

MODELS OF THE FALL INCLUDING A HISTORICAL ADAM AS ANCESTOR OF ALL HUMANS: SCIENTIFIC AND THEOLOGICAL CONSTRAINTS¹

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Abstract

Original sin introduces a distinctive feature of humanity. Only humans, yet all humans, are sinners, thus implying a clear animal-human difference. This traditional doctrine has increasingly been considered incompatible with scientific knowledge. This article examines the extent to which it is possible to maintain a strong notion of original sin, while accepting the genetic and palaeontological data. The strong notion considered here includes a historical Adam as ancestor of all humans and human corruption and death as consequences of original sin.

Particular attention will be paid to the understanding of original sin as the loss of original righteousness. Drawing on both the Thomist and the Reformed tradition, the version of original sin explored here combines three key themes, in order to account for what happened subsequent to the fall: loss of original righteousness, total corruption of human nature, and loss of communion with God. As humans are created in God's image, communion with God is essential for human nature, and the loss of this communion implies malfunction and corruption of the nature. It is argued that this view can be held without any contradiction with known scientific data.

The major authors whose work I will consider on this subject include Aquinas, Calvin, Turretin and Henri Blocher.

Introduction

There are a variety of views on original sin held in the Christian tradition. In what follows, a strong, broadly Augustinian notion of original sin is taken as the starting-point. In particular, this article examines three ingredients of the traditional doctrine: a clear animal-human distinction, a historical individual as the ancestor of all humans, human corruption and death as consequences of original sin. I will focus on the question of the extent to which such a strong notion of original sin is compatible with current scientific knowledge. The reason for examining a strong notion of original sin is twofold. First, a strong version of original sin has been part of historical mainstream

¹ This paper developed out of talks at the Configuring Adam and Eve Conference, Wycliffe Hall, University of Oxford, 17 April 2015, and at The Human Difference? Conference, Ian Ramsey Centre, Oxford, 23 July 2015. I would like to thank Henri Blocher, Simon Gainé and Sylvain Romerowski for fruitful discussions which have fed into the final version of this article.

Christianity². Second, it is easier to find scientifically acceptable models for weak, that is Pelagian or semi-Pelagian, versions of original sin. In fact, some contemporary authors consider difficulties raised by the natural sciences, and specifically evolutionary theory, a major argument against a traditional understanding of original sin³. In response, this article explores the possibility of holding to an Augustinian view of original sin, while accepting the findings of modern science.

The argument will proceed in two parts: I will first examine each of the three ingredients of original sin under consideration and their compatibility, or incompatibility, with scientific findings. In the last two sections, I will provide a “science-friendly” sketch of original sin, focusing in the fourth section on the promises of such an account, and in the fifth section on potential pitfalls, while providing some indications on how to avoid them. The account will draw on three traditional themes: loss of original righteousness, total corruption of human nature, and loss of communion with God. Being created in God's image, humans are defined by their relation to God. Thus communion with God is foundational for human nature. Having lost this communion by the first rebellion against God, humans can no longer function normally, and moral and physical corruption follows. Contemporary findings concerning the importance of culture may foster such a relational view of original sin. They help to overcome the old antithesis between nature and nurture; a combination of both may be the most appropriate vehicle of human corruption⁴.

One last word of introduction: the account adopted here is *broadly* Augustinian, as it does not take up some of the features which allowed Augustine to account for the transmission of original sin. In particular, it does not presuppose a Platonist understanding according to which humanity as a whole sinned in Adam, nor does it rely on a realist reading of Hebrews 7:10, considering that descendants are already present somehow in their ancestor. Nor does it include the idea that concupiscence in sexual intercourse is central to the transmission of original sin. Also, this article does not specifically discuss original guilt, as this is a *legal* concept, which does not fall in the realm of natural science. There is no reason to expect science to tell us which beings are guilty before God, and if and how this guilt is transmitted from one human to another. Thus original guilt is not directly relevant to our discussion here.

Let us now turn to the three ingredients of original sin under consideration and see what scientific and theological constraints there are for models of original sin that include each of these traits.

² Contrary to what is often believed, this is true both for Western and Eastern Christianity. Orthodox Christianity differs from the Augustinian conception concerning original guilt, but generally firmly defends thorough human corruption as the consequence of Adam's fall (LADOUCEUR Paul, "Evolution and Genesis 2-3: The Decline and Fall of Adam and Eve", *St Vladimir's Theological Quarterly* 57, 2013, p. 136f).

³ Among many others: WILLIAMS Patricia A., *Doing Without Adam and Eve: Sociobiology and Original Sin*, Minneapolis (MN), Fortress Press, 2001, XVII-227.

⁴ See Benno VAN DEN TOREN, "Human Evolution and a Cultural Understanding of Original Sin", *Perspectives on Science and Christian Faith* 68, p. 12-21.

1. A clear animal-human distinction

A continuous animal-human transition is part of the standard evolutionary picture of human origins. In contrast, both creation accounts in Genesis (using different language) strongly imply a special category for humans (Gn 1:26f; 2:19f). It is hard to imagine a being which was, in theological terms, half-animal and half-human. Original sin adds to the difficulty, as all traditional versions of the doctrine presuppose that it must make sense to speak of the *first* humans, as it were they who rebelled against God and led all humanity into sin, corruption and death.

