What's the Difference between the Second Coming and Humanity 2.0? Response to Winyard
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David Winyard (2013) is correct to say that trying to reconcile the claims of theology and biology in any understanding of the human condition is bound to be an unhappy affair. He forgot to add that this is especially true, if both sides insist on operating with a backward-looking conception of what it means to be human. Transhumanism is interesting — and challenging to both sides — precisely because of its resolutely forward look at the human. In the end, the transhumanist treats the human past, including what both theologians (*qua* "original sin") and biologists (*qua* "evolutionary history") might call our "inheritance", as raw material out of which — along with some other ingredients — Humanity 2.0 might be built.

Here it is worth recalling that until the molecular (DNA) revolution in biology in the 1950s, it was common to think of our genetic makeup as a "burden", very much like sin, that had to be suffered through or perhaps mitigated through propitious changes in one's environment. The only other alternative course of action was some form of genocide. Modern drama after Ibsen brought this world-view into middle class drawing rooms. And of course, the violent directions in which eugenics — the prototype for today's transhumanist projects — was often drawn in the first half of the 20th century projected these burdens of the flesh onto the world's political stage. But already in 1943, Erwin Schrödinger's Dublin lecture, "What Is Life?" had proposed that life is more an exploratory search for biochemically stable possibilities than the sort of path-dependent journeys either started (in religious terms) by Adam's deed or pursued (in scientific terms) by Darwin's theory. Despite speaking from the standpoint of a theoretical physicist for whom data are generated by thought experiments, Schrödinger's vision managed to recruit a generation of molecular revolutionaries by providing a new take on the meaning of life — or at least resurrecting an older one that allowed humanity to recover its creative responsibility for life, as per a strong reading of the *imago dei* doctrine.

The intelligent design (ID) movement, most notably Stephen Meyer's (2009) *Signature in the Cell,* has made much of a central theme in Schrödinger's talk, namely, that life is best understood as a "code" the cracking of which, via molecular biology, would finally demonstrate the universe's intelligibility beyond anything that Darwin, say, thought was possible. To be sure, the very idea of one or more cosmic codes through which God communicates with us, alongside the Bible, had been pivotal in Europe's 17th century Scientific Revolution. But not surprisingly, as was the case four hundred years ago, this technically based design argument for God's existence has not been enthusiastically embraced by established Christian churches, which has led ID to be hit on both sides as "bad science" and "bad theology". I will focus on the latter, that being Winyard's main interest.

ID supporters are often mystified by their relative lack of support from mainstream Christians, but I am not surprised in the least. Even after one strips away whatever real or

imagined alliances that ID people have made with the so-called "Religious Right" of the United States, there is the lingering sense of sacrilege involved in suggesting that the human mind might comprehend, if not second guess, the divine mind. Thus, "theistic evolutionism", the name nowadays given to the "separate but equal" approach to science and religion often favoured by mainstream Christians who weigh in on these matters, demonises the ID deity as "the big engineer in the sky" who, while supremely clever, lacks the traditional mystery and majesty of The One True God (e.g., Alexander 2008).

Although ID supporters typically demur from claiming the ultimate engineer as their own deity, I believe that the idea should be taken more seriously — and in a positive light.[1] True, it courts accusations originally directed at 18th and early 19th century Newton-inspired natural theologians, not least ID's intellectual godfather William Paley. Paley was widely seen in his day as having crossed the line to Deism, given his endorsement of fellow cleric Thomas Malthus' views about the instrumental value that was served by unmitigated selection pressures on humanity (aka without "Poor Laws"). To understand the opprobrium heaped on Malthus, consider that his deity performed a macro-version of what conservative Christians nowadays decry in the practices of embryonic stem cell researchers. The Malthusian lesson is that, yes, God ultimately does good but that involves actions that seen in their own terms (i.e., in the short term) might appear quite bad. In short, "the end justifies the means" would need to be accepted as a universal principle, which of course still allows for arguments over whether the end or means has been correctly specified. Because Darwin could not stomach such a conception of God, he resorted to "natural selection" to characterise much the same set of capacities.

