* are in themselves?

Now not many people know this: that a revolutionary change in this long-established way of thinking took place very quietly in the early years of the last century. This was when it dawned on some modern philosophers that so far as human knowledge is concerned, what a thing *really* is, in itself, and what our *ideas* are of that thing can never be separated in that radical way. Our *ideas* of what nature is, and what nature *is in itself* ‘behind those ideas’, they realised, are never *two* things but *one*. What had been classically conceived, then, as ‘The Problem’ of fitting our *ideas* of physical reality to that reality itself turned out to be no more, in the end, than the problem of fitting one set of ideas to another. This is a different problem entirely from what had been assumed by physicists since Descartes.

Foremost among those who were party to this new realisation was the well-known physicist-philosopher, Ernst Mach, whose thoughts in this new direction, although virtually lost on his physics colleagues, were followed to their logical conclusion by the Oxbridge philosophers Moore, Austin, Ryle, Ayer and Wittgenstein. The most recent development along these lines is that of a whole new approach to modern physics called Normal Realism. In this radically different way of

thinking, the *real* problem for fundamental physics can never be to match our human perceptions and conceptions of things to those things as an all-seeing 'God' might be presumed to see them. Since there is no such ubiquitous 'God's-eye-view' of things that could possibly be known to man, this view, which many physicists fancifully call 'realism', turns out to be a complete delusion. It fools us into thinking that the fundamental problem to which physics is addressed is that of matching our conceptions and theories to things that, in some indescribable way, we already know.

This insidious God's-eye-view fundamentalism puts theoretical physics in a stranglehold. This is akin to so many religions that are based on presumptions, by certain dogmatists, of possessing a unique and special knowledge of how 'God sees things'. Now a *belief* in God is one thing, and we are by no means hostile to religion in that sense! However, for finite beings like ourselves, what else can these 'God-given insights' possibly be but, at best, *conventions*? And since conventions are invariably different for different peoples and societies, then what prospect can they ever present but that of the sort of conflict that reason can never resolve and for which the only settlement lies, ultimately, in all-out war?

Similar 'God-given' insights tacitly assumed by the self-styled 'realists' of physics maintain, in the same way, a conflict which is every bit as impervious to logical reason as anything that may be found among the dogmatic religions. This conflict centres on what these fundamentalists of physics see as the blasphemous rejection of our classical, Newtonian 'God's-eye-view' of absolute space and time. Its place, as they see it, has been usurped by a new 'relativistic' interpretation in which space and time are no more than projected dimensions of human perception, with no reality in themselves beyond our own finite and purely subjective imaginations.

However, in the 1970s, a new commonsense realism called *Normal Realism* appeared on the scene. Opposed to the 'God's-Eye-View' Fundamentalism, this sees the essential problem to which physics is addressed, not as speculating and theorising about 'realities' *underlying* or *transcending* all knowledge of them but simply as the solving of problems arising from *logically conflicting perceptions* of ordinary and instrumental observation. Perceptions and conceptions that contradict one another naturally excite our curiosity. This prompts us, as normal freethinking individuals, with the tools of logic and mathematics at our disposal, to revise our ideas, in the various sectors of observation and experience, towards satisfying the need for what is commonly known as *understanding*.

The essential departure, then, between Normal Realism and the traditional God's-Eye-View Fundamentalism consists of removing from physics the artificial dichotomy which separates our ideas into the two Cartesian categories, in the one of which, ideas are considered fair game for creative overhaul and revision while in the other they are regarded as forever settled and sacrosanct. But since they are all, without exception, *ideas*, then *what possible justification could there ever have been for Descartes to segregate them in that purely arbitrary way?* For instance, ideas about 'atoms' are not ideas about self-sufficient, non-ideational entities. They are *ideas about ideas*. This was what Mach taught. In his approach to physics there are no *atoms* as 'things in themselves'. Nor is there any self-sufficient and self-enduring space for them to float around in. Likewise in Normal Realism, anything we may identify in thought and language, be it 'atoms' 'electrons', 'charges', 'fields', 'photons', 'caloric', 'phlogiston', 'ectoplasm' or whatever, is revisable in the light of rational reflection on ongoing experience. This lends point to the massively misunderstood Wittgensteinian edict that 'the World is language', which seems, from

the presumptuous 'God's Eye-View' standpoint, to be sheer nonsense. Those old-style realists would say: how can things like material particles, gravitational fields, electric fields and so on, 'as God sees them', be just 'bits of language'?

