

**The Image of God and Human Uniqueness:
Challenges from the Biological and Information Sciences**

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The image of God is the doctrinal *Sitz im leben* of human uniqueness. Despite the relatively meagre collection of scriptural passages that explicitly mention the image of God in the biblical text, the doctrine itself has had a substantial role in influencing Christian theological anthropology and even the rest of the doctrine of creation. Indeed, the Genesis text indicates that the image of God is decisively what separates out human beings from the rest of creation and, precisely in this distinguishing, helps to define human being as a special creature in the order of creation. In this way, humans are often referred to as the ‘crown of creation’ and their apparent uniqueness was largely unchallenged for millennia. Yet, recent work in the biological and information sciences is eroding the centuries-old conviction that we are distinct and special as creatures. How does this affect how we understand the image of God and should we experience this loss of human uniqueness as solely damaging to the Christian faith?

This paper seeks to address these questions. I aim to do this by first calling attention to the various ways the image of God and corresponding views of human uniqueness have been interpreted throughout Christian history. Then I will address the two dominant areas that have threatened human uniqueness in the past two centuries: the biological and information sciences. In conclusion, I argue that this loss of human uniqueness need not threaten the image of God nor that it be experienced entirely as destructive to the Christian faith. Rather, this dethroning of the human being can, in fact, positively inform modern Christian life.

The Image of God and Human Uniqueness

Most scholars who work on the image of God are quick to note that the interpretation of this doctrine is highly contextual. What this doctrine actually consists in and where the seat of

the corresponding uniqueness is located is largely influenced by the specific anthropological concerns of the communities and the historical setting in which the doctrine is reflected upon. It has been noted that one could chart an intellectual history and genealogy of theological anthropology through the ages by using the image of God as Ariadne's thread—a helpful prism to focus and reveal the beliefs and convictions of the day. Indeed, the paucity of explicit biblical material on something so critical as what connects humanity to God and distinguishes it from the rest of creation invites great attention and also interpretative variability. Because of this, the historical tradition is filled with pluralistic accounts of this doctrine and each is worthy of elucidation.

Stanley Grenz¹ and J. Wentzel van Huyssteen,² among others,³ have identified three distinct (and possibly four) ways the image of God has been interpreted through the ages. These models are labelled the functional, substantive, relational and dynamic accounts of the image of God. I will explicate each of these and explain how each locates human uniqueness within that model. This will help prepare for the next section on the challenges set to human uniqueness originating from the biological and information sciences and lay the groundwork for assessing the potential dangers to the doctrine of the image of God.

The first interpretation of the image of God arises out of modern biblical scholarship and focuses on the seminal image of God passage in Genesis 1:26-8. Represented by such Old Testament scholars as Gerhard von Rad, H. Holzinger and Johannes Hehn, the functional view of the image of God has essentially dominated the field of biblical scholarship in the past half century.⁴ The 'royal-functional' model claims that the image of God is to be found in reference

¹ Stanley Grenz, *The Social God and the Relational Self: A Trinitarian Theology of the Imago Dei* (Louisville: Westminster John Knox Press, 2001).

² J. Wentzel Van Huyssteen, *Alone in the World?: Human Uniqueness in Science and Theology* (Grand Rapids: Eerdmans, 2006).

³ Noreen L. Herzfeld, *In Our Image: Artificial Intelligence and the Human Spirit* (Minneapolis: Fortress Press, 2002). & F. LeRon Shults, *Reforming Theological Anthropology: After the Philosophical Turn to Relationality* (Grand Rapids: Eerdmans, 2003).

⁴ J. Richard Middleton, *The Liberating Image: The Imago Dei in Genesis 1* (Grand Rapids: Brazos Press, 2005), 29. However, recent biblical scholarship by Carly Crouch and John Barton is giving increasing credence to understanding the image of God in relational terms (ie as denoting a parent-child relationship). See Carly Crouch,

to the surrounding Ancient Near Eastern (ANE) traditions (Egypt and Mesopotamia) and in Genesis 1:26, 28. Here biblical scholars note it was common for kings and royalty in the ANE to reflect the divine presence on earth. In a sense, they acted as the proxy to the divine and embodied and represented the divinity to the rest of creation and society. In this way, the image of God passages in Genesis 1 recall to the original readership the royal, divine representation and then apply it to all of humanity—every human being represents and is in the image of God.

The functional model, however, extends this representational image and connects rulership over creation in Genesis 1:26, 28 to creation in the image of God. Just as ANE kings and royalty ruled over their respective societies and represented God to them, so all of humanity has dominion over creation and represents God to the rest of creation. The image of God entails that humankind functions as ‘God’s vice-regent on earth’⁵. This is not to say the image of God is to be found precisely in dominion but rather it is the consequence of being in the image of God.

Despite critical voices to the contrary,⁶ theologically, the functional model has most recently been taught to convey an element of ecological cultivation. Dominion ought not be one of a harsh king who plunders his subjects, but rather guides the flourishing of his kingdom. Likewise, we ought not devastate creation and subject it for our own ends. Rather, much like the parable of talents (Matthew 25: 14-30, cf. Luke 19:11-27), we have been entrusted by God with His valuable creation and have been charged with its cultivation and multiplication. We are expected to ‘tend the garden’ and bring about God’s intentions in it. Creation is not ours but is a gift from God and we have been entrusted with it to help usher it to glory and completion.

