

Article

New Technologies—Old Anthropologies?

Levi Checketts

Graduate Theological Union, 2918 Regent St #D, Berkeley, CA 94705, USA; lchecketts@ses.gtu.edu

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Abstract: Eighty years ago, Nicholas Berdyaev cautioned that new technological problems needed to be addressed with a new philosophical anthropology. Today, the transhumanist goal of mind uploading is perceived by many theologians and philosophers to be dangerous due to its violation of the human person. I contrast transhumanist “patternist” views of the person with Brent Waters’s Augustinian view of the technological pilgrim, Celia Deane-Drummond’s evolutionary Thomistic view of humanity, and Francis Fukuyama’s insistence on the inviolability of “Factor X”. These latter three thinkers all disagree with the patternist position, but their views are also discordant with each other. This disagreement constitutes a challenge for people of faith confronting transhumanism—which view is to be taken right? I contend that Science, Technology and Society (STS) studies can enrich our understanding of the debates by highlighting the transmutation of philosophical view into scientific theory and the intermingled nature of our forms of knowledge. Furthermore, I contend that STS helps Christians understand the evolution of their own anthropologies and suggests some prospects for future theological anthropology.

Keywords: consciousness uploading; Science, Technology and Society studies (STS); theological anthropology; philosophical anthropology; transhumanism

The debate between transhumanists and their opponents, argues Gregory Stock, is “about philosophy and religion. It is about what it means to be human, about our vision of the human future” ([1], p. 303). A brief survey of a few of the articles and books written on the topic suggests he is right. Transhumanists contend that human beings should use the tools of science and technology to enhance themselves beyond what is biologically natural [2]. Their intellectual opponents, sometimes called “bioconservatives”, argue that doing so violates human dignity [3], endangers human rights [4], or elevates humanity above their rightful station [5]. Transhumanists in turn retort that the principle of dignity need not exclude the posthuman (i.e. what “humans” are once they are no longer biologically *Homo sapiens*) [6], that rights can be better ensured by enhanced persons [7] and that humanity has no reason to be bounded [2]. As one surveys the literature, it is clear that these agonists are trying to engage with each other, but one gets the feeling they are still speaking past each other. Surely whatever Leon Kass meant by human dignity in relation to finitude excludes Nick Bostrom’s more “expanded” concept. C. A. J. Coady’s concern about hubris imposes limits unacceptable to Max More’s unbounded vision of humanity. The question of enhancement, one must conclude, reduces to simple understandings of what it means to be a person.

I take up but one example of the highly-contested transhumanist goals in this paper, namely the proposal of mind uploading. This is a technological project favored by such technological luminaries as Ray Kurzweil, Hans Moravec, the late Marvin Minsky and Peter Thiel. Currently, Dmitri Itskov is one of a few persons actively pursuing this goal with his 2045 Initiative, a movement to bring together various scientific and technological achievements, including robotics, neuroscience and artificial intelligence, into the singular task of removing persons’ consciousnesses from their biological bodies and transferring them to superior computer substrates [8]. Literature supporting this project is

diverse, including Moravec's *Mind Children*, Kurzweil's, *The Age of Spiritual Machines*, Steve Fuller's *Humanity 2.0*, and essays by computer programmers, AI researchers and entrepreneurs. The aim of such a project is to liberate humanity from its biological limitations, especially mental and physical weaknesses and the inevitability of death. The uploaded mind would be free from the slowness of neurons, boundaries of memory capacity and biological vulnerabilities to the passage of time.

Accomplishing this task, according to pro-uploaders, requires progress in three technological and scientific areas. First, computer hardware must be up to the task. Running a computer mind requires huge amounts of data storage and powerful and fast processors. However, we are already approaching the low-end estimates of some of the older predictions for uploading in our standards for home computing technology ([9], p. 60). This means the necessary hardware for the task will be available soon and will be inexpensive. Second, computer software must be sophisticated enough to do all that the brain does reliably. According to some software experts, we are far from reaching this goal because software programming suffers from an "inverse Moore's Law" whereby progress slows over time rather than accelerates [10]. However, the intricacies and complexity of the necessary programming seems just to be a matter of time, not of ability. Finally, we must have an improved understanding of the brain and how it functions. "What" the mind is and "how" it works is important information for moving it successfully into a new home. Neuroscience and "brain mapping" is being pursued to this end, but understanding the brain remains the most elusive project so far. To get around this last obstacle, some have proposed "whole brain emulating" whereby a sufficient "map" of the brain created by deep tissue scanning is simply recreated within a computer environment and allowed to function as it would in a physical medium [11]. Although several real obstacles remain, many proponents of this project expect to accomplish all of these ends, and thus feasibly uploading itself, as early as 2045 (hence the 2045 Initiative).