Although the continuous transition from animals to humans is part of the standard evolutionary picture, it may be asked if it is part of scientific *knowledge*. Is this continuity an established fact or is it an assumption of standard evolutionary accounts? Is the continuum based on observational data, or is it implied by the limited range of mechanisms accepted in evolutionary explanations? Available data are still (and will certainly always be) fragmentary. Thus it is safe to say that observations are at least *compatible* with both scenarios. Nevertheless, it is a well-known fallacy to consider that gaps in the evidence are evidence of gaps. The explanatory successes of neo-Darwinian evolution have established it as the framework theory of modern biology, so that it is a well-grounded expectation that existing gaps will be closed by further discoveries.

It should be noted that Christian anthropology does not need to be in conflict with a continuous animal-human transition assumed in natural science, as long as key features of what it means to be human in a theological sense are not observable in the ordinary sense. This is the case of the *Homo divinus* model, adopted by Derek Kidner, John Stott, Sam Berry, Denis Alexander, and many others⁵. Here a hominid becomes human by virtue of God entering into a special relationship with him. Such a model draws on the fact that a special, verbal revelation was delivered to Adam, according to Genesis 2:16f. It also builds on the Reformed tradition, which interprets the text as the establishment of a covenant between God and humans (called the covenant of works)⁶. However, the distance between the *Homo divinus* model and more traditional accounts should not be underestimated. Historically, the covenant relationship was always considered together with other defining features of human nature (such as spirituality and rationality). God concluded the covenant with a being who was human, the covenant did not turn an animal into a human.

For those holding to the standard picture of a gradual evolutionary emergence of humans, it is therefore worthwhile examining how far a continuous animal-human transition on the biological level could be compatible with a leap in theologically defining features of human nature. In fact, a continuous development of scientifically discernible features may coexist with a non-continuous leap in other aspects, as long as one does not expect natural science to offer a complete picture

⁵ The model was first suggested by Derek KIDNER, *Genesis: An Introduction and Commentary*, The Tyndale Old Testament Commentaries, Leicester, IVP, 1967, p. 28-30.

⁶ HODGE Charles, *Systematic Theology*, London, Thomas Nelson and Sons, 1878, vol. II, ch. 6.

of what it means to be human. Analogies exist on the level of human relationships: being held morally and spiritually responsible is a legal category which does not easily translate into any scientifically identifiable evidence. What scientifically observable change happens when a teenager turns 18 and reaches the age of majority?

Concerning the continuum between animals and humans assumed in evolution, it should be kept in mind that evolution is a biological theory. Its past explanatory successes, which ground the reasonable expectation that there is a continuous transition, only apply to biological features of human nature. Therefore the expectation that all defining features of human identity evolved continuously cannot claim support from evolution, as long as we resist the reductionist drive. In addition, due to threshold effects, quantitative and qualitative differences are not mutually exclusive categories. In every phase transition, incremental quantitative change leads to qualitative change. The transition between the two states can be instantaneous, when considered on time scales relevant for the macroscopic system. Thus a quantitatively growing complexity in brain structure, for example, could imply, at one point, qualitatively changed cognitive faculties⁷. Therefore a commitment to Darwinian evolution does not preclude willingness to consider evidence in favour of a clear distinction between humans and animals, in terms of some aspects of human nature at least. Against the objection of the “human-of-the-gaps”, it must be noted that it certainly is a fallacy to consider that gaps in evidence are evidence of gaps; however it is also wrong to consider that no positive evidence for gaps can ever be found. Does any such evidence exist?

There are standard arguments in philosophy of mind which demonstrate that key mental features are beyond natural scientific description⁸. Although challenging standard assumptions of materialism, they are insufficient to establish human uniqueness. As far as we can tell, some aspects of human inner life, such as consciousness, exist in animals as well. Even distinctly human capacities, such as language, moral awareness or rational thought, are at least foreshadowed in higher animals. Thus there exist models – for example William Hasker's emergent dualism – which combine non-reductionism and continuous emergence of the “soul”⁹.

Nevertheless, even if all aspects of human identity may have animal equivalents, it is indisputable that some exist in animals only in a very rudimentary form. Candidates worthwhile to study include, among others, moral consciousness, consciousness of the transcendent, liberty of action and certain social competences. In the context of the present article, I will concentrate on

⁷ Cf. GAZZANIGA Michael S., *Human: The Science Behind What Makes Your Brain Unique*, New York, Harper Perennial, 2009, p. 3: “Something like a phase shift has occurred in becoming human.” Jerry FODOR, *The Mind Doesn't Work That Way : The Scope and Limits of Computational Psychology*, Cambridge (MA), MIT Press, 2000, p. 88, stresses our ignorance of general principles linking neurological alterations to psychological capacities. Thus “it's entirely possible that quite small neurological reorganizations could have effected wild psychological discontinuities between our minds and the ancestral ape's. ... In fact, the little we do know points in this direction.”

⁸ Taking up intimations from Plato and Descartes, C.S. Lewis, Karl Popper, Alvin Plantinga, David Chalmers and Thomas Nagel (among others) have offered recent versions of these arguments.