Where does human uniqueness fit into the functional model of the image of God? While there is an argument that many who would hold to this model would not locate the image of God itself in being given dominion over creation but rather a connected secondary result, it is

"Genesis 1:26-7 as a Statement of Humanity's Divine Parentage," *Journal of Theological Studies* 61, (2010). & John Barton, *Ethics in Ancient Israel* (Oxford: Oxford University Press, 2014), 64-8.

⁵ Grenz, 198.

⁶ Lynn White is notorious for connecting dominion language inherent in these passages with the exploitative behaviour of humanity towards the environment. See Lynn White, "The Historical Roots of Our Ecologic Crisis," *Science* 155, no. 3767 (1967).

still definitive. Humanity, hence, is unique because it has been tasked with ruling over, caring for and shepherding the rest of creation. For the functional model, it is humanity's special task as 'vice-regent' and in representing God that makes it unique amidst the rest of creation. In other words, one could say it is humanity's agency in the world that is distinctive.⁷

The substantive view (sometimes called the structural view) of the image of God has arguably been the most dominant in Christian history and is the most commonly associated interpretation for this doctrine. The foundation for this view arises out of the early Church Fathers and their engagement with Hellenistic sources and enjoyed significant prominence in medieval scholasticism. However, despite falling out of fashion in the last century, it still has significant proponents today.⁸ The substantive model claims the image of God refers to some quality or faculty that is inherent in the human being. It is something in its nature, something it possesses that makes it an image-bearer. Historically, this quality has most often been located in humanity's capacity to reason. Aristotle's famous maxim, in agreement with other Greek philosophers of the day, was that human beings were the 'rational animal'. This philosophical contention fused with early theological interpretations of the doctrine which held it is our intellectual prowess that makes us divine image bearers.⁹

The substantive view of the image of God locates human uniqueness in the very capacity that makes human beings image bearers. It is precisely the presence of or degree to which the faculty exists in human beings that makes them unique amongst the other creatures. So, this has often meant that humans are unique because they are either rational when others are not or that their intellectual powers are unique to such a degree that they are qualitatively distinct amongst the rest of creation.

⁷ Middleton correlates the functional model with action theory so that human beings are in the image of God when they act in a responsible way relative to their charging as stewards of creation. See Middleton, 27n39.

⁸ For a contemporary defence of the substantive model in the context of modern scientific findings see Olli-Pekka Vainio, "Imago Dei and Human Rationality," *Zygon* 49, no. 1 (2014). & Aku Visala, "Imago Dei, Dualism, and Evolution: A Philosophical Defense of the Structural Image of God," *Zygon* 49, no. 1 (2014).

⁹ See Shults, 220-226. & Grenz, 142-162. Of course, rationality does not have to be the single faculty that sets humans apart in the substantive model. Other capacities that are often cited are language, the will, self-awareness and even emotions.

The third interpretation of the image of God, the relational view, has had a strong heritage in the 20th century and depends upon the philosophical and theological work of people such as Martin Buber, Emil Brunner and Karl Barth.¹⁰ Each are proponents, to one degree or another, of a relational ontology that grounds human nature and identity in the I-Thou tradition of philosophy. Here the image of God is rooted in the divine address, in the very relationship God has to humanity. In other words, what makes humanity in the image of God is primarily the unique relationship humanity has with God and this relationship is defined as an I-Thou relation.¹¹ Secondly, this view might assert that it is our ability to have robust relationships with other persons that makes us in the divine image. Human uniqueness, then, is rooted in this special relationship with God and/or human beings unique relational abilities with other humans and creatures.

The final view is not always represented separately from the others. However, it does challenge some preconceptions often held and it represents a critical perspective for a distinctly Christian view of the image of God. The dynamic view holds that the image of God is not something completely given to humanity at the beginning of creation but is instead completely gained through history and in conformity to Christ.¹² It draws upon those significant New Testament passages (e.g. Colossians 1:15 or 2 Corinthians 4:4) that clearly state that Jesus Christ is the full measure of the image of God. A dynamic account of the image of God stresses that

¹⁰ It is most associated with these figures but draws upon the foundational work of the Reformers and indeed Kierkegaard. See Grenz, 162-170, 173-177.

¹¹ For more on the I-Thou tradition and its relation to the image of God see Van Huyssteen, 136-139. & Shults, 117-139, 233ff.

¹² A distinction was commonly made by Patristic and Medieval sources that the divine image ought to be separated from the divine likeness (similitude). This distinction largely arose out of the theological quandary that questioned how the image of God was maintained through the Fall of Man. Various Fathers of the Church claimed that while the image of God was unscathed by the Fall (rationality), our likeness to God was not (original righteousness). Protestant sources largely rejected this distinction. However, it does highlight the need to talk about the image of God in relation to the Fall and justification and this invariably will mean turning to Christology. See Shults, 226ff. & Grenz, 149ff.

insofar as human beings reflect and follow their true anthropological source in Christ they too are to be in the image of God.¹³

A dynamic account of the image of God seems to be more flexible in terms of human uniqueness than the others. Of course, it does acknowledge that the image is fixed and manifest in Christ but because we have not yet attained it in full it takes on a thoroughly eschatological dimension to be completed at the end of all things when Christ has come in His fullness. Human uniqueness in this model seems to relate to Christ and in our sanctification/transformation towards the God-man. We could say that human uniqueness is related to our special ability to transform and grow, often in distinctly moral and spiritual ways, towards Christ who is Himself the full image of God.¹⁴

