

The Nagel-Pinker Divide

By Douglas Lockhart

On Our Not Being Disabled by the Reductionist Argument

The conflict between scientific naturalism and various forms of antireductionism is a staple of recent philosophy. On one side there is the hope that everything can be accounted for at the most basic level by the physical sciences, extended to include biology. On the other side there are doubts about whether the reality of such features of our world as consciousness, intentionality, meaning, purpose, thought, and value can be accommodated in a universe consisting at the most basic level only of physical facts - facts, however sophisticated, of the kind revealed by the physical sciences.

Thomas Nagel
Mind & Cosmos (p. 13)

The Frontiers of Disagreement

The American philosopher Thomas Nagel has gained notoriety among his peers for posing what many think are redundant questions to do with the nature of consciousness and mind in his book *Mind and Cosmos* (2012). Arguing against the neo-Darwinian view that consciousness somehow emerged from matter (he accepts the theory of evolution on all other levels), Nagel rejects theoretical reductionism (the theory that consciousness and mind are derivable from physics) on the grounds that phenomena inexplicable in materialist terms are being ignored. As the adjunct of theoretical reductionism is evolutionary naturalism (the belief that our minds and morals are accidental products of blind material processes), this too is rejected by Nagel on the grounds that it makes a nonsense of our ability to rationally determine the truth of our own statements about self, other or world. What confidence could we possibly have in our capacity to determine anything of value if our capacity to do so was grounded in a process of natural selection acting on random genetic mistakes?¹

That we do have such confidence suggests to Nagel that our reliance on natural selection has gone beyond the bounds of reasonable utility and become, inadvertently, an excuse to close down the question of how consciousness arose because it raises questions we are unwilling to consider.

For Nagel's opponents these are non-questions, non-problems of his own making in that he overlooks the brute fact of there being no other possible explanation

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for consciousness or mind. Nothing else is on offer, they say. No other route has presented itself that makes sense in such an all-encompassing fashion. Yes, the physicalist answer was not specifically built to deal with the questions that consciousness and mind pose (these questions are still being debated on a wide front), but in terms of logical continuity, it works perfectly well for those who are more scientifically oriented. There are of course religious explanations, but they have no factual base and have to be discarded. Which is of course the principle argument against Nagel: his intellectual waywardness is seen as opening the way for every science-denying crackpot to emerge from the bushes. Gift nature with teleological intention, direction or aim, and you unravel everything gained by science in relation to religion's unverifiable claims. We've moved on a pace since these dark days. The only viable explanation for consciousness and mind is that it was an evolutionary necessity just as thick fur was a necessity for animals in cold climates: it gave us an advantage in the survival stakes. Environment is all. World is all. Physicality is all. It is only a matter of time before the so-called inexplicable aspects of reality become explicable. The big questions have been dealt with, the small, irritating questions will be settled in due course.

Well, that's the hope, the expectation, the belief of some thinkers in science and philosophy. But as Michael Weisberg and Brian Leiter point out in their article 'Do you Only Have a Brain: On Thomas Nagel',² not all philosophers or scientist trace consciousness and mind down to physics in such an ultra-reductive manner: the sciences have not in fact progressed in a way consistent with Nagel's accusation. Psychology has not been reduced to biology. Biology has not been reduced to chemistry. Chemistry has not been reduced to physics. The problem lies elsewhere; namely, with the proliferation of fields like neuroscience and evolutionary biology attempting to explain psychological and biological phenomena in terms unrecognised by those involved in physics. There has been no serious attempt to reduce all the "higher" sciences to the laws of physics.

There is no doubting that Nagel has been guilty of exaggerating the influence of theoretical reductionism as claimed, but it is an approach that nevertheless stands in that those shouting the loudest seem to be the only ones being heard. If not actually true, Nagel's accusation appears to be true in that neuroscience and evolutionary

biology's answers to the big questions are being spruiked by the media as the only show in town. Latching on to the accomplishments of science in general, neuroscience draws credence for its ultra-reductionist views and leaves the impression that the sciences are in general agreement with its conclusion. The seemingly impossible has been accomplished by science's rigour, and the widely held expectation of physicalists is that science's tried and tested methodology will eventually penetrate to the very core of reality itself. All will be explained in the sense of an overarching comprehension of reality's extraordinary properties summed up in a "theory of everything" that will put to rest the naive argument that self, other and world can be taken at face value. Not all scientists or philosophers believe such an all-encompassing theory to be possible, but it is the declared hope of not a few, and even Nagel seems to think a philosophical summing up of reality may at least be possible. Reject the notion of a materialist final reckoning he may, but he nevertheless envisages a "non-materialist" reckoning where everything we presently believe about the nature of reality will be conceived in terms other than those of the physicalists. Science, he argues, is betraying its own principles of observation and verification by claiming to have explained what it quite obviously has not explained: how our non-physical capacity to reason and know and understanding arose out of the mindless attractions and repulsions of physical matter. To simply say that that is how it must have been is to arrive on the other side of logic's sturdy fence claiming to have built a style that is no where in evidence. The only style in evidence is a style of thinking driven by an almost manic need to put all non-physicalist conceptions of reality out of business. Anything other than a physicalist explanation for self, other or world is perceived as quasi religious and has to be rejected on that basis. A religious bogey-man exists in every minute shift from the dominant reductionist paradigm, any attempt to loosen that paradigm's grip on the imagination taken as proof of nefarious intent.