Aside from very real concerns about environmental impact, distribution of technology and existential threats, most opponents of uploading are concerned that doing so crosses important moral boundaries regarding the status of the human person. Some, like Nicholas Agar, believe it to be ontologically impossible and thus "a novel way to commit suicide" ([12], p. 27). Others fear it is possible but will result in a disembodied monstrosity [13]. Others still worry about the harm that can be done from being removed from one's material origins [14]. Nonetheless, those in favor of uploading hold a "patternist" theory of mind, which holds that human identity is reducible to a brain pattern ([9], pp. 116–22). The successful copy of this brain pattern into another "substrate" constitutes having one's identity transferred to another substrate. A mind is therefore analogous to a poem; written on bark, vellum, stone or paper, the text contains the same meaning and (theoretically) significance.

I contend that in these discussions, we see the need for careful anthropological consideration. This is not a novel thought for technological ethics; eighty years ago, Nicholas Berdyaev began considering the challenges we face in our "technological" world and the threat they pose to humanity. His conclusion was that the answer to the technological challenge lies "in the Christian view of [humanity] as such, for we can no longer be satisfied by the patristic, scholastic, or humanistic anthropologies . . . Philosophical anthropology becomes a central problem: [human] and machine, [human] and organism, [human] and cosmos, are what is has to deal with" ([15], p. 213).

In this essay, I examine briefly three anthropological views contending against transhumanism that are reminiscent of Berdyaev's concern (NB: not all of these authors write specifically against patternism, but their anthropological views clearly allow no room for mind uploading as a morally worthwhile technological pursuit). I take up the writings of Brent Waters, who holds an Augustinian view of humanity, Celia Deane-Drummond, who adopts a Thomistic anthropology, and Francis Fukuyama, who uses a mostly humanist perspective. I show that within the context of the transhumanist debate, the discordance of these views leaves the reader with no clear answers. Thus, I advocate for outside perspectives informed by work done in Science, Technology and Society (STS) studies. Too many of our backwards-looking anthropological frameworks lead only to struggle and contention about the

moral challenge of transhumanism. The work done in STS however, reframes the anthropological debate by contextualizing its evolution, thereby providing a new solution to intractable disputes.

1. A Sampling of Anthropologies

I contend that Berdyaev's call has not truly been answered today. This is not to say that nobody has taken up the anthropological question, but rather that many views are beholden to older anthropological traditions. For example, Jacques Ellul wrote a great deal about humanity's relationship to technology, but his thought remains fairly Augustinian. He suggests, for instance, that Adam did not have to work in the perfect Garden of Eden, so work and technology arise only as a result of sin [16]. W. Norris Clarke, SJ, on the other hand, writes about technology from a Thomistic perspective and suggests it is a genuinely human expression of God's gifts of rationality to human beings [17]. Finally, one must note that the transhumanists themselves consider their own intellectual heritage to be the early humanist movement [2]. One notes, for example, that patternism is a somewhat Cartesian substance dualist view of the human person, who should be free from the suffering and pain attendant to biological bodies. For the rest of this section, I examine three major figure's anthropological views relating specifically to the question of transhumanism and why it is dangerous. Each author corresponds loosely to one of Berdyaev's anthropological models, and each critiques transhumanism from this perspective.

Brent Waters has written extensively on new technologies, and especially the implications of transhumanism and its misplaced conceptions. Waters writes more in line with the philosophy of Hannah Arendt, but as a Protestant theologian, his writing is unmistakably (and undeniably) Augustinian in tone. Waters begins by arguing that the "technoculture" we live in leaves us homeless and estranged ([18], p. 122). This homelessness affects everyone, but Waters argues that we Christians are called to respond to this differently from non-Christians. Non-Christians find themselves as "nomads", wandering the world with no sense of meaning or purpose, while Christians are "pilgrims", recognizing that our journey has a direction and that the trip itself is sacred. The pilgrim Christians of Waters's framework are residents of the earthly city, though they are citizens of the heavenly city ([18], p. 149). Christians, in this framework, recognize that their will is set right by grace toward the Parousia, while non-Christians variously try to navigate as nomads through private revelation, universal reason, casuistic readjustment or moral subjectivism ([18], pp. 148–52). Thus, Christians, as citizens of the heavenly city, are called to a different moral orientation from non-Christians who have no such awareness, despite the fact that our situation as homeless in the technological world is the same. The heavenly orientation of Christians makes our journey here one of pilgrimage, while the lack of such vision among non-Christians results in aimless nomadism. This heavenly orientation, Waters contends, allows the Christian to not fear death the way the transhumanist does; for while death is the enemy of both transhumanists and Christians, the transcendent focus on Christ's resurrection changes the meaning of death for the Christian pilgrim [19].