My own verdict is that Darwin simply lost his nerve with regard to God, perhaps because he implicitly realized that once our minds become fit for divine habitation, two things seem to happen: (1) Reference to God as separate from humans becomes superfluous, except perhaps as a regulative ideal — or limiting case — of human comprehension, à la Kant (but also going back to Averroes). (2) Reference to emotions relating to humanity's fallen nature — e.g., sympathy, compassion, etc. — appears atavistic if not idolatrous, once our existential ambitions have extended beyond the mere animal to the truly cosmic, whereby we come to identify with "the view from nowhere". Transhumanists, especially Ray Kurzweil's "tech-gnostic" fans, have understood both points, which have led them in the case of (1) to identify explicitly the progress of science and technology with the quest for spiritual salvation, and in the case of (2) to advocate respect for "morphological freedom" as a fundamental "transhuman right". While I do not share their millenarian

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[1] As a more general point, the fortunes of physics and mathematics as disciplines have been historically bound up with conceptions of the deity. Indeed, a full sense of the transit between these fields and theology has yet to be given its due. The rise of Deism reflected the fact that as the eighteenth century wore on, physics and mathematics were seen increasingly as abstractions or generalisations from engineering, the field that was seen as capturing the essential character of both human and divine action. However, in the nineteenth century, physics and especially mathematics re-established their autonomy. Consequently, divine creation came to be seen less as an achievement of engineering than a matrix of possibilities that constitute a field of play (a market?) for human potential to be realized. This captures in a nutshell the shift in the two centuries that separated Newton and Maxwell. More on the social-epistemological context of this transformation can be found in Collins (1998: 697 ff).

zeal, the techno-gnostics are pointing to where the future is heading, albeit perhaps more slowly and fitfully than they would like. If social epistemology is to retain a prospective focus, it needs to pitch its normative claims face forward — and not try to fight yesterday's wars with appeals to either "human nature" or "identity politics", either of which points in the same backward direction, the former slightly tilted to the right, the latter to the left.

Thus, Freud was much too glib to speak of Copernicus as having displaced humans from the centre of the world because within 150 years Newton would show how the human intellect might be scaled up into something approximating an exact understanding of the universe. We could get back into the centre of things by realizing our godlike potential. From everything being about us, as the Aristotle-led Church had suggested, Newtonian natural theology allowed us to be about everything. This is the lesson that should have been — but apparently has not been — learned from Alexandre Koyré's (1957) classic *From the Closed World to the Infinite Universe*. The difference between an avowed Christian ID theorist such as Meyer and, say, the great genomic entrepreneur and avowed atheist Craig Venter (who keynoted the seventieth anniversary conference in honour of Schrödinger's lecture in Dublin last year) is simply the direction of the causal arrow between the divine and the human that each presupposes. But both are heirs to what Winyard rightly identifies as the Scotist turn in theological understanding, whereby predicates applied to both God and humans in the Bible differ only by degree but otherwise refer to the same properties.

Scotism's fraught legacy is that its promotion of a "literal" reading of the Bible in the first instance encouraged translation of the Scriptures into various "vulgates", enabling — if not outright compelling — people to encounter the Word of God for themselves. But in the long term this resulted in a semantic demystification of the sacred that radically compresses the distance between the human and the divine, which effectively revived the ancient heresies of Arius and Pelagius. In this way, Protestantism morphed into the Enlightenment. Nevertheless, were Christians to reject the Scotist turn altogether, they would be disposing of not only anthropomorphism (the most obvious source of heresy) but also any communicable relationship between the divine and the human, including the one experienced by Jesus in the Transfiguration (i.e., theosis).