Thomas Nagel's basic argument against theoretical reductionism and evolutionary naturalism is multipronged and confronting; he has ruffled both scientific and philosophical feathers and that can be viewed as either brave, or downright foolhardy. Given the avalanche of criticism and vitriol generated in response to *Mind and Cosmos*, the latter rather than the former seems to be the case. And that in spite of his careful and repeated denial that he has turned neither theist nor Intelligent Design

advocate. In response to his criticism of Darwinism and materialism, he has been classed as a mischief-maker and scientific heretic, the psychologist Stephen Pinker going so far as to use a four letter word to complete what he saw as "the shoddy reasoning of a once great thinker." Pinker's reaction is however deemed "haughty" by Leon Wieseltier in an article supportive of Nagel, an article titled 'A Darwinist Mob Goes After a Serious Philosopher',³ and as Pinker is a staunch supporter of neuroscience's pronouncements, the observations of Michael Weisberg and Brian Leiter concerning neuroscience's rise to dominance begin to make sense.

Pinker's attack is based on Nagel being a philosopher and not a scientist, a philosopher who admits to being a well-read "layman" in scientific matters, but who nevertheless has the audacity to launch a concerted attack on the physicalist premise. And on evolution's explanatory power. And on the browbeating of just about everyone into accepting the reductionist, fatalistic model of reality so astutely pinpointed by Iris Murdoch in 1992. But this isn't "science" speaking; it is, as Wieseltier notes, ". . . the scientific tyranny in American intellectual life that scientists have been invited to do the work of philosophers." Problem is, "scientism" is not science proper; it is a style of thinking within science that goes beyond the legitimate claims of science. Some philosophers and psychologists have of course taken on this style of thinking due to its advantages, those being that the ultra difficult questions arising in connection with consciousness and mind can be safely pushed aside. For who can argue with the cause-and-effect findings of science? Or is that the wrong question? Should the question not rather be: what has happened to the integrity required in the asking of philosophical questions with regards, specifically, to the neuroscientific claim that a human brain is effectively no different from the affectively blank, computer-driven circuitry of a robot? Enter Nagel with what I think is an observation of substance: "The hope is not to discover a foundation that makes our knowledge unassailably secure but to find a way of understanding ourselves that is not radically self-undermining."⁴ I like that; these are the words of human being struggling against all the odds to be a human being.

The Undiscovered Mind

The above heading is actually the title of a book published in 1999 by John Horgan, one time senior writer at Scientific American and author of *The End of Science* (1996), a work dealing with the touchy subject of neuroscience which, like *The Undiscovered Mind* was found to be "unpersuasive" by Horgan's neuroscience critics. The term "unpersuasive" was of course a euphemism; the gripe against Horgan was that he had had the audacity to suggest that science had passed its peak due to its implicit slighting of mind-related fields in favour of physics and cosmology. Scientific interests could be ranked according to importance, it seemed, quantum mechanics and general relativity being fundamental, mind-related disciplines such as psychology and psychiatry being of peripheral importance.⁵ And that in spite of the fact that the mystery of how consciousness and mind had arisen out of dead matter had not actually been resolved, merely conjectured to have been resolved by way of the circumscribed belief that the physicalist explanation was the only viable explanation. All one had to do was find the courage to push the reductive argument for human sentience as far as it could go and the problem solved itself. But that took existential courage; to accomplish this one had to jettison naive hopes and beliefs and accept the inevitability of science's findings, findings that would in due course produce a wholly different kind of world from the one we now knew. Horgan, with what I sense to be manufactured innocence, anticipates this new world thus:

If neuroscientists, psychologists, artificial intelligence researchers, and other investigators of the psyche realise all their dreams, we may one day live in a culture shaped by true theories of human nature. We may no longer fret over the nature-nurture conundrum or the mind-body problem, because they will have been resolved to everyone's satisfaction. We may know enough about our natures to design a political system that minimises misery and maximises happiness. We may have at our disposal drugs that dissipate despair and amplify memory, genetic therapies that abolish manic depression and boost intelligence. We may be served by robots as

clever and charming as Star Trek's Commander Data. We may become robots as clever and charming as Commander Data.⁶