Each of these views has been held at various times in Christian history. Of particular note, however, is that each model need not be treated exclusively. Each of these models could be combined in interesting ways such that hybrid models could be constructed that rely upon aspects from each. This could help to create a more robust picture of the image of God that might see value in combining the mutually-enriching concomitant sources. For instance, it is entirely likely that one could hold to a relational, functional and substantive model of the image of God simultaneously. Indeed we see this with Gijsbert van den Brink who says: 'We are special because God has called us to be stewards of God's earthly creation, having endowed us with the capacity for responsible relationships with each other and with Godself, relationships which we

¹³ Those most associated with this model include Irenaeus, Martin Luther, John Calvin, Wolhart Pannenberg, Stanley Grenz and Ted Peters. Two caveats: first, I am not equating each of these figure's account of the image of God. I recognise there are substantial divergences between, e.g., Calvin's dynamic understanding of the image of God and that given by Pannenberg. However, all consider the image of God in relation to Christ and as enacted in history. Second, I am not saying other models do not reference Christ but rather that they often take their cue from pre-Christological accounts of the image of God. For the dynamic model, Christ is referenced foundationally and definitively. See Grenz, 177ff. & Shults, 235ff.

¹⁴ Van Huysteen claims the dynamic account promulgated specifically by Wolhart Pannenberg locates human uniqueness in seeking fulfilment and reaching out beyond oneself. This is essentially the religious correlate of the more specific Christian claim I am making: ie that this reaching out is toward the person of Christ. See Van Huyssteen, 139-141. What is more, this growth need not be limited to just moral and spiritual development but has important resonances with theosis—our very natures are divinised with Christ and this could have repercussions in the physical, material world. For a fascinating article related to this subject see Ted Peters, "Can We Enhance the Imago Dei?," in *Human Identity at the Intersection of Science, Technology and Religion*, ed. Nancey C. Murphy and Christopher C. Knight (Farnham: Ashgate, 2010). Also see Johan De Smedt and Helen De Cruz, "The Imago Dei as a Work in Progress: A Perspective from Paleoanthropology," *Zygon* 49, no. 1 (2014).

need in order to take care of each other and of creation as a whole in a myriad of ways. Moreover, in order to live in these responsible relationships and to fulfil our tasks, God has given us some substantive character traits which are, if not unique in kind then at least unique in degree as compared to any other species in creation.¹⁵ So, when assessing contemporary challenges to human uniqueness we ought to be aware that often beliefs regarding the image of God might draw upon more than one of these approaches and that a combination of more than one model is likely.

Before assessing the merits of each model relative to the recent challenges to human uniqueness, we turn to the challenges themselves as they arise from the biological and information sciences.

The Challenge to Human Uniqueness From Biology

Our understanding of humankind *qua* biological entity has radically changed since the 19th century. The rise of Darwinian evolution in the 19th century could be felt beyond just the academic fields of biology and anthropology—it wasn't sequestered to the ivory tower alone. Instead, it captured the imagination of Victorian Britain and blazed through society's *psyche*, causing the inhabitants of the parlour and the parsonage to reflect upon their relation to the rest of the animal kingdom.

This is reflected in unique cultural artefacts that express the pervasiveness of Darwin's idea. For instance, Janet Brown claims 'Individuals could, if they wished, acquire a pottery statuette of a monkey contemplating a human skull. Or they might pay to gape at Julia Pastrana, the "Missing Link," whose mummified body toured eastern Europe in 1862...They could sing a duet at the piano on the "Darwinian Theory," read edifying popular romances such as *Survival of*

¹⁵ Gijsbert van den Brink, "Are We Still Special? Evolution and Human Dignity," *Neue Zeitschrift für Systematische Theologie und Religionsphilosophie* 53, no. 3 (2011): 331.

the Fittest, or give their children nursery primers called *Daddy Darwin's Dovecot*.¹⁶ The most striking examples are to be found in certain seminal political cartoons and caricatures. These drawings of Darwin and his theory reveal the incessant Victorian preoccupation with evolution, highlight the impact of Darwinian evolution on the general populace and disseminated Darwin's theory. A notable instance is to be found in *Punch's Almanack* of 1882, 11 years after Darwin wrote *The Descent of Man*.

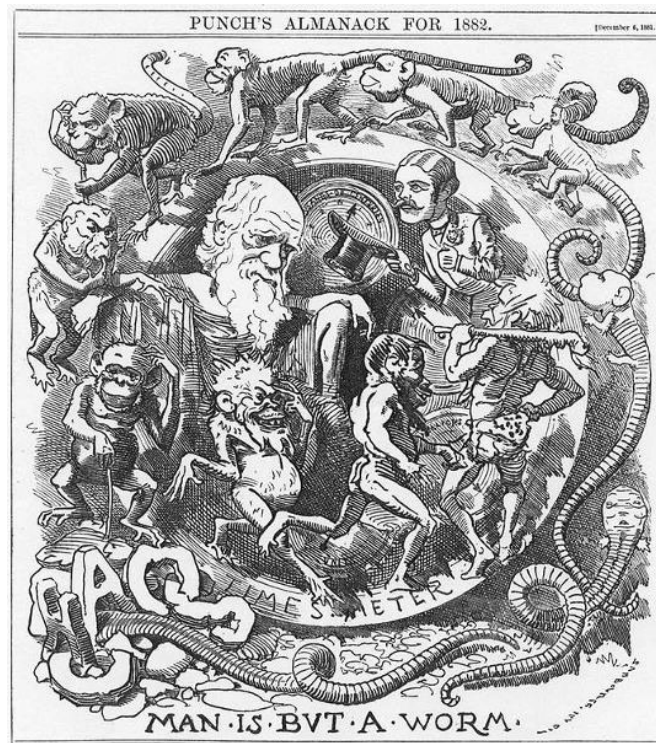


Figure 1: 'Man is But a Worm' by Linley Sambourne printed in *Punch's Almanack* (1882). Image courtesy of <https://www.flickr.com/photos/publicdomainreview/10559600145>