⁹ William HASKER, “Souls Beastly and Human”, in BAKER Mark C., GOETZ Stewart, ed., *The Soul Hypothesis: Investigations into the Existence of the Soul*, New York (NY), Continuum, 2011, p. 202-217.

language and point out two lines of evidence, which may support a clear animal-human distinction in this respect.

Mark Baker points out that standard examinations in brain sciences on the mind are question-begging, because they start with the brain and show which parts of the brain are linked to which kind of cognitive capacities. But in order to really test mind-body dualism, one needs to start with a list of cognitive capacities and then check if a specific brain activity is linked to it. One possible candidate for which there may not be a specific brain activity is what Noam Chomsky called CALU, the Creative Aspect of Language Use. Chomsky distinguishes three components of the human language faculty: lexicon (list of words), grammar (set of rules for combining words) and CALU. CALU distinguishes human language from any machine or animal utterance. As far as we know, human language alone is unbounded, stimulus-free *and* appropriate to the communication context. There is a known brain disorder that specifically targets lexicon (Wernicke's aphasia), and one that specifically targets grammar (Broca's aphasia). But we do not know of any aphasia which would leave the lexicon and grammar faculties intact and specifically impair CALU. This fact is remarkable, as the study of aphasia (that is the effects of brain damage on language) has been established for over a century, and there is little disagreement about the classification of aphasia¹⁰.

A second line of evidence comes from 20th century observations on language emergence. There have been cases where a group acquired linguistic competency over a very short period of time, in fact exactly two generations. The emergence of sign language in the deaf community in Nicaragua provides the most striking example. Deaf children were brought into contact with each other when schools for special education were set up around 1980. Merging together idiosyncratic home signing systems (limited to naming), the first generation of deaf pupils developed an early limited form of sign language. Then children entering school before the age of 7 picked up this primitive form and developed a fully functional sign language. The emergence of a fully articulated sign language over just two generations of pupils is so remarkable because language competency in the deaf community was acquired without any significant linguistic input, as teachers did not understand or use sign language¹¹.

Obviously, these two lines of evidence do not prove that humanity acquired some of its specific traits in a leap, rather than through continuous emergence. But they may help us to grasp what kind of scientific evidence would favour a clear animal-human transition. Theistic scholars

¹⁰ Mark C. BAKER, "Brains and Souls; Grammar and Speaking", in BAKER, GOETZ, *op.cit.*, p. 83-87. A similar conclusion holds for gene disorder: there seems to be no gene disorder specifically impairing CALU (*ibid.*, p. 87f).

¹¹ J. KEGL, A. SENGHAS, M. COPPOLA, "Creation through contact: sign language emergence and sign language change in Nicaragua", in DEGRAFF M., ed., *Language creation and language change: Creolization, diachrony and development*, Cambridge (MA), MIT Press, 1999, p. 200 (art. p. 179-237). A parallel case was observed in Hawaii creolisation: in this most recent abrupt creolisation (between 1876 and 1920), large numbers of predominantly male workers, speaking mutually incomprehensible languages, developed a pidgin language with very few grammatical structures. This pidgin form provided the input for children who then produced Hawaii Creole English with a full grammar (Derek BICKERTON, "How to Acquire Language without Positive Evidence: What Acquisitionists can learn from Creoles", in *ibid.*, p. 51-53 (art. p. 49-74)).

may well have a special calling to engage in non-reductionist research programs, instead of repeating just-so stories of evolutionary emergence of human key faculties.

2. An individual Adam as ancestor of all humans

Population studies suggest that the population from which modern humans evolved was never smaller than thousands, or tens of thousands of individuals at any given time. It is impossible for the non-specialist such as I to evaluate the assumptions on which these calculations are based. In particular, one might ask how the calculated population size is influenced by the exclusion of any miraculous divine act at the beginning of humanity, which is obviously one presupposition of these population genetics models. But if we take the result at face value, what does it mean for our understanding of original sin?

The result obviously challenges the traditional picture of a single ancestral pair. The concentration on one couple is a unique feature of the second creation account. It is not paralleled in any known Ancient Near Eastern text. It bears some theological weight, as common ancestry of all humans supports their equality before God (Ac 17:26) and provides a mechanism for the transmission of original sin¹². Although sinful corruption is no genetic defect, it is transmitted through channels which are part of the created order. Several biblical texts state that it piggybacks on the generational solidarity of offspring and parents, where this solidarity certainly combines traits of both nature and nurture. David points to his conception as the starting-point of his sinfulness: "Behold, I was brought forth in iniquity, and in sin did my mother conceive me" (Psalm 51:5). John 3:6a states: "That which is born of the flesh is flesh." 1 Peter 1:18 speaks of "the futile ways inherited from your forefathers", from which Christians are ransomed.