As a cultural summation of what might lie ahead of us, Horgan's vision could easily be construed as George Orwell's 1984 dystopia come to life in a set of hermeneutically convenient, hermetically sealed notions about to be played out on the stage of a growing political expediency. For neuroscience has now spawned spinoffs such as neuro-politics and neuro-ethics, and that, in terms of Iris Murdoch's postulated impersonal world rhythm in "Metaphysics as a Guide to Morals" (2003), casts an ultra-reductionist shadow on the principles of democracy that many of us still cherish. But wait a minute, that is surely to go too far. Neuroscientists are just doing their job, and that job necessitates the use of advanced computer technology in the simulation of responses generally associated with human beings. True, but one has to square that utilitarian fact with the curious notion among neuroscientists that their computers are generating not just an equivalent capacity for learning, thinking and communicating, but also a robotic capacity for sentience. That's where the problem lies, and it is a problem because it reflects a style of thinking deeply influenced by the notion that human subjectivity is at base no more than a system of unavoidable responses generated in relation to world as other. Which takes us back to Thomas Nagel and the necessity of finding a way of understanding ourselves that does not radically undermine our conception of self, other and world, a way of talking philosophy and science that does not bring us to a stuttering methodological halt. The deeper aspects of our nature may actually be beyond our reach to the extent that our capacity to reason our way beyond the limitations of language will for ever deny us the final reckoning we now crave. The language of mathematics does of course transcend such limits, but it is a language requiring "concepts" to be understood, and concepts, whatever their scope, cannot form but within the limitation that language imposes.

Stephen Pinker's Therostatic Humans

Not all neuroscientist think like Stephen Pinker, but not a few do, and it is a growing trend in psychology and elsewhere. Basically, neuroscience's approach to the problem

of consciousness, mind and perception is to work from the bottom up rather than from the top down. This means starting with the most accessible parts of the perceptual system, which are of course the end organs and their peripheral connections, and from there work one's way inwards in search of sensory systems such as vision, audition or sensation, perceptual synthesis being viewed as "... an exhaustive calculation from the totality of input at our sensory surfaces."⁷ Consciousness, and therefore mind, is the result of massive sensory input unconsciously computed into a perceptual whole by the brain and delivered up as conscious awareness which, because it also happens to include sensory input from the body as a whole, is re-cognised into the helpful notion of an individual among individuals: that is, as a recognisable object among other recognisable objects. Hence sense of self. We are, in other words, the sum of our perceptual and inherited parts modified by society or culture by way of a steep or shallow learning curve.

According to Pinker, however, human behaviour "is not just emitted or elicited, nor does it come directly from culture or society. It comes from an internal struggle among mental modules with differing agendas and goals."⁸ Information processing in the brain causes mind; in fact it is mind, and that tells us that "every aspect of our mental lives depends entirely on physiological events in the tissues of the brain."⁹ When chemicals seep into the brain, perception, mood, personality and reasoning are altered, just as when a portion of brain tissue dies a part of the mind can disappear.¹⁰ Perception, cognition, language and emotion are all rooted in the brain, which tells us that our notion of being a "self" to ourselves "is just another network of brain systems" at work.¹¹ Understanding matter and energy is the greatest scientific advance of the second half of the twentieth century, the emergence of life necessarily perceived not as separate from matter, but an expression of matter to be understood in terms of molecular machinery.¹² Ordinary events have causes, human behaviour appears to have reasons backed by beliefs and memories, but all of the latter is the result of information processing, computation and feedback. Beliefs and memories are no more than stored information, thinking and planning no more than the transformation of

patterns, wanting and trying no more than feedback loops.¹³ In principle we function like thermostats: we receive information about the world and execute operations on that basis.¹⁴ Computational theory not only explains "knowing", "thinking" and "trying" without invoking the problem of a "self" behind the scenes, it also explains how those processes can be intelligent, indeed, how rationality itself can emerge from mindless physical processes.¹⁵ Reasoning is computation. Perception is but computational paraphernalia. Personality flaws such as being "aimless, careless, conforming, impatient, narrow, rude, self-pitying, selfish, suspicious, uncooperative, and unpredictable" are the result of gene differences and heritable traits. In the field of artificial intelligence "ordinary matter" is being shown capable of feats once believed solely the province of mind. Hence the reason electronic brains are called "brains"; they can now calculate sums, organise data, prove theorems, correct spelling, set type, solve equations, pick stocks and diagnose diseases.¹⁶ Computers can now read text, decipher speech and recognise faces (feats psychologists once thought to be impossible outside of a human brain), the computational theory of mind now recognised as theoretically capable of judgment, reflection and creativity.¹⁷ And rightly so, according to Pinker, given that artificial intelligence has shown itself capable of writing "credible short stories, compos[ing] convincing Mozart-like symphonies [and] draw[ing] appealing pictures of people and landscapes".¹⁸

One could go on and on quoting such marvels from Pinker's work, and from the work of others equally convinced that artificial intelligence will eventually be capable of doing everything we do, and in all likelihood better and faster. Which tells us something important about the kind of intelligence envisaged. As applied to artificial intelligence systems, 'better' and 'faster' constitute one system of operation (the process of accomplishment is better because it is faster), whereas with humans "better" constitutes a value. It is of course a given that artificial intelligence will accomplish its tasks faster due to lack of distraction, and that fact signals the intrinsic difference between the two intelligence systems: value states and judgments belong to self-aware, affectively alive biological systems; better because faster artificial intelligence systems