In this image, shown above in Figure 1, is written 'Man is But a Worm'. The picture depicts various stages of evolutionary development from the worm to the modern Englishmen. The Englishman tips his hat in thanks to an enthroned Darwin. In an alternative depiction of creation Darwin, a kind of pantocrator figure, looks down on the changing species that arise out of the

¹⁶ Janet Browne, "Darwin in Caricature: A Study in the Popularisation and Dissemination of Evolution," *Proceedings of the American Philosophical Society* 145, no. 4 (2001): 497-498.

words ‘chaos’.¹⁷ It is clear that society not only learned of Darwin’s significance through intellectual discourse but also through consumer products and other popularised media.

The average Victorian was well-acquainted with Darwin’s theory, at least the basics of it. And where these images of evolution crop up, they invariably focus on the transition from ape to human being with an inordinate amount featuring Darwin himself as an ape—highlighting the central impact his theory of evolution had on these Victorians: what it means for us as human beings.¹⁸

We still feel this Darwinian challenge in the 21st century. Indeed, the scientifically thin separation of human beings from the higher apes is probed with great precision today. Phrases like ‘human beings are 98% genetically similar to chimpanzees’ can be found emblazoned on the front cover of top scientific magazines such as *National Geographic* or *Science*.¹⁹ And, entire fields of study such as anthropology, comparative psychology and primatology all study, in some form or another, this porous boundary between the human being and the animal kingdom. It is not difficult to discern that much of these studies are motivated in part by that incessant existential question: ‘What makes me unique and different?’

Some scientists have sought to answer this question asserting it is our capacity for complex language that separates us from the rest of the animal kingdom. Certain scientists and linguists such as Michael Tomasello, Steven Pinker and Noam Chomsky all claim in some form another that human language is unique. The capacity for encoding our experiences and representing the world through symbol is unparalleled. Several features seem to make human language unique. Human language is said to be ‘productive’ and ‘open-ended’ in that, in theory, an infinite amount of phrases can be created using a finite amount of words and clauses. New sentences can be crafted all the time because of an inherent openness and productivity in human

¹⁷ Jonathan Smith, *Charles Darwin and Victorian Visual Culture* (Cambridge: Cambridge University Press, 2006), 275.

¹⁸ For a complete historical appraisal of Darwin’s impact on society see Thomas F. Glick, ed. *The Comparative Reception of Darwinism* (Chicago: University of Chicago Press, 1988) & Ronald L. Numbers and John Stenhouse, eds., *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender* (Cambridge: Cambridge University Press, 1999).

¹⁹ Sources range from 95% to 99.99%. See Jonathan Marks, *What It Means to Be 98% Chimpanzee: Apes, People, and Their Genes* (Berkeley: Univ. of California Press, 2003).

language.²⁰ 'Recursivity' and 'displacement' are two other distinct features of human language. Recursivity refers to imbedding clauses *ad infinitum* in other sentences much like Russian nesting dolls. This adds a significant level of complexity and cognitive load to the language.²¹ Human language need not refer to actual events or even correspond with a particular stimulus in the environment. Displacement refers to the abstract potential of language; a phrase can be uttered independently of the physical context at the time of utterance. Human language can be highly imaginative and can refer to events in the past or the future.²² All of these linguistic elements have been used to assert the relative uniqueness of human beings.

Others have sought to locate human uniqueness in profound self-awareness. They claim that our capacities to think and reflect upon the conditions of our lives and to have a robust inner life are only found in our species. This self-awareness is not just physical, as if we are aware of only our bodies, but is multi-faceted including knowing one's thoughts are distinct from others thoughts. Scientists often associate this with what is called 'Theory of Mind': the idea that certain agents have intentions and thoughts. Theory of Mind suggests there can be an internal mental world that can affect the external world including myself and other agents/people around me. This internal life gets radicalised with certain forms of existentialism claiming humanity's uniqueness is in the acknowledgement of a profound freedom, a flexible essence and an overwhelming anxiety in the face of death.

Some have even stated human uniqueness depends upon the complex cultural productions of humankind. Specifically, they seek to localise what is distinctively human in the social behaviour passed down to subsequent generations. Indeed, a common refrain from evolutionary scientists working on culture is that human culture is unique in the accumulation

²⁰ R. L. Trask, *Language: The Basics* (London: Routledge, 1999), 4.

²¹ Recursivity is debated amongst linguists and anthropologists as a necessary feature of human language. It is most associated with Noam Chomsky who has proposed it in Marc D. Hauser and others, "The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?," *Science* 298, no. 5598 (2002). However, Daniel Everett has claimed he has found counterfactual evidence against Chomsky's claim in the Pirahã language found in the Amazon. See Daniel L. Everett, "Cultural Constraints on Grammar and Cognition in Pirahã: Another Look at the Design Features of Human Language," *Current Anthropology* 46, no. 4 (2005).