It is a difficulty of Kidner-type models of human origins that they cannot rely on descent. Although they hold to a single couple adopted by God into a covenant relationship, they do not consider that this couple was the ancestral population from which all humanity emerged. Thus they have to allow for the spread of the image of God and of original sin both vertically (to the couple's descendants) and horizontally (to their contemporaries). But what could the mechanism for horizontal spread be? Whereas one can invoke a special divine act with regard to *imago Dei*, this does not work for sinful corruption, as God is not the author of sin. Kidner-type models typically rely on the concept of federal headship in order to explain Adam's role for the destiny of all humans. But traditionally, Adam's federal headship was never divorced from biological ancestry. It is hard to see how federal headship would not be arbitrary without some other kind of link. The adoption of Christians under the headship of Christ is an act of grace and thus cannot stand as a model for the spread of original sin, which must rely on (the abuse of) some created

¹² Note also that Romans 5:12-14 sets Adam in contrast with humans in general: "Just as sin came into the world through one man, and death through sin, and so death spread to all men because all sinned ... Yet death reigned from Adam to Moses, even over those whose sinning was not like the transgression of Adam." All biblical quotes are taken from the English Standard Version (ESV).

solidarity. And even in the case of salvation, several New Testament texts note the shared human nature of Christ and the saved as a condition for their salvation (1 Tm 2:5; Hb 2:14-16).

There are several models that accommodate the population genetics result of a larger original human population and still retain major features of the traditional account. One model considers that Genesis 2-3 concentrates on the chief of the original human population and his wife¹³. If the original group from which modern humans descend was sufficiently well localised (in time and space), one could imagine a collective solidarity in the first rebellion against God, which would allow for the (limited) horizontal spread of sinful corruption which this model includes – quite similarly to Eve's partaking in Adam's sin in the traditional account. Obviously, the model assumes that theologically relevant features of human identity were already present in the original group. As far as I can see, the available scientific data cannot settle this issue¹⁴. The model would explain some oddities in the early chapters of Genesis, such as the inevitability of incest if only one single human couple was created, the origin of Cain's wife (Gn 4:17), his fear of being killed by other beings capable of reading symbols (otherwise the device which was to protect him would have been useless, 4:14-15), the fact that he built a city (4:17).

Another model holds to one single couple at the start of humanity, but allows for (illegitimate) intercourse of some of their descendants with close hominids¹⁵. The model may perhaps find some support in a certain reading of the obscure statement that the “sons of God” had intercourse with the “daughters of humans” (Gn 6:1-4). It would be possible to combine both models, in order to explain what seem to be indications of traces of Neanderthalian and Denisovan DNA in modern humans.

The two models indicated here are certainly not the only possible ones. And it would be foolish not to recognise their speculative character and to commit oneself to any of them. Nor is it irrational for a Christian to hold fast to the traditional conception of one single couple as the sole ancestors of all humans and to wait for new evidence which may challenge the current consensus of population genetics. In any case, it should be remembered that population genetics confirms rather than disproves the traditional Christian conviction of common ancestry of all humans, as it seems to rule out older models in which several geographically isolated populations merged to

¹³ Karl RAHNER, “Evolution and Original Sin”, *Concilium* 26, 1967, p. 30-35; Richard MORTIMER, “Blocher, Original Sin and Evolution”, in BERRY R.J., NOBLE T.A., ed., *Darwin, Creation and the Fall: Theological Challenges*, Nottingham, Apollos, 2009, p. 189f (art. p. 173-196); Germain GRISEZ, *The Way of the Lord Jesus*, vol. 1, *Christian Moral Principles*, Chicago (Ill.), Franciscan Herald Press, 1983, ch. 14, qu. D, F (<http://twotlj.org/G-1-14-D.html>, <http://twotlj.org/G-1-14-F.html>, retrieved 1 September 2015); and (tentatively) COLLINS C. John, *Did Adam and Eve really exist? Who they were and why it matters*, Nottingham, IVP, 2011, p. 121, 125. For the evolution of Rahner's position on this question, cf. James ARRAJ, *Can Christians Still Believe?: The Beginning of the Universe, Evolution and Human Origins, Original Sin, The Jesus of History and the Jesus of Faith*, Chiloquin (OR), Inner Growth, 2004, p. 56-58 (<http://www.innerexplorations.com/chtheomortext/human.htm>, retrieved 28 August, 2015).

¹⁴ One possible line of research would be to compare archaeological remnants left by, for example, Amazonian tribes or Papua New Guinea peoples, over the last several hundreds or thousands of years. We know that they have complex theological world- and life-views. But do their archaeological remnants significantly differ from what we find in palaeontological sites?

¹⁵ Gregg DAVIDSON, “Genetics, the Nephilim, and the Historicity of Adam”, *Perspectives on Science and Christian Faith* 67, 2015, p. 24-34.

form modern humanity. The well-known oddities in the early chapters of Genesis remind us of the fact that there is more to human origins than what these texts intend to tell us. Thus Christians should learn to live with open questions in this area, as in many others.

3. Human corruption and death as consequences of original sin

A substantive difference between ante- and post-fall human nature is part of the biblical understanding of the human condition. It is already found in the Old Testament. The book of Ecclesiastes can be read as an extensive commentary on the opening chapters of Genesis¹⁶. Concerning humans, it states: “God made man upright, but they have sought out many schemes” (7:29). Jesus himself implies such a distinction when he says, in the discussion with the Pharisees on divorce, that “from the beginning [that is at creation] it was not so” (Matthew 19:8). Tracing human corruption and death back to Adam's sin is an important building-block of Paul's theology. In 1 Corinthians 15:21f, he states that “by a man came death ... in Adam all die.” As the topic discussed is bodily resurrection, it does not make sense to limit death introduced by Adam's sin to spiritual death.