lack here-and-now experience and are, by definition, dead in that no value judgments can form. A computer can inform you that an error has occurred, but it doesn't actually know what an "error" is; it only knows ("detect" would be a more accurate term) that something doesn't add up. Given Pinker's claim that computational theory explains "knowing", "thinking" and "trying", and that he considers this fact to have cancelled out the problem of a self behind the scenes, I found it odd to then hear him admit the following: "None of this is to say that the brain works like a digital computer, that artificial intelligence will ever duplicate the human mind, or that computers are conscious in the sense of having first-person subjective experience." Well, how about that, I thought. If the brain doesn't work like a digital computer, then what exactly can one compare it to? I read on. "But it does suggest that reasoning, intelligence, imagination, and creativity are forms of information processing, a well-understood physical process. Cognitive science, with the help of the computational theory of mind, has exorcised at least one ghost from the machine."¹⁹ Really? We knew right from the beginning that the brain processes information, so what was new? And what did Pinker mean by a form of information processing? Oh yes: everything we think, realise, reflect on or imaginatively create is the result of information processed by the body's neuronal systems: there's isn't actually any "mental" aspect to mind at all.

I can well understand Pinker's problem with the "self behind the scenes" argument, but the use of "machine" in place of "body" is off-putting and misleading; it throws a legitimate argument out of kilter in that the idea of "self" need not be read in such a mechanistic fashion. Self can just as easily be conceived as a state of awareness contingent on the whole biological complex capable of consciously extrapolating beyond the confines of body by way of its powers of reasoning, imagination, knowing and trying to know. Not in the sense of these capacities being no more than information processed by a system dead to itself, but in the sense of their taking place within an affectively based system of comprehension where meaning has meaning for the system itself in relation to value. To glibly talk of "information processing" as if that were all there is to a human being because the brain happens to process information is to vastly underestimate and simplify what is going on in the brain, mind and consciousness of a human being. We can safely say "I do not have a body, I am a body" without falling into the physicalist trap of interpreting that to mean that that is all we

are. The idea that information processing in the brain causes mind, that it is mind, that every aspect of our mental lives depend entirely on physiological events in the tissues of the brain conveniently ignores the fact that it is information processed in a living organism, and that a living organism such as the human necessitates the existence of a mental hurdle specific to humans, namely, distraction from our aliveness and from the demands of thinking and reasoning in terms of losing track. Or, as is also the case, distraction from our aliveness because of the demands of thinking and doing turned automatic and/or obsessive.

Artificial modes of intelligence are never distracted because there is nothing there to get distracted: hence their speed and accuracy. Mental distraction for humans is a different story. Losing mental focus is, as we all know from experience, an intellectual and creative stumbling block, but it is also our greatest intellectual and creative strength in that it demands a conscious gathering together of attention to overcome the problem. The gathering together of attention is something we are constantly engaged in, a skill without which thought and sense of self would be incapable of forming. But it is more than that; it is what we human beings essentially are. Yes, we process information, but that can't be made into an argument for sense of self being no more than a process busily processing; that would require a process to process its own act of processing and by some miracle conjure sense of self out of the transaction. I don't buy that; it is not a satisfactory explanation. The dismissal of a ghostly entity or homunculus in the system is one thing, the transforming of self-awareness into no more than an information-processing illusion is quite another. Self-awareness may not constitute an entity as such, but it does constitutes a fluctuating state of "attention" capable of including the attendee in its registration of reality, and that simple fact has, in my opinion, not yet been properly processed by the Pinker's of this world.

What the Heck is Religion Anyway?

Stephen Pinker is an atheist; what else could he be given his stance on the nature of mind? Thomas Nagel is also an atheist, a fact that bothers his contemporaries in that his form of questioning now seems to indicate the opposite. For how can he question

Darwinian natural selection, reject both theoretical reductionism and evolutionary naturalism and continue to maintain an atheistic stance? Such moves indicate a radical shift in his intellectual position, an uncertainty in relation to the question of there being something suggestively intelligent about the shape and feel of nature which, he feels, is being intentionally ignored by his scientific and philosophical peers. It is, he says, "prima facie highly implausible that life as we know it is the result of a sequence of physical accidents together with the mechanism of natural selection."²⁰ That's quite a statement given his claim to be an atheist. So what kind of atheist is Nagel; does he in fact have the right to call himself an atheist given this statement and others like it? What's he up to? Mischief? That's how it seems to some.

As one reads *Mind and Cosmos* one realises that Nagel isn't just questioning how we perceive nature; he is questioning how we perceive reality. His questioning has to do not only with current methodological procedures in science and philosophy, it has to do with the nature of everything perceived. By excluding "mind" from the physical world we have, he claims, distorted our world picture to such an extent that our findings, useful as they have been on so many levels, are fundamentally incomplete. Our reliance on a quantitative understanding of world and cosmos through timeless, mathematically formulated laws has, he argues, blunted our capacity to sense reality's more profound aspect, and only a revolution in our present thinking will correct that mistake. A mindless universe based on physics and theoretical reductionism is for Nagel more a running away from the bogey of religion than an unarguable scientific position. As much as we may dislike religious interference in such matters, the universe is such that its nature demands a more flexible attitude to some of the fundamental questions now occurring in physics. And not only in physics. There are also questions to do with consciousness, intentionality, meaning, purpose, thought and value that a universe conceived in terms of physical facts alone cannot accommodate.²¹ The analysis of mental concepts in behavioural, brain-driven informational terms is incomplete as a process, the reduction of the mental to the physical as a matter of course an inadequate account of both the mental and the physical.²² There must be another way in which things as they are make sense.²³ For if consciousness is more

than the interaction of blind forces guided by the equally blind process of natural selection responding to mutational mistakes, and we are composed of the same elements as the rest of the universe, then that must have radical consequences in terms of how we perceive the universe itself.