Celia Deane-Drummond writes much on Thomistic and Aristotelian implications of new scientific advances and technological developments. Deane-Drummond's approach is interesting in that she combines both a strong natural scientific perspective and a strong Thomistic perspective into one. She concedes, for example, an evolutionary understanding of humanity: we are a species in continuum with other living species and not necessarily morphologically distinct from extinct hominids [20,21]. She likewise takes seriously the promises offered by transhumanist technologies, including human gene editing. Nonetheless, she holds this in tension with a strong theological view. She champions, for example, the centrality of virtue for moral decision-making, especially Aquinas's four cardinal moral virtues and the three theological virtues [22,23]. She argues virtue is a necessary moral orientation for us to have because of the centrality of grace for Christian anthropology. Our transformation through grace is a transformation of both our moral orientation and our being, and so a perspective that admits for moral growth is necessary. Furthermore, she contends that humans are not distinct from other animals by virtue of our rationality alone, but more significantly, through God's transformative grace our

animal nature is uplifted to one imprinted by the divine [20]. Thus, human beings are simultaneously natural, rational *animals* and *imago Dei* transformed through God's grace [20,21]. Therefore, accounts of the person which either denigrate the natural and animal elements of being human or which ignore the divine spark within us fail to do justice to theological accounts of personhood. Technological projects that seek to "take leave of the animal" by evacuating soul from body or control our future and thus obviate grace are immoral [21,22].

Francis Fukuyama is a secular philosopher who sat as a member of George W. Bush's President's Council on Bioethics. He is strongly influenced by both Nietzsche and Aristotle, but his anthropological orientation centers around the concept of human dignity separate from any theological underpinnings. Fukuyama defines human dignity as "Factor X" which is "some essential human quality underneath [all contingent characteristics] that is worthy of a certain minimal level of respect" ([24], p. 149). Lest we attribute this to some central aspect of our being human, such as rationality, Fukuyama assures us that Factor X "cannot be reduced to the possession of moral choice, or reason, or language, or sociability, or sentience, or emotions, or consciousness, or any other quality that has been put forth as a ground for human dignity. It is all of these qualities coming together in a human whole that make up Factor X" ([24], p. 171). He does not provide greater explanation to this; he simply contends that the Gestalt of Factor X is worthy of moral respect. Fukuyama goes on to suggest this entails a need to preserve what is biologically natural and to ensure the "genetic endowment" of all of humanity for future generations ([24], p. 171). In terms of transhumanism, this means any morphological change that directly violates Factor X or affects our genetic endowment would be a violation of human dignity. Thus, uploading, which renders the genetic endowment obsolete and would likely alter or distort elements of being human like emotion and sociability, would violate human dignity in a profound way. The uploaded mind is a natural transgression and thus a trespass against human dignity.

The above should not be taken to be any sort of exhaustive look at the various anthropologies offered to reflect on transhumanism, nor is this a thorough examination of even these three thinkers' positions. My intention here is simply to note that there are, in fact, various philosophical and theological positions raised against transhumanism, coming from diverse viewpoints and contending in favor of certain traditional understandings of the person. This selection could have been substituted for others, including non-Augustinian patristic thinkers like Todd T. W. Daly or other humanists like Michael Sandel. However, I believe the selection above provides a diverse-enough sampling to understand what people are saying about transhumanism and why there is resistance to it. In all three above cases, the patternists' anthropology is seen as dangerous because it violates key components of what it means to be human.

2. Hearing amid the Noise

If one browses through such volumes as Mercer and Trothen's *Religion and Transhumanism: The Unknown Future of Human Enhancement*, Mercer and Maher's *Transhumanism and the Body: The World Religions Speak* or Hansell and Grassie's *H±: Transhumanism and Its Critics*, she may believe that there are many more arguments against uploading than there are in favor of it. Indeed, the positions outlined above suggest this is the case: uploading is primarily supported by a very particular humanist perspective based on the thought of figures like Bacon and informed by an uncertain amount of Cartesian dualism. However, many authors, from various traditions, contend that the pro-uploaders are wrong, and, worse still, that their project is dangerous. One might dream this agreement would solve the problem once and for all, but transhumanism remains still popular. Moreover, a further moral challenge arises due to the diversity represented in anti-uploading views; while transhumanism itself may be widely opposed, the reasons why authors oppose it are diverse and sometimes incompatible.