Any evolutionary account of human origins challenges the idea that Adam's sin introduced corruption and death, as they are part of the very fabric of evolutionary processes. One possible answer to this challenge is to resort to an angelic fall, prior to the creation of the terrestrial world. In that way, it is possible to allow for evil in the natural world, without making the Creator responsible for it¹⁷. The appeal to an angelic fall respects the fact that it is essential for ethical monotheism to consider that evil is the consequence of the abuse of created freedom. Otherwise God would either not be the Creator of all, or created something which is not good – both options are clearly a no-go in the biblical framework. There are hints of an angelic fall in the biblical texts (Jude 6 ; 2 Peter 2:4; cf. 1 Timothy 5:21; Revelation 12:4¹⁸). The doctrine is implied by the very existence of Satan, as he is both a creature and sinful. Nevertheless, there are at least two difficulties with the idea that the natural tendency towards death, which we observe around and in us, is dependent on the angelic fall. First, several Old Testament texts see the actual natural world, including predator animals, as God's good creation (Ps 104:20-22; Job 38:39f; 39:26-30; 41:6). Second, the thrust of Genesis 2-3 is that human corruption and death are consequences of *human* sin. Humans are not trapped in a tragic condition, which is to blame on other beings. Although the Tempter played a role in their rebellion, humanity is responsible for the corrupt state in which they live.

¹⁶ Henri BLOCHER, *Original Sin: Illuminating the Riddle*, Leicester, Apollos, 1997, p. 45f, on Eccl. For echoes of Gn 1-3 in the rest of the OT, cf. *ibid.*, p. 42-45.

¹⁷LLOYD Michael, *Café Theology: Exploring Love, the Universe and Everything*, London, Alpha International, 2012, 3rd ed., ch. 2.

¹⁸ Is 14:4-20 and Ezk 28:12-19 are not included in the list. They speak of the fall of heathen kings. Ezk 28 contains multiple echoes of Genesis 3. Whereas traditional exegesis has considered that the king of Tyre is compared, in his fall, to Satan, a strong case can be made instead for a comparison with Adam (BLOCHER, *op. cit.*, p. 44f).

When reflecting on how to articulate the biblical data with evolutionary theory, we should first note that when Paul speaks of death as introduced by sin he obviously means human death. Animal death is not part of his argument. As long as a clear animal-human distinction is maintained, human death is subsequent to Adam's sin, as there simply was no human, and therefore no human death, before him.

But is it acceptable to interpret human death as the *consequence* of original sin, if mortality is just part of what it is to be an evolved organism? In response to this question, it should first be remembered that the Genesis account does not picture a fall from an immortal to a mortal state. Although presenting human death as the result of human sin, the narrative does not start with immortal humans, who later turn into mortal beings. Eating the fruit of the tree of life (symbolizing communion with the Creator) is necessary in order to have eternal life (Gn 3:22). The New Testament confirms that God alone is immortal (1 Tm 6:16); he has life in himself and is the source of all life. Being created in God's image, humanity has the privilege of an eternal destiny, but depends on on-going communion with the Creator to achieve it. Once human rebellion made this communion impossible, the “dusty” principle, which humans share with animals, implies death (Gn 3:19)¹⁹. Second, the acceptance of the scientific reconstruction of human origins does not commit oneself to a reductionist understanding of humanity. Evolutionary biology does not tell us everything that defines humans, and therefore should not be expected to fully explain what human death is. Even if corrupted humans now share in the animal experience of death, they do not die like animals, as physical death is only the “first death” for them (Eccl 3:19f; 12:7; Rev 2:11; 20:6, 14; 21:8).

4. The potential of understanding original sin as the loss of a special gift

In the second creation account, paradise is part of God's special provision for humanity. On an earth which is not (yet) sufficiently prepared for humans, “the LORD God planted a garden in Eden, in the east” (Gn 2:8), in order to create an appropriate space for human life to flourish. Central to this divine gift is the tree of life (Gn 2:9). In fact, interpreting original sin as including the loss of a special gift has a long tradition in Christian theology, long before any questions about evolution arose. Already Athanasius describes the consequences of the rebellion of the first humans against God in these terms:

Upon men who, as animals, were essentially impermanent, He bestowed a grace which other creatures lacked—namely the impress of His own Image ... If they guarded the grace and retained the loveliness of their original innocence, then the life of paradise should be theirs, without sorrow, pain or care, and after it the assurance of immortality in heaven. But if they went astray and became vile, ... then they would

¹⁹ Although not a friend of evolutionary accounts of original sin, BAVINCK Herman, *Reformed Dogmatics*, ed. John Bolt, transl. from Dutch John Vriend, Grand Rapids (Mi.), Baker, 2006, vol. 3, p. 183 (original ed. 1898) observes: “The view that death is a consequence of the material organism of a human being by no means rules out the fact that it is the penalty of sin.”

come under the natural law of death and live no longer in paradise, but, dying outside of it, continue in death and in corruption.

... For the transgression of the commandment was making them turn back again according to their nature; and as they had at the beginning come into being out of non-existence, so were they now on the way to returning, through corruption, to non-existence again²⁰.