It would be possible at this point to disappear into a welter of arguments in connection with physicalism and the nature of mind as raised by other philosophers, but I'd rather stay clear of such rarified territory. But it should be noted that Nagel isn't the only philosopher of repute to question the physicalist position: Donald Davidson is a leading philosophical thinker and he makes advances in this direction when he says that mental events as a class cannot be explained by physical science; particular mental events can when we know particular identities. But the explanations of mental events in which we are typically interested relate them to other mental events and conditions.²⁴

His point being that abstract reflection has to be tracked back to other mental events, and that inadvertently leads to the notion of mental events generating mental events out of themselves in relation to a subject - at least that's what I make of that statement. Davidson's observation is of course made in relation to advanced language theory, but it is sufficiently interesting in that it shows a conceptual break from the physicalist claim that everything mental can be explained from the bottom up, that is, from the level of subatomic minutia. Which raises an adjacent problem for Nagel, namely, that our explanation of the physical is fraught with the same problems as our explanation for the mental: we have, it seems, ended up doing both the mental and the physical an injustice. For if the mental can't be explained in physical terms, then its very existence attests to the physical being quite other than we think it is.²⁵ And if that is the case then we ourselves are, by definition, quite other than we perhaps think we are.

The 'Intelligibility' Problem

The physicalist conception of reality excludes "mind" from the physical world, so allowing for a "quantitative understanding of the world, expressed in timeless, mathematically formulated physical laws."²⁶ This approach has worked extremely well in the biological sciences, mind being conceived as a side-effect of those laws. Nagel's position is radically different. In his scheme mind is not "an afterthought or an accident

or an add-on, but a basic aspect of nature."²⁷ Why does he think so? Because of science's everywhere evident assumption that the world is intelligible, an assumption proven to be correct since the seventeenth century. Prediction and experiment have confirmed coherence and intelligibility to be the hallmark of our terrestrial sphere, indeed of the universe as a whole because of how it responds to mathematical prediction and explorative experience. And not just in terms of visible matter; also in terms of an invisible, hidden order of matter beyond perception's natural range.²⁸

Problem is, how do we explain this intelligibility beyond the fact that it is so? What does it mean that our world is intelligible, that the universe is intelligible, that we are intelligible? What, in effect, is intelligibility? Which takes us back to our capacity to reason beyond the confines of things seen, things touched and things experienced. Everything sensed is governed by laws, and these laws, although deduced by humans, were only deduced through the detection of matter's consistent behavioural patterns because we too are (or can be) consistent in our patterns of mental and physical behaviour. Which is to say that intelligibility is out there/in here waiting to be intercepted and made sense of because matter is inherently intelligible. If matter were inherently chaotic we too would be chaotic and incapable of existing as we do. Which strengthens Nagel's argument, for we do exist, we are not chaotic, and that tells us that reality is not chaotic, and in not being chaotic that it is in itself sensible, and that in being sensible it harbours the essence of our intelligibility in relation to life and mind. Without the principle of life (affective, subjective cognisance) we would not know that we were intelligible, that we were mind, or that the universe was intelligible. Intelligibility is the hallmark of human intelligence in relation to "reason" and "comprehension", and physicalist theories that do not include matter's inherently intelligible nature in their calculations are, according to Nagel, falling short of a fully coherent description of ourselves in relation to world.

Oh dear, we're back with theism; or a backdoor approach to theism. Actually, we aren't. A theistic landing is not automatically the result of thinking like this; it's no more than a challenge to the deeply ingrained physicalist interpretation of reality we perhaps unquestioningly accept as unquestionable. We can't just say that the physicalist/materialist approach is how it must be because it allows us to ward off

theism's often absurd historical and theological conclusions. Nagel isn't advocating theism or some hybrid form of theism; he is advocating a conceptual position based on the inescapable logic of how things are in relation to our having emerged from matter. To jump automatically to the conclusion that because we have emerged from matter, mind, and therefore consciousness, must be phenomenally unreal by definition is, to say the least, a maddeningly truncated piece of reasoning. It makes "being alive" meaningless and allows our minimalist comprehension of "randomness" in relation to matter's foundation reign supreme in all directions. Randomness is not meaninglessness by definition; that is our incomprehension of what randomness signifies pulled into theoretical coherence by way of verbal invention. Randomness is "inherent [and] not based on our ignorance of some of the facts"; it "describes, but it does not explain"²⁹ anything graspable because it is the point at which we run out of explanatory power. Hence Heisenberg's "uncertainty principle"; we have no way of knowing what's going on in terms of randomness because it cannot be fathomed through the gathering of more information: it is a law unto itself. Meaninglessness isn't inherent; it's uncertainty that's inherent, and at the macro level that leaves the door wide open to choice. Why so? Because it is uncertainty, not meaninglessness, that lies at the heart of what we are. Uncertainty of outcome lies in the depths of matter and at the very heart of what it means to be alive, and in this quite practical sense it constitutes the element of freewill physicalist's regard as illusory. There are of course all sorts of arguments and theories about perception, world and cognition, but they need not concern us here: I assume the world to be fundamentally intelligible because if it wasn't the findings of science would be fiction rather than fact.