At stake here is the doctrine of univocal predication itself — put bluntly, whether the Bible should be ascribed any cognitive content, as we do other "informative" texts. For if the answer is no, and the Bible is reduced to a species of imaginative literature — however distinguished its place in that genre — it is no longer clear what, if any, "factual" grounds exist for privileging the human condition, since naturalism certainly gives us no such grounds. (I put the point this way since contemporary "humanism" is typically a naturalistic position that militantly saws off the theological limb on which it rests.) This predicament troubled all of the major Victorian promoters of evolutionary theory: Darwin, Spencer, Huxley, Galton. They may have been divided by social class but were united in their dissenting Christian upbringing that divested itself of clerical ritual to focus specifically on the ontologically unique status of humans. To be sure, each thinker took that sensibility in quite different directions, all away from organized religion,

varying considerably in their ultimate outlook for the human condition, yet without ever quite abandoning desire to occupy "the view from nowhere".

I stress this point because both secular and so-called 'post-secular' postmodernists (and I mean by this latter category the broad swathe of religious opinion that includes Karen Armstrong, Charles Taylor, and John Milbank) find it very hard to get the true measure of the Victorians. After all, once a steadfast belief in the Abrahamic deity, with its special relationship to humanity is abandoned, why should we continue to strive for godlike feats of knowledge and power over nature, especially given that it puts what humanity has already accomplished at such great risk? This is the problem with which the Victorians struggled and which postmodernists reject out of hand. Instead of constantly trading in what we know through history and habit for the promise of some higher-order, rather abstract state of being, as the Victorians continued to do, the postmodernists say that we should restore our original experiential ties with nature — a consequence of which will be a reconnection with the sacred. To be sure, this postmodernist strategy has the added benefit of being more likely to result in a sustainable ecology, as we come to identify more with what is before our eyes than in our heads. However, it should be clear that I stand with the Victorians on this issue.

Although my critics (but thankfully not Winyard) repeatedly label me a "postmodernist", my actual view is that postmodernity is simply our 'condition', as Lyotard (1983) originally put it. Put in terms of the current discussion, one cannot have a sensible normative discussion of where humanity should go, unless we are clear about our starting point in history, which is broadly "postmodern". But I do not believe that we should stay where we are. However, I fear that many of the more prominent post-secular and specifically Christian responses to transhumanism have been very backward looking. Indeed, when I read someone like Milbank, I sense that he would rather embrace Aristotelian paganism than inhabit a future populated by cyborgs. Here I am drawing attention to a latent fetishisation of the bio-evolutionary species *Homo sapiens* that one finds explicitly stated in the appeal by George W. Bush's bioethics tsar Leon Kass (1997) to "the wisdom of repugnance". Kass threatens to reify a certain extended moment in humanity's emotional development just as ordinary language philosophers, allegedly with the blessing of Wittgenstein, tried to do to our cognitive development a half-century ago. If anything deserves the name of "idolatry" in the strict sense of worshipping a particular image of the human, it is this Retro-Aristotelian response to transhumanism. In contrast, transhumanism may be faulted for an excessively fluid conception of "Humanity 2.0", which may refer to anything ranging from an indefinite extension of our current powers via advanced gene therapy to a complete transfer of identity into a more durable digitised medium.

Contrary to the tenor of Winyard's review, I have managed to engage constructively with theology throughout my writings ranging from ID to transhumanism, even though I have consistently blurred the two issues (Fuller 2007, 2008, 2010, 2011a). Indeed, courtesy of Oxford's Regius Professor of Divinity, Fuller (2008) was made book of the week by the UK's equivalent of the US *Chronicle of Higher Education* (Ward 2008). Moreover, theologians appear to be sufficiently receptive to invite me to develop my thoughts

further (e.g., Fuller 2011b, 2012a, 2012b, 2013). On the other hand, it is also fair to say that neither theologians nor ID theorists — nor certainly transhumanists — seem especially eager to deal with God as a cognitively significant explanatory factor in the constitution and maintenance of the physical universe.