In order to explain why Adam's sin affected the fate of his descendants, Anselm of Canterbury used the image of a rich couple, who lose their belongings due to a serious crime and thus cannot transmit their wealth to their children. In a similar vein, Adam was not able to transmit original righteousness to his descendants, so that all are subject to original sin²¹. In his treatment of original sin in the *Summa Theologica*, Thomas Aquinas uses the same image: "Original justice ... was a gift of grace, conferred by God on all human nature in our first parent. This gift the first man lost by his first sin²²." The interpretation of original sin as the loss of a special gift is also found in the Reformed tradition. John Calvin himself uses this idea in his *Institutes*, in order to explain the spread of original sin from Adam to all his descendants:

Adam was made the depository of the endowments which God was pleased to bestow on human nature, and that, therefore, when he lost what he had received, he lost not only for himself but for us all²³.

The same image becomes part of the subsequent Reformed tradition. Although warning against a too restricted view of original sin, François Turretin, the most authorized spokesman of Reformed scholasticism in the 17th century, accepts loss of a special gift as one aspect of original sin: "Two things are here necessarily included: first, the privation of original righteousness; second, the positing of the contrary habit of unrighteousness²⁴."

Aquinas offers an elaborate account on how the loss of original righteousness entails moral and corporeal corruption in each human. He sees the gift of grace as the integrating centre of human nature. Once it was lost, the different parts could no longer function harmoniously. He quotes Anselm's definition that "original justice ... is 'rectitude of the will'²⁵". As the sinner's will is no longer submitted to God, reason can no longer reign over the passions, which thereby become disintegrated and disordered:

The whole order of original justice consists in man's will being subject to God: which subjection, first and chiefly, was in the will, whose function it is to move all the other

²⁰ ATHANASIUS, *On the Incarnation*, ch. 1, (3)-(4), transl. Penelope Lawson, http://www.spurgeon.org/~phil/history/ath-inc.htm#ch_1_8 (retrieved 1 September 2015). He insists on the fact that original sin introduced a corruption beyond what is natural: "Corruption ... held sway over them to an even more than natural degree ... Indeed, they had in their sinning surpassed all limits; for, having invented wickedness in the beginning and so involved themselves in death and corruption, they had gone on gradually from bad to worse" (*ibid.*, ch. 1, (5)).

²¹ ANSELM of Canterbury, *The virgin conception and original sin*, ch. 28, Toronto, Mellen, 1976, p. 178.

²² *ST 1^a-2^{ae}*, qu. 81, art. 2, resp. All quotes are from the translation by Fathers of the English Dominican Province, London, 1922, https://en.wikisource.org/wiki/Summa_Theologiae (retrieved June 17, 2015).

²³ *Institutes of the Christian Religion*, Book II, chap. I, par. 7, transl. Henry Beveridge, 1845, based on the author's last Latin edition, 1559 (<http://www.ccel.org/ccel/calvin/institutes.txt>, retrieved July 7, 2015).

²⁴ TURRETIN Francis, *Institutes of Elenctic Theology*, transl. George M. Giger, ed. James T. Dennison, Jr., 1992, (original ed. 1679 – 1685), 9th Topic: "Sin in General + in Particular", Question XI, par. VI, p. 637.

²⁵ *De Concep. Virg.* iii, quoted in *ST 1^a-2^{ae}*, qu. 83, art. 3, contra.

parts to the end ..., so that the will being turned away from God, all the other powers of the soul become inordinate²⁶.

Original justice is described as an “obstacle ... which hindered inordinate movements: just as an inclination to inordinate bodily movements results ... from bodily sickness²⁷”. In a similar vein, it is described as a “bond” which hindered each human faculty to follow “its own proper movement”, thus guaranteeing a harmonious functioning of the whole:

Through the bond of original justice being broken, which held together all the powers of the soul in a certain order, each power of the soul tends to its own proper movement²⁸.

Nevertheless, it should not be forgotten that the really “proper order” of each faculty is not its functioning in isolation, but its integration into the whole of human nature by original justice. After the loss of original justice, “all the powers of the soul are left, as it were, destitute of their proper order, whereby they are naturally directed to virtue²⁹.”

The disorder, following from loss of original justice, is not limited to the soul, it submits also the body to corruption:

By ... original justice ... not only were the lower powers of the soul held together under the control of reason, without any disorder whatever, but also the whole body was held together in subjection to the soul, without any defect ... Wherefore, original justice being forfeited through the sin of our first parent; just as human nature was stricken in the soul by the disorder among the powers ..., so also it became subject to corruption, by reason of disorder in the body³⁰.

For those interested in providing an account of original sin which is compatible with the evolutionary past of humanity, Thomas' account holds some attraction. Of course, there is always a danger when we read ancient texts with our modern questions in mind. We have to try and understand his *Summa Theologica* in the context of the scientific, philosophical and theological struggles of his time. Nevertheless, the general structure of his account of original sin, understood as loss of a special gift, can be rather easily translated into an evolutionary picture: Humans inherit from their animal past a mortal body and conflicting passions. Through special divine action, God supplied the first living beings who were humans in the theological sense with a special gift which held in check the tendencies towards moral and spiritual corruption and death. But as they rebelled against their Creator, God withdrew his gift, thus leaving them prey to these same tendencies.