²² Trask, 4, 8.

and improvement of learned capacities from one generation to the next.²³ Human beings can actively reflect on what is taught them by their family and friends and improve those techniques to be passed along to others. As a corollary of cultural uniqueness, it is often alleged that human beings have a more advanced moral compass and exhibit pro-social behaviour unequalled in other species.²⁴ For these scientists studying culture, it is nurture rather than nature that separates humankind from the rest of the animal kingdom.

Yet, scientists have also found rudimentary instances of each of these capacities in other species. For instance, apes have some capacity for language and often surprise scientists with their abilities. Nim and Coco are the most notable apes that have been trained with sign language.²⁵ In relation to self-awareness, elephants, magpies and certain apes have passed an initial assessment for self-awareness using the mirror test.²⁶ This test has the test subject (human children, apes, birds etc) look into a mirror after a dot has been placed on their forehead. If they touch their own head, rather than the mirror, to examine the dot, they are said to have some semblance of self-awareness. And, in response to cultural exceptionality, crows, apes and elephants have all been found to have robust cultures with some capacity for social learning.²⁷ They have even observed elephants and primates aiding others of their species even when an individual reward is absent.²⁸ So, endeavours to clearly demarcate between humans and animals ironically find that line more difficult to establish than perhaps initially suspected.

²³ On this idea of 'cumulative culture' see Mark Pagel, *Wired for Culture: The Natural History of Human Cooperation* (London: Penguin, 2012).

²⁴ Kim Hill and others, "The Emergence of Human Uniqueness: Characters Underlying Behavioral Modernity," *Evolutionary Anthropology* 18, no. 5 (2009).

²⁵ Michael Tomasello, *The Origins of Human Communication* (Boston: MIT Press).

²⁶ Sue Taylor Parker, Robert W. Mitchell, and Maria Boccia, eds., *Self-Awareness in Animals and Humans: Developmental Perspectives* (Cambridge: Cambridge University Press, 1994). & H. Prior, A. Schwarz, and O. Güntürkün, "Mirror-Induced Behavior in the Magpie (*Pica Pica*): Evidence of Self-Recognition," *PLoS Biology* 6, no. 8 (2008).

²⁷ Eytan Avital and Eva Jablonka, *Animal Traditions Behavioural Inheritance in Evolution* (Cambridge: Cambridge University Press, 2000). & Hilary O. Box and Kathleen Rita Gibson, eds., *Mammalian Social Learning: Comparative and Ecological Perspectives* (Cambridge: Cambridge University Press, 1999).

²⁸ K. A. Cronin, "Prosocial Behaviour in Animals: The Influence of Social Relationships, Communication and Rewards," *Animal Behaviour* 84, no. 5 (2012).

The Challenge to Human Uniqueness from Information Science and Technology

Before turning to theological appropriations of this reduction of human uniqueness it is important to look at the other area seriously questioning human uniqueness today: information sciences and technology. Posthuman/Transhuman philosophy and certain artificial intelligence experts question whether human individuals are anything more than the information captured in the neural networks of their brains. And, they say both the biological information of each human being along with the unique set of events which makeup the person's life might be enough to actually reproduce that person. Indeed, one famous self-ascribed transhumanist technologist, Ray Kurzweil, has storage containers full of his father's personal information with the intention of using this to bring his father back to life someday.²⁹ Strides in information technology and artificial intelligence in the last few decades have equally eroded the distinction between human life and artefacts. If the major anthropological shift in the 19th and 20th century was a collapse of the human into the animal kingdom then the 21st century is a closing of the gap between everything else and the human.

Contemporary posthumanists aren't the first to understand human beings in terms of mechanics and information. The suggestion that human beings are nothing but material that is organised in very advanced and complex ways goes at least as far back as Julien Offray de La Mettrie in the 18th century. In his seminal work *L'homme Machine*, a paramount example of French materialism, La Mettrie contends that not only do human beings exhibit greater similarity to the rest of the animal kingdom than dissimilarity, but that human beings are nothing but fleshly machines that are governed by the inherent physical mechanics one might find in a clock.³⁰ The entire text is a treatise which aims to convince his readers that appeals to the soul are foolhardy when it is clear that the human body operates like a machine and need no other explanations.

²⁹ John Bergman, "Futurist Ray Kurzweil Says He Can Bring His Dead Father Back to Life through a Computer Avatar," *ABC News* (9 Aug 2011). <http://abcnews.go.com/Technology/futurist-ray-kurzweil-bring-dead-father-back-life/story?id=14267712> (accessed 5 Dec 2013).

³⁰ See Julien Offray de La Mettrie, *Machine Man and Other Writings*, trans., Ann Thomson (Cambridge: Cambridge University Press, 1996), 31.