We may see a preliminary problem in this challenge by noting that while Waters, Deane-Drummond and Fukuyama agree that uploading is morally irresponsible, they come to this consideration from rather different standpoints. Waters, a Protestant theologian, follows Augustine and Arendt (who also follows Augustine to a certain extent) in his thought. Deane-Drummond, a Catholic theologian,

follows Aquinas and Aristotle in her thought. Fukuyama, a secular philosopher, nominally follows Aristotle and Nietzsche, though his thinking looks unlike either of theirs and is more informed by a rich Enlightenment humanism. These three thinkers do depart from their point of origin—it would be hard to *really* apply Augustine, Aquinas or Nietzsche to the problem of uploading—but they also do take their cues from these sources. More importantly, while Augustine, Aquinas and Nietzsche can all be broadly categorized under the rubric of the Western philosophical canon, they occupied very different social locations, with very different interests and had very different understandings of the world. Augustine’s Roman Christian concerns are different from Aquinas’s scholastic concerns, and neither are strictly relevant to Nietzsche’s Wilhelminian Germany. These differences are not irrelevant, so we should be careful in relativizing all philosophical perspectives that share some modicum of agreement too quickly.

Secondly, and more to the point, our three authors’ views are not all the way consonant. Augustinian “earthly city” language does not flatter Aquinas’s natural law position favoring the “natural”, nor does it favor Fukuyama’s deference to secular philosophers. Similarly, Fukuyama’s view of the unassailability of the “genetic endowment” of humanity seems at odds with Waters’s favored perspective of our alienation on this earth, and more so to Deane-Drummond’s recognition that human uniqueness goes beyond genetics. Thus, a challenge in reading these arguments is deciding which has the most merit. A clever uploader could “cherry pick” elements from each anthropology to support his own: the dualism characteristic of Augustine’s view, the transformative aspect of the Thomistic vision, and the secularism of Fukuyama all resonate with patternism, though they do not resonate across the boundaries of our three authors. Indeed, the discordance of these thinkers functions to the advantage of patternists and it becomes easy (and perhaps prudent) for transhumanists to dismiss the other positions as merely differences of opinion.

The conclusion we are left with after surveying and analyzing these positions is that from an outside position, the disagreements boil down to differences in philosophy. Those who uphold a patristic or patristic inspired worldview are not likely to share the same values or understandings as those who uphold a scholastic or neo-scholastic worldview nor those who favor a humanistic worldview. In other words, if Deane-Drummond’s account of the human is right, then Fukuyama’s, Waters’s, and the transhumanists’ cannot be. But transhumanists have no vested interest in accepting either theological or non-theological philosophies that contradict their own. It is in their best interest to allow the challenge of their opponents to reduce to qualms about philosophy. Thus, the obstacle remaining is to somehow overcome these intractable philosophical anthropological differences.

3. STS: A Way Out?

At the risk of pursuing a seeming non-sequitur, I wish to suggest that a solution to this problem may arrive from Science, Technology and Society (STS) studies. STS combines approaches from the social sciences of anthropology, sociology and history. The work done in STS over the past eighty years has yielded new insights into the way that scientific knowledge is produced (Sociology of Scientific Knowledge), the historical development of scientific theories and technologies (History of Science and History of Technology), the way that technologies are created in social circumstances (Social Construction of Technology) and even multi-disciplinary approaches that appreciate the interconnected networky nature of scientific work and technological progress (Actor-Network Theory or ANT). While philosophers and theologians of technology going back to Heidegger and Ellul have been engaged in debates about the development of technologies, the best models to oppose certain developments, the dangers present and the way out, STS folk have been happy to examine primarily how things came to be the way they are.