Fear of being classified as "religious" has disabled our willingness to read the facts of physical matter and the facts of human existence back to source in relation to intelligibility. Intelligibility functions in two directions, not one, and this simple fact is being ignored because we fear the accusation of being religious. So my question is this: What the heck is religion anyway? When all is said and done religion isn't about any particular system of beliefs, morality, ethics or love, it is about the quality of awareness operative when we engage with the challenges those aspects of life and relationship demand of us. To see any of these in terms other than that is to entirely miss the point of what it means to be a thinking, reflecting human being in a universe that has

expressed thinking and reflecting human beings. But there's a catch in all of this, for the more awareness we have the greater is our chance of getting things right, and that tells us that even our ability to measure something and do it accurately has a moral dimension, a dimension of "truth" or "error" attached to it. As getting things right is also to do things correctly, and all levels of doing are moral or ethical by definition, then we are, whether we like it or not, thrust into what some define as the domain of religion. It need not of course be seen as such, but it is interesting to note that our actions and responses do carry an inbuilt dimension of personal responsibility, and that this dimension has, as Schleiermacher realised, nothing to do with religious ideas or beliefs as generally understood.

Religious ideas and beliefs have without doubt grown out of this basic realisation, but whether religious or not, moral and ethical structures are here to stay, not because there is a God or a Devil, but because existence itself inadvertently exudes moral and ethical necessities. In this sense truth and its opposite are built into the very fabric of reality as an unavoidable consequence of our dealing with self, other and world. We measure our actions and responses through what it feels like to be a human being, and this is the being (the face) we present to the world in terms of a living presence. It is all of a piece this living, this registering, this knowing and not knowing, this uncertainty, and it extends intersubjectively in all directions. Which tells us that human experience can be perceived either as a series of accidental, unavoidable and meaningless interactions that just happen to give rise to moral/ethical choices; or that this very fact is an interactive curiosity worthy of attention in relation to reality being fundamentally intelligible. For why should it be so? Why should our very existing give rise to moral and ethical issues as a matter of course? This is not some hidden, subatomic order of matter deduced from the clues matter itself supplies; it is a purely abstract consequence of beings composed of matter interacting phenomenally with matter.

The assumption of an intelligible underlying order in relation to scientific discovery is described by Thomas Nagel as that which has enabled the scientific revolution to take place. Question is, what explains this order? This is Nagel's question, and he answers it thus: "One answer would be that nothing does: explanation comes to an end with the order itself".³⁰ Why so? Because "[I]n the end [our] understanding of

the world will eventually reach a point where there is nothing more to be said except "This is just how things are." Nagel rejects this statement on the basis that it stops short of admitting the implications of intelligibility in relation to world. I agree; but with one reservation: our inevitable inability to grasp the nature of reality should not be used as an excuse to ignore the question of matter's intelligibility. But there is no denying the arising of a cognitive point in our comprehension of matter beyond which it is impossible to go, a point where we finally admit that matter has a level of intelligible depth beyond that of the one we impose, or will finally be able to impose. Which is also to say that we have run up against a brick wall in our attempts to explain our own capacity for intelligibility. A final summing up of existence in deterministic terms may not be possible, in fact highly improbable given the kind of thinking now going on in advanced physics.

So what am I suggesting? Well, in spite of how it may seem, I'm not suggesting that nature has purpose in the sense "purpose" is generally understood. I'm sensing, along with Nagel, that a natural teleology may be at work in nature, which, if true, suggests an integral propensity in matter towards the production of living organisms capable of self-recognition. Evolution is still merrily at work, but it is no longer the initiating force, more a developmental force governed by universal teleological laws. Nagel admits to being persuaded by this argument; he perceives it to be coherent, and on this basis explores its ins and outs without invoking a purposive agent. Physicalism's brutal form of dismissive deterministic logic has been dispensed with, but what we're left with leaves unanswered the question of what such an assertion means in itself. How does value fit into the picture? Or reason? Or intentionality? Or cognitive focus? What, one has to ask, were the odds against intelligibility springing out of dead matter and spawning the capacity for matter to self-consciously perceive itself? If a natural teleology is at work in the universe, then it means the universe is in some sense perceiving itself through the mechanism of conscious awareness! Which, if true, suggests there's more for us to do than merely tidy up a few loose ends such as what junk-DNA might be for; there is in fact a challenge facing us that could radically change our whole conception of what it means to be a conscious human being.