La Mettrie's contention that man was nothing more than a machine would find prominence in the mid-20th century with such figures as Alan Turing and in the rise of speculation on artificial intelligence.³¹ As Karl Popper has remarked, 'La Mettrie's doctrine that man is a machine has today perhaps more defenders than ever before among physicists, biologists, and philosophers; especially in the form of the thesis that man is a computer.'³² Today this is made manifest through artificial intelligence experts' employment of the Turing Test. The Turing Test has a human being converse with either an artificial intelligence or a human being via text. The human being has a set amount of time to correspond with the unknown entity and at the end of the time they have to decide whether they were conversing with an artificial intelligence or a human. The artificial intelligence is said to have passed the Turing Test, and hence should be called intelligent, if the human judge mistakes it for another human.³³

Yet, philosophical ruminations on identity aside, surely there is a disjunction between current artificial intelligence and human intelligence such that the technology just isn't possible today to create a synthetic intelligence that is an exact copy of a human being nor ever perhaps. But, as N. Katherine Hayles has claimed in her book *How We Became Posthuman*, the precise science and technology which make either artificial intelligence or mechanical humanoids possible is ancillary. Our present self-understanding of human beings as primarily information and the sole product of mechanics comprises the real Copernican shift. In other words, Hayles claims the real step towards posthumanity has already happened—our collective imagination has reduced the human to information. As she says:

...it is important to recognize that the construction of the posthuman does not require the subject to be a literal cyborg. Whether or not interventions have been made on the body, new models of subjectivity emerging from such fields as cognitive science and artificial life imply that even a biologically unaltered Homo sapiens counts as posthuman.

³¹ Alan Mathison Turing, "Computing Machinery and Intelligence," *Mind* 49, no. 236 (1950).

³² Karl R. Popper, *Objective Knowledge: An Evolutionary Approach* (Oxford: Oxford University Press, 1979), 224.

³³ For more information on the Turing Test and some philosophical and scientific reflections on it see Stuart M. Shieber, ed. *The Turing Test: Verbal Behavior as the Hallmark of Intelligence* (Cambridge: MIT Press, 2004).

The defining characteristics involve the construction of subjectivity, not the presence of nonbiological components.³⁴

So, while these musings of artificial intelligence experts might or might not be prophetically prescient of what may come, they already signal the tipping point of this radical change in our self-understanding. With it a further erosion of human uniqueness takes place for an ontology of information makes no qualitative distinction between artefact and living being. For anything can be reduced to information and mechanics—from tables and chairs to your mobile phone in your pocket to the person writing and reading this article. There is only a difference in complexity and configuration.

So, we might say, the underlying anthropological questions of the 21st century are: 'Is the human anything different from a complex set of organic information and hardware? Is it really different from complex machines and artefacts?' For the 21st century, humankind is not a worm but a binary system.

The Diminution of Human Uniqueness and the Image of God

We have seen that, through both biological and technological advance, the uniqueness of the human being has been strongly challenged in the last two centuries. The question remains whether religious people ought to fear this challenge and whether it puts significant pressure on the doctrine of the image of God? I contend, first, that it does not pose a serious threat to the doctrine of the image of God and, secondly, that solely experiencing these challenges as only negative overlooks how it can itself be theologically constructive and even encouraging. In the space remaining, I will assess how each model of the image of God fares in response to these challenges and cite three areas where this objection to uniqueness can both help balance some of the vices of modernity and promote a more virtuous Christian life: the emphasis on creatureliness, relationality and the value of all of creation.

³⁴ N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999), 4.

The functional account of the image of God is largely unscathed by recent challenges to human uniqueness. Of course, new scientific discoveries suggest that the animal kingdom and perhaps robust artificial intelligence show signs of agent-like qualities and increasingly so. As stated, human uniqueness for the functional model is located in humanity's specific action in the world in the broad sense as a robust and unique agent, ie no other entity acts in the same way as human beings, and in the narrow sense as a 'shepherd of creation'. In the broad sense of this uniqueness, then, these recent discoveries might challenge our pre-conceptions about the degree to which we are unique as agents in the world. Yes, the gap might be closing but, it is clear we still hold a privileged position as a unique agent—no other creature exhibits self-directed and self-aware actions like human beings. In the more narrow sense as a 'shepherd of creation' we find something similar but the challenge is even more tenuous. One could argue that other creatures help develop their local environment in productive ways that is akin to the task given to human beings as stewards. For instance, earthworms exhibit significant abilities in their construction of environmental niches that make the soil more habitable not only for themselves but even for other creatures and plant-life. Beavers also create environmental niches (ie wetlands that arise from their dams) that make fish and frog populations thrive. Even robots can be programmed to help aid the elderly, the sick and the young exhibiting similar qualities inherent in the 'shepherd of creation' image. However, all of these examples are either entirely local and limited, as with biological creatures that construct environmental niches, or dependent upon human initiation, as with helpful robots. The task of cultivation bestowed upon human beings is unique because it is universal (ie it encompasses all of creation) and divinely imparted. Human beings are still unique in the functional model of the image of God.

The substantive model is the most at risk to these challenges. Because it focuses on a particular property inherent in the human being it makes empirical discoveries of these properties in other creatures a more serious threat. As we have seen, often those very capacities that make human beings in the image of God are the very items that are challenged in the

biological and information sciences: language, culture, self-awareness and rationality. So much of the pressure felt on this doctrine today is a direct result of the ubiquity of the substantive model. Yet, even here scientists are discovering that human beings are still, on the whole, unique.³⁵ Each of these capacities might exist in other creatures and we are often finding they are more sophisticated than originally thought, but the relative human capacities are still superior and special. Once again a quantitative difference invites a qualitative distinction signalling that even substantive approaches hold up against modern challenges to human uniqueness.

We see many of the same issues with the relational model of the image of God.