Among STS insights that are helpful here, the ANT work of Bruno Latour is perhaps the most pertinent. In his landmark *We Have Never Been Modern*, Latour suggests that the “modern constitution” consists of two important tenets. First, “it is not [human beings] who make Nature; Nature has always existed and has always already been there; we are only discovering its secrets”. Second, “human

beings, and only human beings, are the ones who construct society and freely determine their own destiny" ([25], p. 30). In other words, we traditionally believe that the world of human commerce and interaction (including politics, sociology, and, dare I say, philosophy and theology) is necessarily separate from the world of "science" (the things of nature); the elements pertaining to the former are contingent and made by human minds for human beings while elements pertaining to the latter are intrinsic to the world and only involve us in the "discovery" of their secrets. Latour argues that the modern constitution is not true: the propositions for the human world and those for the natural world are not held separate but are all "mixed" together and so that all forms of knowledge are "hybrid" knowledge ([25], p. 41). We thus never fully achieved the "modern" separation of these two spheres: our science of Nature is tainted by our human biases and our society is affected by natural relations. Humans and non-humans interplay in entangled networks that ground our mode of being in the world. In other words, just as the clever anthropologist notes the cosmological unity of "pre-modern" peoples' views of nature and society, Latour argues that our society is likewise cosmologically unified and has never truly been modern ([25], p. 46).

This insight helps us understand the epistemological heritage of the uploaders. As Hubert Dreyfus notes in *What Computers Still Can't Do*, the assumption that computers emulate human thought is itself based on ancient Greek perspectives of human cognition as calculation ([26], p. 67). The image of a calculating machine influences Alan Turing, whose work in computing and hypothesis of a "Turing Machine" become the basis for artificial intelligence work ([26], p. 74). The possibility of a Turing machine in turn underlies much of the theory informing the uploaders. This Plato-Turing lineage finds its expression in patternist philosophy in the following manner: the mind operates on a set of instructions like a computer, and so a sufficient calculating machine (perhaps one running numerous parallel processes and operating with formidable processing power) will accomplish what the human brain accomplishes and therefore be able to run the same program as a brain ([9], ch. 1). Assuming Dreyfus is correct, this means that the viability of uploading relies, not on a thoroughly "modern" natural science worldview, but rather on Socratic theories of epistemology, the same epistemology that contends all knowledge is intrinsic and simply in need of being brought forth by the right stimulus rather than learned. The patternists, however scientific they may seem, are not "postmodern" or even "modern"; they are, in fact, pre-modern.

STS reveals, therefore, three crucial dangers about the uploading project that are otherwise obscured by arguments from various philosophical anthropologies. The first problem is that the patternist philosophy of the transhumanists is just that—a philosophy and not a science. Thomas Kuhn notes that science is singular among all disciplines of knowledge in that it does not allow for competing schools to emerge ([27], p. 162). The scientific paradigm that admits of oxygen as a chemical element utterly replaces the paradigm that understands dephlogisticated air. Newtonian theory replaces Aristotelian physics and becomes hegemonic—one cannot be a scientist and now hold that fire is attracted to the sun. This is not the case, however, with philosophy or theology (barring, notes Kuhn, dogmatic theology). The diversity of thought detailed above is proof of this. The rigor and policing that keeps science from admitting "junk science" (when done properly) is not relevant to systems like philosophy where plural views are held within the same discipline. This is why the modern constitution is held—science is practiced with much greater scrutiny and authoritarianism than any other field, and so is held to be unbiased and unaffected. Any given philosophical view, therefore, should not be treated as though it were a scientific principle.

The second danger is that modern theories are constantly in flux. Braden Allenby warns that our constructions of technological versions of humanity will be based on our current mental models, models which are subject to destabilization with new discoveries [28]. Each of the authors mentioned above represents a different perspective of what it means to be human, and each importantly represents an evolution of earlier ideas as well. Waters is not *fully* Augustinian; he is also informed by twentieth and twenty-first century science and philosophy. Deane-Drummond is not *fully* Thomistic; she synthesizes the Angelic Doctor with evolutionary theory. Scientific models evolve and, hopefully, are

perfected over time. The scientific perspectives of patternism are yet untested, and a failure on this front will be fatal (“suicidal”). Human lives should not be staked on unstable scientific claims. This principle holds true across moral traditions and one does not need to hold a strong “precautionary” view to support it.

The final danger, a sort of synthesis of the first two, is that contingent philosophical views are being taken to have the same certainty as scientific ones. Transhumanists, in taking their philosophical view to be scientific, risk great danger because patternist philosophy is not subject to the same rigor or trials of strength as scientific theories ([29], pp. 74–79). One cannot prove theories about human consciousness or identity in a laboratory, just as one cannot prove moral propositions, literary theories or the existence of God. These are positions held as a matter of worldview, not as scientific principles. To treat them as scientific theories, as the uploaders do, is dangerous first and foremost because the “patternist” theory is not subject to proof or disproof the way that the vacuum of Robert Boyle’s air pump was subject to proof [30]. Consciousness and identity are held as philosophical propositions—there is no “proof” of a human soul or any given person’s persistent mind. These are rather universally held philosophical and theological positions. Indeed, the belief in a self that persists over time chafes against scientific findings that all somatic cells are replaced every seven years, leading to a veritable “Ship of Theseus” paradox for human identity ([31], p. 260). To treat philosophical tenets as scientific views, therefore, is a category mistake, and misunderstands both the nature of the philosophical claims of human identity and what pertains to the domain of science.