Before considering the problems raised by molecular biology's flat and lifeless explanation for life and consciousness, the greater problem in relation to our running

out of explanatory power in relation to "randomness" should not be allowed to slip from view. As we will see later, others in the scientific community have noticed this problem, but it is perhaps the physicists Menas Kafatos and Robert Nadeau who have best dealt with it in their book *The Conscious Universe: Part and Whole in Modern Physical Theory*.³¹ Four quotes should, I think, suffice.

The apprehension of the single significant whole as it is disclosed in physical theory and experiment would seem to be an indication that we have entered another and more advanced "stage" in the evolution of consciousness. What this theology of mind, or consciousness, assumes is the progressive realization of the totality of the organising principle.

The suggestion is that human consciousness infolds within itself the fundamental logical principle of the conscious universe, and is thereby enabled to construct a view of this universe in physical theory which describes the unfolding of the cosmic order at previous stages in the life of the cosmos.

If consciousness, as we have defined it, is embedded in the universe, and if the evolution of consciousness progressively discloses in physics the totality of the universal principle of order implicit in all activities in nature, then the single significant whole whose existence is inferred, but not finally disclosed, in the conscious content of physical theory can be "assumed" to be ontologically grounded in the life of nature.

Yet the fact that we cannot disclose this undivided wholeness in our conscious constructions of this reality as parts does not mean that science invalidates the prospect that we can apprehend this wholeness on a level that is prior to the conscious constructs. It merely means that science qua science cannot fully disclose or describe the whole.

Given the history of the human intellect, the notion of a final "tidying up" is, to say the least, premature. Molecular biology and the discovery of DNA's spiraling cord of coded bits may appear to suffice as an explanation for life and consciousness, but that is now under question due to there being an explanatory gap in the reasoning: DNA must have occurred by chance prior to natural selection going into action, and that raises the question of the odds for or against such a thing happening. Life in its earliest bacterial form required a start-up code, and the collisions and interactions of inert matter necessary for that to happen were calculated by Francis Crick - co-discoverer and breaker of the genetic code - to be beyond astronomical: he and others likened the possibility to the chance assembly of a Boeing 707 by a hurricane in a junkyard.³² Such a complicated mechanism could not, in Crick's estimation, have arisen by chance: life was already too complex at its inception to have come by the evolutionary route. Natural selection eventually kicked in, but it was not in itself the fundamental trigger.

If this was all Crick had said on the matter it would be confronting enough, but when his book *Life Itself: Its Origin and Nature* was published in 1981, he followed with the hypothesis that DNA was more likely to have arrived from a non-terrestrial source. Not just because of some cataclysmic cosmic event, which was plausible, but as the result of a resilient bacterial life form having been "designed" out there somewhere to ensure the continuation of conscious, intelligent life elsewhere in the universe. As this was a serious argument put forward by an atheistic physicist as a last resort to avoid, I think, the trap of theism's God being held responsible, it shows Crick to have been in an intellectual double-bind over the intractable nature of the problem facing him. What else could he have come up with given that he perceived a terrestrial, accidental cause of life to be out of the question? The only feasible, realistic route open to him was a non-terrestrial hypothesis backed by some hefty mathematics. Realistic? Hardly realistic. More the ruminations of a brilliant mind gone off the rails much as Nagel's is presumed to have done. Whatever the case, Crick's explanation was not yelled down by his peers, perhaps because he was Crick the co-discoverer and breaker of the genetic code, perhaps because he had ably shown that a chance collision among particles as an explanation for instant life was beyond statistically probability. Whatever the case, his strange hypothesis did not cause the furor that Nagel's has done, perhaps because

Nagel, unlike Crick, has pushed the question much further and challenged his intellectual peers to do the same.

Others have found themselves forced to ask similarly disturbing questions. In *Fire In The Mind* (1995), the science writer George Johnson explores the question of how DNA came into existence,³³ and we now have Nagel the philosopher dealing himself into the pack, his conclusion being that there must be a very different way in which things as they are make sense. Johnson's approach was to tentatively question the received wisdom by pointing out that even allowing for the spontaneous creation of amino acids, the idea of little creatures being the end result was to beg the question of how long chains of amino acids had formed. With some dexterity he unscrambles the problem for us:

First one would have to figure out how to form long chains of amino acids. Again you would need an incredible amount of luck, or enzymes. And where would they come from? From other enzymes? At some point we have to stop begging the question and propose some kind of construction mechanism for stringing together amino acids, and the only one we know of requires nucleic acid templates. But they are due to arrive on the scene only after we have enzymes to make them. And how, without nucleic acid templates, would a protein reproduce? Once a chain of amino acids is strung together and folds up spontaneously into a convoluted glob, how could it be copied? One would have to posit a mechanism to unravel and read it, amino acid by amino acid. There is no evidence that anything like that has ever existed.³⁴

The notion that structures are thrown together haphazardly, then filtered through the impersonal sieve of evolution³⁵ is, as Johnson notes, dependent on science's geologic god, that is, on the vast stretches of time - 4.5 billion years approximately - that the earth has been in existence. Fathomless eons of time are required to make sense of what now exists, and that in spite of the fact that such an argument does not constitute

actual evidence, merely a supposition similar to God did it. Given the facts of evolution and the quite sensible scenarios built on those facts, then beyond those facts in terms of speculations sculpted out of a brutal form of determinism, Johnson is forced by dint of what science suggests to classify we humans as either "children of chance, a-once-in-a-universal-lifetime event", or as having sprung "from some natural source of order."³⁶ Which brings us back to Thomas Nagel's suspicion that a natural teleology is at work in nature, and that that need not frighten us, just inspire us to dig a little deeper.