Allied to this is the superstition, on the part of these physical fundamentalists, that without the underpinning provided by their preconceived, God-given 'absolute reality', physics would lose its time-honoured 'objectivity' and collapse into an anarchy of purely 'psychological' ideas and impressions. That this fear is unfounded, however, becomes plain when we consider that these 'ideas and impressions' come well supplied with their own *in-built criterion of objectivity*. This criterion is, of course, that of the logical coherence and consistency of these ideas in the context of evolving experience and language. Far from being 'merely subjective', this criterion of logical objectivity is common to all who are of sound mind, and it fits, perfectly, the description of what is ordinarily known as 'commonsense'.

As long, then, as we remain careful in attending to its continued construction, reconstruction and maintenance, this language of commonsense is objective in a way which needs no reference to anything beyond itself. This is precisely the point that was made by Wittgenstein about the World being Language – or *logos*, as the Greeks called it. On the other hand, any perceptions or conceptions assuming the status of God-given truths may serve as no more than stumbling-blocks in the path of true rational progress, since it is only in the context of experience as a matured whole that our ideas of what there is, and how it is, can be properly verified and understood.

Such, at any rate, was the holistic approach to knowledge that used to be called 'natural philosophy' until it disintegrated into the specialisms that have since become known as 'the sciences'. The material advantages for industry and commerce of this atomising of knowledge have, of course, been huge. Relieved of having to coordinate ideas in each particular sector of expanding science with those in each and every other, the purely practical advantages this eclectic substitute for natural philosophy offers to society (to our Western society, at any rate) can scarcely be doubted. However, as many non-Westerners judge, it has spectacularly failed to produce anything like the sort of understanding a true science *ought* to provide of man's existence in the wider scheme of things. Past societies that have been materially replete and relatively peaceful were able to afford pursuits of that more contemplative and far-reaching kind, with no compulsion for these studies to be what we now call 'cost-effective'. In complete contrast is the way in which, in the university curricula of our modern Western Education, studies of that expansive sort, such as Philosophy, Theology – and even Theoretical Physics – have become more and more phased-out in favour of so-called 'focussed' subjects like Management, Business Studies and Information-Technology.

Much of this is due, undoubtedly, to the confusion already mentioned that has become endemic in the more traditional subjects, following the disintegration of the Philosophy that was once regarded as 'the Clearing House of the Sciences'. It must surely be some kind of joke that in Philosophy's replacement by today's more or less autonomous specialisms, doctorates in 'Philosophy' (Ph.D.s) may now be awarded in subjects like sport, pop-music and Tourism. *What on earth*, one wonders, can these subjects have to do with what was originally conceived as Philosophy?

So, we might ask, what makes our modern society so different from those earlier societies, that we can no longer afford to spread our intellects in the way they did? What else can we answer but that in the manner already described, we have muddied the waters that were so much clearer in those earlier days? We gain our

ideas, nowadays, not so much from nature as from a clutter of age-old traditions telling us how, in a God's eye-view world behind and beyond all our perceptions, mindless matter, in and of itself, moves and interacts in a self-sufficient space and time to create the world we see around us. The social confusion this causes cannot be removed simply by fiat. Political, religious and military solutions signally fail to achieve any commonsense consensus as to the significance of human life and society *on this planet*, let alone in the wider scheme of things. All these 'solutions' achieve is to muddy the waters still further, not only with the sludge of our atomistic tradition but also, quite literally, with the blood of those who, like the citizens of places such as Hiroshima and Nagasaki, find themselves at the rough edges of our Western, completely amoral, 'scientific' advances.