4. Conclusions: Complicating Anthropologies

The discussion above may lead one to conclude that there is no solution to the problem at hand. The uploaders will do as they please, and the anti-uploaders will do as they please, and neither side will convince the other. Perhaps, for example, a sufficient program can be uploaded that passes the “Kurzweil Turing Test”, convincingly responding to any given stimulus the way that a given person (e.g., Ray Kurzweil) would ([31], p. 257). Pro-uploaders will accept this as sufficient scientific evidence to validate their claims. Anti-uploaders, however, will see reason to dispute this—perhaps the immaterial soul was lost, or perhaps the program is merely a clever mimic (or perhaps demonic impersonation) of the uploaded person. Arguments grounded in older philosophical systems, whether in favor of or against uploading crash against the same obstacle, namely the non-scientific nature of claims of consciousness and identity.

STS illustrates not only the problem of this category mistake, but also suggests a solution. Our world is not yet modern, so Latour claims, though he offers us a way to accept this. Human beings are hybrid creatures—“quasi-subjects” creating “quasi-objects” ([25], p. 137). ANT theorists note that we live and operate in long “networks” of being, constituted by both human and non-human actors affecting and influencing each other. This offers two conclusions for the present discussion. The first is that our philosophical and theological arguments must take seriously the intermingling of fields. Theology has, in fact, influenced science, just as science fiction has influenced technological progress. There is no clean divide, and the uploader who believes his work is “pure science” is mistaken. Uploaders must be ready to see that their “patternist” philosophy is not more scientific than Thomistic theories about the self or Augustinian accounts of fallen nature. Anthropological accounts are and always have been informed by a series of discussions about the person that cross between “hard” scientific and “soft” philosophical and theological domains. Deane-Drummond’s evolutionary Thomism is a wonderful example of this cross-disciplinary approach. The patternists’ view is likewise a constructed philosophical vision, articulated through discussions about the nature of cognition reaching back as far as Socrates, and given further strength in twentieth-century computer science. All positions have genealogies, and none is “purified” from the messiness of disciplinary intermingling.

The second, more significant conclusion, is that human nature, whatever it is, is not “finished.” Our accounts of humanity are continually evolving. One thinks of the anthropological “revolutions” associated with Copernicus, Darwin and Freud: heliocentricity, evolutionary theory and

psychoanalysis have yielded ineradicable changes to our conception of what we are. We are, of course, not done yet either. The past several decades have seen the success of the Human Genome Project, discussions of nuclear cloning, and the discovery of CRISPR/Cas9 gene editing. Philosophical and theological accounts of humanity may be struggling harder to keep up with these changes than are popular understandings (or, worse yet, “scientific” understandings like that of the uploaders), but this only underscores the need for caution. There may never be a “finalized” concept of the human person—new discoveries about the mind, about evolution, about genetics and epigenetic factors or even sociological data may yield unending knowledge. This instability, however, suggests the need for caution. A technological project that risks ending human lives deliberately should not be pursued based on highly contestable and overly confident scientifically-masked philosophies of what it means to be a person.

A final word must be said for theological accounts of being human. While it is reckless, and perhaps impossible, to try to utterly abandon ancient theological visions of the human being (e.g., those of Augustine, Aquinas, Luther and others), we should be cautious about holding too strictly to them as well. Augustine’s theology was informed by his neo-Platonic understanding of the world, just as Aquinas’s was shaped by his Aristotelian science. As new sciences and technologies emerge, we must be willing to rethink our anthropological models. A step in this direction is the recognition with ANT theorists that part of being human is being part of these entangled webs of relations. The twenty-first century Western Christian cannot be understood wholly apart from the Internet, smartphones, global positional satellites and worsening climate change. Developments in and toward transhumanist visions of the future may be misguided, but the Christian must also be ready to understand herself in new terms if a consciousness is “successfully” uploaded. The strength of Christian faith has been in its adaptation throughout the centuries to new sciences and philosophies. We may face another such task of adaptation in the “posthuman” future.

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