References and Notes

- 1) Nagel, Thomas, *Mind and Cosmos*, Oxford University Press, New York, 2012. pp. 3-12.
- 2) Weisberg, Michael & Brian Leiter, 'Do You Only Have a Brain: On Thomas Nagel', *The Nation*, Oct. 22nd 2012, an essay in relation to neuroscience's deeply physicalist, reductionist explanations for consciousness and mind. Also John Horgan's observations in *The Undiscovered Mind*, Phoenic Paperback, 1999, p.18, are also right on the mark. Drawing our attention to the work of molecular biologists such as Francis Crick and James Watson, he says that they, and others, have "revealed that all organisms share essentially the same DNA-based method of transmitting genetic information to their offspring. Neuroscientists, in contrast, have yet to achieve their reductionist epiphany. Instead of finding a great unifying insight, they just keep uncovering more and more complexity. Neuroscience's progress is really a kind of anti-progress."
- 3) Wieseltier, Leon, 'A Darwinist Mob Goes After a Serious Philosopher', *The New Republic*, 14th Feb, 2015.
- 4) Nagel, Thomas, *Cosmos and Mind*, (see above) p. 25.
- 5) Horgan, John, *The Undiscovered Mind*, (see above) p. 4.
- 6) Ibid.
- 7) Kelly, Edward F., *Irreducible Mind*, Rowman & Littlefield Publisher, Inc., US., 2007. p. 39.
- 8) Pinker, Stephen, *The Blank Slate*, Allen Lane, The Penguin Press 2002. p. 40.
- 9) Ibid, p. 41.
- 10) Ibid, p. 42.
- 11) Ibid.
- 12) Ibid, p. 31.
- 13) Ibid, p. 32.
- 14) Ibid. The philosopher David Chalmers seems to be in agreement with Pinker in that he interprets human experience in terms of information processing alone. Information may have a phenomenal aspect, he tells us, a subjective or experiential dimension in that writing is not just squiggles on paper, but also "meaning" on paper. This is an interesting notion, albeit one that seems to overlook that it is mind that puts the meaning into the squiggles in the first place. Having gone this far, however, Chalmers then goes much, much further and postulates, as does Pinker, that on this basis we can conceive of a thermostat as having a degree of consciousness. See D. Chalmers, *The Conscious Mind*, Oxford University Press, 1996.
- 15) Ibid, p. 33.
- 16) Ibid. Francis Crick reflects Pinker's thinking when he says "You, your joys and sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules." This statement can be found at the beginning of his book *The Astonishing Hypothesis*. Charles Scribner's Sons, New York, 1994.
- 17) Ibid.
- 18) Ibid, p. 34.
- 19) Ibid. The physicist Roger Penrose rejects this kind of reasoning. What computers can't do is "understand", he tells us. For Penrose, the mind's capacities require another kind of theory, one that houses both quantum mechanics and relativity theory. As these theories are related to quantum-gravity theory, we are by necessity heading in the direction of a unified theory of everything that dramatically expands how mind can be perceived to function. And not just in a utilitarian sense; more in the dramatic sense of

appreciating mind in relation to, say, the French physicist Bernard d'Espagnat's *nonseparable* Big Whole. (*On Physics and Philosophy* Princeton University Press, 2006). Add a quantum effect to mind and you automatically open some very interesting doors. See *Shadows of the Mind*, Oxford University Press 1989.

- 20) Nagel, Thomas, *Mind and Cosmos*, (see above) p. 6.
- 21) Ibid, p. 13.
- 22) Ibid. p. 14.
- 23) Ibid, p. 53.
- 24) Davidson, Donald, (?) p, 219.
- 25) Nagel, Thomas, *Mind and Cosmos*, (see above) p. 14.
- 26) Ibid, p. 8.
- 27) Ibid, p. 16.
- 28) Ibid.
- 29) Johnson, George, *Fire in the Mind*, Viking, UK., 1996. p. 137.
- 30) Nagel, Thomas, *Mind and Cosmos*, (see above) p. 16.
- 31) Margulis, Lyn & Dorian Sagan, *Micro-cosmos: Four Billion Years of Microbial Evolution*, p. 43.
- 32) Crick, Francis, *Life Itself*, Summit Books, New York, 1986. pp, 113-40.
- 33) Johnson, George, *Fire In The Mind*, (see above) pp. 213-219.
- 34) Ibid, p. 217.
- 35) Ibid, p. 218.
- 36) Ibid, p. 219.