It is obvious that such an account goes beyond a strict evolutionary account of the origin of humanity, as it poses a special divine act at the beginning of (theological) humanity. Nevertheless, it does not contradict any currently available scientific knowledge. It leaves open the questions of

²⁶ *ST* 1^a-2^{ae}, qu. 82, art. 3, resp.

²⁷ *ST* 1^a-2^{ae}, qu. 82, art. 1, sol. 3.

²⁸ *ST* 1^a-2^{ae}, qu. 82, art. 4, sol. 1.

²⁹ *ST* 1^a-2^{ae}, qu. 85, art. 3, resp.

³⁰ *ST* 1^a-2^{ae}, qu. 85, art. 5, resp. Cf. *ST* 1^a, qu. 95, art. 1, resp. : “This rectitude consisted in his reason being subject to God, the lower powers to reason, and the body to the soul: and the first subjection was the cause of both the second and the third; since while reason was subject to God, the lower powers remained subject to reason.”

when the special divine act occurred in the evolution of hominids and what the defining features of *Homo theologicus* are. There are several possible scenarios which could fit our current palaeontological knowledge. And if one allows for a collective rebellion of a primaeval group (with Adam as their chief), one can also take into account genetic data suggesting that the size of the population from which modern humanity evolved never dropped below several (tens of?) thousand individuals. It is noteworthy that Christians have traditionally tended to consider that the period of original bliss was short³¹. Thus there is no reason to consider that such a pristine state of original righteousness would have left any scientifically discernible remnants.

Of course, some may feel uncomfortable with a scenario postulating a period of original human rectitude, even if it was very short, as long as we do not have any palaeontological, genetic or archaeological evidence for it. But let us remember that Christians never thought that the doctrine of original sin was the result of historical research, but derived from special revelation and was sustained by reflection about the paradoxes of actual human nature³². Thus we should rest content with showing that a traditional version of the doctrine is compatible with scientific data. Here is not the place to consider more radical departures from the traditional doctrine, which reject the fall as a historical event. To be sure, they are more in line with the common reconstruction of human evolution, but it should be asked whether they can preserve the gist of the Christian doctrine. In fact, the distinction between original creation and the fallen state is necessary in order to maintain ethical monotheism: If sin is part of original human nature, how can we avoid attributing sin to the Creator? As already Calvin wrote:

Our ruin is attributable to our own depravity, that we may not insinuate a charge against God himself, the Author of nature. It is true that nature has received a mortal wound, but there is a great difference between a wound inflicted from without, and one inherent in our first condition. It is plain that this wound was inflicted by sin; and, therefore, we have no ground of complaint except against ourselves³³.

5. Possible complications

Although the metaphor of the loss of a special gift is quite attractive for somebody looking for an expression of original sin which takes into account the evolutionary past of humanity, it harbours pitfalls which one should be prudent to avoid. The first and perhaps foremost is the danger of reading it in a dualistic fashion, dividing humans into a “lower” part inherited from our animal part and a truly human part imparted by God to some hominids, so that they would be

³¹ In his *Commentary on Genesis* (on Gn 3:6), Calvin notes that most accept that Adam and Eve fell on the very day of their creation. He considers the alternative conjecture, that the fall happened the following day (on the Sabbath), to be “weak”, but refrains from speculation (<http://biblehub.com/commentaries/calvin/genesis/3.htm>, retrieved 31 August 2015). BAVINCK, *op. cit.*, vol. 3, p. 74, resists answering the question and simply indicates that traditional opinions have ranged from years to days to hours after the creation.

³² Perhaps nobody formulated these paradoxes more pointedly than Blaise PASCAL: “The knot of our condition takes its twists and turns in this abyss [that is original sin], so that man is more inconceivable without this mystery than this mystery is inconceivable to man” (*Pensées*, n° 434, ed. T.S. Eliot, New York, Dutton, 1958; <http://www.gutenberg.org/files/18269/18269-h/18269-h.htm>, retrieved 31 August 2015).

³³ *IC* II, I, 10.

Homo theologicus. For many, such a conception is actually an important building-block in their theodicy: wanting to create by natural means, God submitted his creation to the conditions of carbon-based life and the trial-and-error method of evolutionary development, with its inevitable share of suffering and death. In a sense, even moral corruption would be a heritage of our evolutionary past, with conflicting and often egoistic drives, which we would need to learn to contain.

Even if attractive, such an explanation of moral corruption goes against the central insight of the doctrine of original sin: evil is not part of the natural order, but is a consequence of the abuse of created liberty. It also changes our understanding of human nature and has consequences for our Christian life. Take for example, Denis Lamoureux' reformulation of Romans 12:2 and 13:14: "Let Jesus be the Lord over our evolutionary past, encouraging our pair- or group-bonding inclinations and denying our self-preserving inclinations"³⁴. His is the picture of two sets of instincts, both naturally present in humans because of their evolutionary past, one evil and one good (parallel to Jewish, Cherokee and Buddhist considerations)³⁵. But this misses the specific light that original sin throws on human experience: all aspects of our nature are created and all are corrupted by sin. This holds for pair- or group-bonding inclinations and for self-preserving inclinations. There is nothing intrinsically wrong with aiming at self-preservation, and pair- or group-bonding inclinations provide plenty of occasions for sinful behaviour. Such a view locates sin in what humans are, thus inevitably leading to an unfair treatment of certain aspects of human nature. In the final analysis, it is difficult to see how it can avoid deriving, sin from the conditions of God's creation work – and thus from God himself, as he supremely controls these conditions by his omnipotence³⁶.