I choose my words carefully. "Cognitive significance" is a logical positivist phrase associated with the testability principle, according to which a scientific theorist is obliged to cash out her leading concepts in operations or observations performed under specified conditions. Like the dissenting Christians who contributed so greatly to the history of physics — Newton, Faraday, Maxwell come to mind most readily — I believe that religious believers have nothing to fear from thinking about God as the most comprehensive theoretical entity whose *modus operandi* is whatever turns out to be the most efficient set laws capable of generating reality as it is. In short, what Neo-Darwinists derisively call "supernaturalism" when debating ID supporters is simply scientific realism with a (divine) personality attached to the real. Just as learning about ancient feats of engineering provides clues as to the original engineer's identity, so too our greater scientific understanding of natural reality provides clues about the creative being behind it. ID supporters tend to be quite mealy-mouthed about this analogy, which they should simply admit upfront. One benefit might be to put to rest the false dichotomy still promulgated in the philosophy of science that correlates instrumentalism and realism with, respectively, a subject-centred and object-centred approach to inquiry. On the contrary, once the theological provenance of scientific realism is taken seriously, it becomes clear that "instrumentalism" is about the distance between the human and the divine, whereas "realism" is about its closeness. [2]

Moreover, while Winyard is rightly concerned that Scotism taken to its logical extreme might result in pure voluntarism, it is worth recalling that science includes its own sense of Grace, as most scientific realists are fallibilists who would not have us presume that even successful predictions correspond to access to reality's ultimate structure (Fuller 2010: chap. 8). Indeed, twentieth century philosophy of science has been preoccupied with the free choice that is forced upon the scientist in the wake of any experimental outcome. The names of Pierre Duhem and Willard Quine are usually invoked in this context, but it was very much in the minds of all broadly "conventionalist" philosophers, not least Karl Popper. Indeed, conventionalism can be seen as the secular reconciliation of human agency and indeterminate consequences. For the conventionalist, our choice extends both to which hypotheses to advance and to how we respond once they have been tested — yet correctness in both cases is not itself for us to decide. Here it worth noting

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[2] We have yet to fully internalize the lesson of Duhem (1969): Bellarmine was not simply calling out Galileo for possessing insufficient evidence for his knowledge claims; rather, he was chastising him for daring to make assertions about the causal powers that lay behind the evidence, as if he could second-guess the mind of God. Of course, this was something Galileo thought he could do but Bellarmine, as an officer of the Church, would not allow. Roman Catholics such as Duhem have found instrumentalism attractive because it ensured that the emerging natural sciences did not supplant theology in feats of what Larry Laudan (1981) smartly called 'aristocratic induction', which amidst the wave of Christian dissenters such as Boscovich, Hartley and Priestley came to be known as the 'method of hypothesis', which after Charles Sanders Peirce in the nineteenth century has been called 'abduction'.

that one of my heroes, the great eighteenth century chemist, Joseph Priestley, whom Winyard dismisses as a dubious theologian, explicitly acknowledged this point. It explains why he weighted unexpected events in the laboratory more heavily than expected ones, which led him to distrust what Lavoisier had advertised as his "revolutionary" programme in analytic chemistry for its excessive straitjacketing of the research process (Fara 2009: 209-11).

Finally, I should also say while I do not wish to underplay the importance of sin in the human condition, it does not follow that we cannot deal with sin creatively. Throughout *Humanity 2.0* and especially in the final chapter, I discuss the significance of *theodicy* — the justification of God's ways to humanity — which historically provides the theological template for classical political economy and its academic offspring, economics. Without this larger justificatory framework, God's actions could themselves appear sinful. My point here is that the suffering incurred in divine creation can be understood as regrettable yet necessary: in short, "the end justifies the means". By analogy, humans may be born always already sinful but it is within their power (allowing for God's Grace) to try to repay what they owe. When Auguste Comte coined "altruism", it was precisely in the frame of mind that would secularise sin as *debt*, thereby placing a special burden on those who are born well endowed but fail to develop their inheritance productively – in other words, those who both Ricardo and Marx derided as *rentiers*. Comte's trick, whose survival I support, involves making the relevant payments forward, so that one may recycle the ill-got gains of the past into a future that benefits others who are currently lacking. Sin then becomes the field of play for the creative destruction of "moral entrepreneurship" (Fuller 2011a: chap. 5; Fuller 2012d: chap. 4; Fuller and Lipinska 2013). But I grant that sin in this "reformed" sense requires further exploration.

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