Primatologists and other animal scientists are discovering other animals have complex social networks and robust relational capacities; more so than commonly known. From the rigid social hierarchies of ant colonies and beehives to the intricate social relations within most primate groups, not only the survival but the thriving of many species depends upon successful and robust relationships.³⁶ However, two items make human beings distinct relative to this model of the image of God. First, human societies and relationships are much more complex and harmonious than our nearest primate relatives. A vignette is often invoked where an airplane full of chimpanzees from separate groups travels from America to Britain only to find significant bloodshed upon arrival to Britain—if any are even left! In the case of human beings, such events happen all the time. It is astounding how flexible, robust and orderly our social relations are; even in stressful situations with others we might never have met. Second, theologically, we are the only creatures to have a special relationship to God that is dictated by divine address. As

³⁵ I say 'on the whole' because there might be specific capacities that are actually better amongst other creatures but, when considering the creatures capacities overall, are still less sophisticated. For instance, recent studies have concluded that chimpanzees have a better working memory than human beings and it could also be argued that artificial intelligence also has the capability to recall faster and with better accuracy past memories. Because memory is central to intelligence this might pose a threat. However, what I am arguing is that intelligence doesn't solely comprise memory performance but is just one of many metrics for determining intelligence. Therefore, lack in one metric does not mean a loss overall. On different interpretations of human-machine intelligence see Herzfeld, 33-52. Also see the famous study on chimpanzee's working memory in Sana Inoue and Tetsuro Matsuzawa, "Working Memory of Numerals in Chimpanzees," *Current Biology* 17, no. 23 (2007).

³⁶ Robin Dunbar is famous for studying group size in primates and its relation to cognitive and social capacity. Dunbar's number refers to how primate brain size is directly proportional to social group size. The trend extends to human beings and helps to explain why a relatively larger brain size is noted in human beings: complex relational networks. See Robin Dunbar, *How Many Friends Does One Person Need?: Dunbar's Number and Other Evolutionary Quirks* (Cambridge: Harvard University Press, 2010).

Robert Jenson so aptly puts it, God does not just speak about us, but to us.³⁷ This relation to God is manifest in intricate religious rituals, prayers and liturgies. Indeed, many scholars are finding that human beings are distinct in that they are *homo religiosus*: the religious primate.³⁸ Perhaps, then, this appearance of religious practices amongst humans is just the empirical correlate of the theological tenet that human beings enjoy a unique relationship instituted by God.³⁹ We praise, worship and speak to God as a creature bound for fellowship with Him. So, even here the relational model holds up to scrutiny.

The final interpretive model, the dynamic conception of the image of God, is also the most flexible. Because the image of God is not something that is dictated by simple presence or absence within human beings today, it naturally allows for an openness to change and this, it could be argued, means human uniqueness is not as central to its claim. However, as indicated prior, if uniqueness is asserted in this model it is to be found in the degree to which transformation and transcendence are definitive for being human. It is humanity's ability to reach out beyond itself and grow that makes it distinct. What is more, it is specifically moral and spiritual transformation to Christ that makes it unique. Recent challenges to human uniqueness do not affect humanity's inherence in and conformity to Christ. Even if this transformation is separated from its Christological roots, human beings still exhibit greater moral and spiritual awareness and progress than any other creature in creation.

Christians need not worry that recent challenges to human uniqueness from the biological and information sciences degrade the doctrine of the image of God. Each model stands up to the test while still preserving some kind of human uniqueness. Therefore, recent threats to human uniqueness ought not be experienced as destructive to Christian doctrine. In

³⁷ Robert W. Jenson, "The Praying Animal," *Zygon* 18, no. 3 (1983).

³⁸ See, for example, Scott Atran, *In Gods We Trust: The Evolutionary Landscape of Religion* (Oxford: Oxford University Press, 2002).

³⁹ I am not saying other creatures are not related to God. But rather our relationship to God is special and has been divinely ordained as such. I am in agreement with van den Brink that this does not jeopardise God's relationship with non-human creatures nor that other creature's lose their dignity in this assertion either. We still maintain significant responsibility to non-human creation even if we also assert human beings have a unique relationship with God. See van den Brink: 327-329.

fact, the sciences can often provide substantial relief and precision to what this human uniqueness looks like empirically and it can help clarify what we mean by human uniqueness in the image of God. Allowing these challenges to come into contact with the image of God does more than help hone our understanding of that doctrine. Indeed, as I argue in the next section, I think it can also provide a significant spiritual corrective to how we see ourselves in the fellowship of creation and is constructive for the modern Christian life.

The Diminution of Human Uniqueness as Constructive to the Christian Life

One of the central features of the Modern Age, Heidegger and George Grant claim, is to be found in the philosophy of Nietzsche.⁴⁰ In particular, it is Nietzsche's famous will-to-power which grounds contemporary metaphysics and typifies the modern human condition. This will-to-power proclaims that the real kernel of the individual is achievement, ambition and striving to transcend limitations. The human being is a transcending being that is defined by its freedom in exerting its desires on the environment and, in a sense, to lead a disengaged life where it inhabits a privileged position over this environment.⁴¹ Consequently, the modern condition is typified by an un-contextual eye, an a-historical subject and an un-placed will.