In fact, the very language of a special gift harbours the danger of taking the gift as a kind of optional extra, so that (borrowing an expression from the car industry) the basic model of humanity could do without. In scholasticism, this point was discussed under the heading of *in puris naturalibus*. Abelard held that "the loss of original righteousness left Adam [and his descendants] precisely in the state in which he was created", or to use the Latin expression, *in puris naturalibus*, that is "in the simple essential attributes of his nature". Original sin, which Abelard does not deny, is thus limited to the imputation of Adam's guilt to his descendants, but does not imply any inherent sinful character³⁷. In opposition, Aquinas considered that the loss of original justice implied a corruption of human nature, their different parts no longer function and cooperate properly:

³⁴ Denis O. Lamoureux, "Beyond Original Sin: Is a Theological Paradigm Shift Inevitable", *Perspectives on Science and Christian Faith* 67, 2015, p. 35-49 (quote p. 45).

³⁵ *Ibid.*, p. 43-45.

³⁶ Cf. Bavinck's critique of evolutionary reconstructions of original sin (*op. cit.* p. 46ff), in particular his critique of the proposition of F.R. TENNANT, *Origin and Propagation of Sin* (1901/2).

³⁷ HODGE, *op. cit.*, vol. III, p. 169f.

Original sin denotes the privation of original justice, and besides this, the inordinate disposition of the parts of the soul. Consequently it is not a pure privation, but a corrupt habit³⁸.

The Protestant Reformation unashamedly took sides with the rejection of Abelard's view.

Calvin wrote:

Those who have defined original sin as the want of the original righteousness which we ought to have had, though they substantially comprehend the whole case, do not significantly enough express its power and energy. For our nature is not only utterly devoid of goodness, but so prolific in all kinds of evil, that it can never be idle³⁹.

In fact, total corruption is the flip side of the loss of original righteousness. As Henri Blocher points out, "righteousness is disposition, behaviour, relationship. ... To lack righteousness is to *practise* unrighteousness⁴⁰" – and, one might add, even to exhibit a tendency towards unrighteous behaviour.

A more relational understanding of human nature can correct unhelpful dualistic tendencies. It sees the relationship with God as foundational for what it means to be human. In such a framework, original righteousness is an *integral* part of created human nature. Common-sense knowledge and scientific findings about the importance of relations for constructing an individual's personality, and even for his or her physical health provide a telling analogue for the impact the disruption of the relationship with the Creator had for humanity. Insights from psychology and psychoanalysis highlight the disastrous effects the distorted images of mother and father have on the construction of the children's personality and on their (emotional and corporeal) resilience in later life. And "why should we ignore cultural heredity to which anthropologists [and one may add, linguists] point, when we deal with original sin? Is not moral and religious life moulded, to a great extent, by symbolic systems and language⁴¹?" Recent scientific studies even illustrate the impact of good or bad nurture on the very structure of the body (and in particular the brain) and show how important the relational environment is for healthy animals and humans⁴². Given the structuring importance of human relationships, it is to be expected that the presence or absence of communion with the Creator has an even greater impact for humanity. When the bond of trusting obedience towards the Creator was broken, all the rest fell apart and got corrupted as well. As Henri Blocher points out: "The mere deprivation of God's fellowship in foetal life would already be enough severely to disturb the construction of personality⁴³."

³⁸ In *Summa Theologica* 1^a-2^{ae}, qu. 82, art. 1, sol. 1. Cf. quotes p. 11 above.

³⁹ *IC* II, I, 8.

⁴⁰ BLOCHER, *op. cit.*, p. 121.

⁴¹ *Ibid.*, p. 123.

⁴² Just one example: mice experiencing chronic unpredictable maternal separation during the first two weeks of their lives not only show depressive-like and abusive maternal behaviour in later life but also reduced expression of a gene in the pre-frontal cortex of the brain. The same reduced gene expression was observed in their offspring, even when they were brought up by caring adoptive mothers (Tamara B. FRANKLIN et al., "Epigenetic transmission of the impact of early stress across generations", *Biological Psychiatry* 68(5), 2010, p. 408-15; and Tania L. Roth, "Lasting epigenetic influence of early-life adversity on the BDNF gene", *Biological Psychiatry* 65(9), 2009, p. 760-769; quoted in Clayton D. CARLSON, "Transgenerational epigenetic inheritance"; *Perspectives on Science and Christian Faith* 66, no. 2, June 2014, p. 95-102 (quotes p. 98)).

⁴³ BLOCHER, *op. cit.*, p. 127.

Conclusion

This article set out to answer the question of whether a strong concept of original sin – including a clear animal-human distinction, an individual Adam as ancestor of all humans, and human corruption and death as consequences of original sin – is compatible with current scientific knowledge. The question was examined in close dialogue both with the current state of science and theological tradition, mainly drawing on resources from the Thomist and the Reformed tradition. In a nutshell, the answer provided is: Yes, with some possible complications.