How then, should we seek to solve this catastrophic loss of commonsense realism in physics, other than by unpicking the conceptual fabric of the subject, right back to where it all went wrong, mending the Cartesian split between 'atoms' and our 'ideas of them' and logically re-stitching it all from there? Our typically Western notion, therefore, that Physics and Mathematics have to do with 'the world as God sees it', and Philosophy with no more than our 'airy-fairy human ideas' needs to be disposed of in favour of a regenerated, more wholesome and commonsense, *natural philosophy*, in which studies like psychology, sociology and morality – and even objective theology – become, once again, with practical physics, all seamlessly merged within the Ph.D. curriculum.

However – and mark this well! – the 'Eureka!' of logical realisation that switched Modern Philosophy away from the bogus God's-eye-view Fundamentalism of Descartes towards a systematic, secular, commonsense realism has *not yet taken place in Physics*. There, the Machian legacy has served only to derail the train of Modern Physics, some of whose conceptual carriages lurch roughly in the new 'relativistic' direction while others rumble brokenly on into the Cartesian *cul de sac*. To create an awareness in Physics of the logical switch that has taken place in its philosophical underpinnings, away from the old Fundamentalist Realism of Democritus and Descartes, towards the new Normal Realism, or Relationism of Mach and his followers is a task undertaken by a small multi-disciplinary group, providing wide-ranging inputs from areas of physics, mathematics, philosophy, information-technology, psychology, electronic engineering – and, not least, ordinary commonsense.

Beginning in the nineteen-fifties with a short correspondence with Einstein, in the nineteen-seventies the name 'Normal Realism' was given to this new philosophical approach. Since then it has opened up significantly new logical and mathematical lines of enquiry, particularly in the areas of relativity, quantum theory and gravitation. Properly applied, Normal Realism offers a natural commonsense means of synthesising these notoriously disparate classical aspects of physics. This it does by providing a logical solution to the conflict between, on the one hand, Einstein's *absolute light-speed limitation* on distant interaction, and, on the other hand, the *instantaneous distant correlation* of motions demanded by quantum physics. It will, of course, seem to those who have struggled to solve these problems within the conventional paradigm that these *unconventional* claims are extremely presumptuous. But these problems can't remain problems for ever. Sooner or later, someone *has* to solve them, and since no natural solution has appeared from within the context of the existing paradigm, then what can we lose by trying-out a whole new philosophical approach? In any case, more and more papers and books are now being published in

which this new and entirely radical (albeit, predictably unpopular) commonsense synthesis of relativity and quantum theory is proposed.

A recent book entitled *Instantaneous Action-at-a-Distance in Modern Physics: Pro and Contra*, of which I am one of the editors, has led to a series of meetings and Workshops at the British universities of Swansea, Keele and West of England, where these radical ideas are being explored in depth – though not without some internecine controversy, it must be said. Nevertheless, a measure of consensus has definitely been achieved among the members of what has now been called the ‘Swansea Group’. This debate is to appear in a new Nova Science book, provisionally entitled: *Unmediated Instantaneous At-a-Distance Action and Correlation in Modern Physics*, which I and my colleague, Prof. Alan Winfield, are in the process of editing and producing.

But of course, revolutions take lifetimes, and their beginnings may be unspectacular. So, whether or not our efforts will succeed in instigating the ‘New Paradigm’ that so many feel is long overdue, remains to be seen. What can truly be said, at present, about this newly explored philosophical departure, is that, after a very slow and inauspicious start, fifty years ago, there are now definite signs that it is gaining ground against its critics and detractors, having become, as someone has said, a ‘force to be reckoned with’. And if a propensity to create animosity and face charges of heresy were ever the measure of a true paradigm shift, then be assured that from its track record so far, our ahistorical, anti-Cartesian, Normal Realist approach to modern physics, has a hell of a lot going for it!

Thank you.

May I now open this subject to discussion.