The collapse of human uniqueness from the biological sciences forces us human beings back into our original heritage as creatures of this world. It causes us to confront our context, our history and our place. Indeed, theologically it pulls us back into creation reminding us that we are first from the dust of this world. As Jürgen Moltmann claims in his book *God in Creation*: 'We shall...talk theologically first of all about the human being as "a creature in the fellowship of creation"; and before we interpret this being as *imago Dei*, we shall see him as *imago mundi*.'⁴² We are creatures amidst the fellowship of creation. We live, breath and die. We are contingent,

⁴⁰ George Grant, *Time as History*, ed. William Christian (Toronto: University of Toronto Press, 1995). & Martin Heidegger, *Nietzsche*, trans., D. F. Krell, vol. 1 & 2 (San Francisco: Harper, 1991).

⁴¹ Charles Taylor charts this transmogrification from a porous self to a disengaged self typical of the Modern identity in Charles Taylor, *Sources of the Self: The Making of the Modern Identity* (Cambridge: Harvard University Press, 1989).

⁴² Jürgen Moltmann, *God in Creation: An Ecological Doctrine of Creation* (London: SCM, 1985), 186.

limited and fragile. This reduction of human uniqueness trumpets to us Icarus that perhaps we are flying too close to the sun. We have forgotten where we have come from. We have neglected that we too are first created beings alongside others and then invited into fellowship with God as adopted sons and daughters. We are *imago mundi* first.

Moltmann's phrase 'a creature in the fellowship of creation' speaks towards the second area of fecund theological construction this challenge to uniqueness compels us to recognise: relationality. So much of the dialogue on human uniqueness seems to be motivated by an establishment of discontinuity with the rest of the creation and one of the central consequences has been a denial of our inherent and very real relation to the rest of creation.

How are we related? First, we relate to the rest of creation as a creature made by God. We have a common heritage in our relation to God. Together with all of creation, we are dependent. Our shared existence with all of creation owes its origin to God. What is more, as an historical creation of which we are historical creatures we don't just depend upon a God at our origin, but in each moment as it is created anew. Our dependence, then, is also in each moment of sustenance.

Aside from a shared relation to God as creator in each moment we, second, depend directly on the rest of creation. Our very survival depends upon the rest of creation. We need air to breathe. We need food to eat and we need water to drink. We could hardly live very long without the rest of creation and particularly the earth on which we dwell. So, a further positive appraisal of this attenuation of uniqueness reminds us that we are relational creatures that cannot survive without the rest of creation.⁴³

Now, the challenge to human uniqueness heralded by the information sciences leads us into the third area of theological constructability. In short, it expands our sense of creation. We are happy to acknowledge trees, lakes and animals as part of God's creation—just look at the images that accompany praise songs in evangelical churches today—but are we so inclined to

⁴³ Rowan Williams' reflections on this topic are invaluable. Particularly chapter 5, 'On Being Creatures', of his Rowan Williams, *On Christian Theology* (Oxford: Blackwell Publishers, 2000).

include bridges, cars and computers? Romantic views of nature as unadulterated and pristine landscapes still dominate our *prima facie* sensibilities when it comes to creation.⁴⁴ We are ambivalent about the role and status of human created artefacts in our world. When we are met with the cross-pressure from the information sciences—that we bear more in common with artefacts than we first lead on—we don’t know how to process this. It really does challenge our understanding of creation. But, this is precisely where it can be constructive because it spurs us to include all things in God’s creation including human artefacts. It affords real theological status to ‘the made’.

Stephen Pattison’s book *Seeing Things: Deepening Relations With Visual Artefacts* appeals to this theological tenet advocating for ‘more personlike relationships with the created visible artefacts that share the human world, for the sake of the artefacts themselves as well as for that of the humans who created them.’⁴⁵ Indeed he argues this with a sense of urgency since, arguably, we spend more time with non-natural items today than we ever have before. Don’t these objects deserve to be seen as a part of creation? Ought they spur us to praise God’s goodness as other creatures and features of creation clearly do? Shouldn’t they be deemed just as valuable in the kingdom of God than biological or natural elements of creation?

Conclusion

To be clear, I am not advocating for a complete collapse of the human into pure biology, on the one hand, or entirely into information, on the other. Rather, my aim has been to highlight that we shouldn’t be so quick to experience the apparent loss of human uniqueness in the last two centuries as entirely theologically destructive. I have argued that the doctrine of the image of God and its claim to human uniqueness can withstand the proposed pressure from the biological and information sciences. What is more, engaging in a dialogue with these recent findings helps

⁴⁴ In this way I share with David Wilkinson the criticism that current eco-theological views of creation are stunted in that they are not broad enough to include non-biological or non-terrestrial elements. Wilkinson speaks of this in David Wilkinson, *Christian Eschatology and the Physical Universe* (London: T & T Clark).

⁴⁵ Stephen Pattison, *Seeing Things: Deepening Relations with Visual Artefacts* (London: SCM Press, 2007), 1.

to hone what we might mean by human uniqueness in the image of God and can be a needed reminder that we share much in common with the rest of creation. In the end, it is more beneficial to allow humanity to fall from these dizzying heights that are built up rather than trying to maintain some false edifice that actually does harm to understanding ourselves as relational creature that depend upon the rest of creation and the utter gratuity of God as creator. Indeed, the reproof that we are not as unique as we once thought is direly needed for precisely the reason that we are so obsessed with an arelational, acreaturely account of our own existence as modern people. Doing so not only reaffirms humanity's role in creation but it also expands our sense of God's creativity in areas we often neglect. The findings of science and technology help us rather than hinder us here and provide a needed reminder of things we ought to already acknowledge as Christians.