

# How Modern Biological Taxonomy Sheds Light on the Incarnation

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**Abstract:** One question asked repeatedly in the history of Christology is the following: given that the incarnation was God's chosen method of redeeming us, why did God become human by the cooperation of the Blessed Virgin Mary? Why not just create a human body and soul *ex nihilo* and simultaneously with that creation have God the Son assume this new instance of human nature? Augustine for instance (*De Trinitate*, bk. 13, ch. 18) answers that the latter option would have been a legitimate means of incarnation, but that it was not as fitting as the method actually employed. Aquinas agrees (*Summa Theologica* IIIa, q. 4, art. 6). By contrast, John of Damascus (*De Fide Orthodoxa*, bk. 3, ch. 12) seems to think that the *ex nihilo* option would not have constituted a genuine assumption of human nature, such that redemption required the cooperation of the Theotokos. I argue that insights provided by contemporary biology support St. John's perspective, insofar as modern biological taxonomy suggests that lineal descent is a necessary condition for belonging to a species. As such, to take on a genuinely human nature, God had to enter into the existing human lineage; creating a new 'human' body and soul *ex nihilo* would not have sufficed.

## 1. Introduction

Given that God chose the incarnation as the means of redeeming us (whether because that was the *only* possible method of redemption, or the *best* method, or simply a very good option among a range of possible methods), why did God become incarnate in the precise manner He chose? One might suppose for instance that God could have taken on human nature absent the virgin birth, simply by intervening miraculously in a process of normal human reproduction.<sup>1</sup> Or one might ask why God did not simply create a human body and soul *ex nihilo* and simultaneously with that creation become incarnate in that new instance of human nature. This latter question has received less

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<sup>1</sup> On that possibility see for instance Crisp (2009), Cross (2002), and Hebblethwaite (2005).

attention in recent Christology but has certainly been discussed historically. Augustine for instance takes it up in *De Trinitate* book 13, chapter 18 (1963, 403):

For God was certainly able to assume human nature elsewhere than from the race of Adam, who by his sin bound the human race, in which He might be the Mediator between God and men, just as He did not create the first man whom He created from the race of anyone else. He could, therefore, create another man in this manner or in any manner that He pleased, by whom the conqueror of the first man would be conquered. But God judged it better, both to assume human nature from the race itself that was conquered, through which He would conquer the enemy of the human race, and yet to take it from a virgin, whose conception, the spirit, not the flesh, the faith, not passion, preceded.

Augustine's point is that God could have created a human being who was not a lineal descendant of Adam's (i.e., who was not part of Adam's "race") and become incarnate in that instantiated nature. But God chose to become incarnate as part of the already-existent lineage of Adam, insofar as it was more fitting to overcome the devil through someone of the very same lineage as the first man whom the devil corrupted.

Aquinas concurs in the *Summa Theologica* IIIa, q. 4, art. 6. After approvingly citing the passage just quoted from Augustine, Aquinas argues that while God did not have to enter into the lineage of Adam in order to redeem us, it was fitting that He do so, since "it would seem to belong to justice that he who sinned should make amends; and hence that from the nature which he had corrupted should be assumed that whereby satisfaction was to be made for the whole nature. Secondly, it pertains to man's greater dignity that the conqueror of the devil should spring from the stock conquered by the devil. Thirdly, because God's power is thereby made more manifest, since, from a corrupt and weakened nature, He assumed that which was raised to such might and glory." The same point is affirmed in Aquinas' *Compendium of Theology*, part 1, ch. 217 (1947):

The foregoing exposition clearly indicates the way the formation of Christ's body ought to have taken place. God could, indeed, have fashioned Christ's body from the dust of the earth or from any other matter, in the way He fashioned the body of our first parent. But this would not have been in keeping with the restoration of man, which is the reason why the Son of God assumed flesh, as we have pointed out. The nature of the human race, which was derived from the first parent and which was to be healed, would not have been so well restored to its pristine honor if the victor over the devil and the conqueror of death, under which the human race was held captive because of the sin of the first father, had He taken His body from some other source.

This passage clearly brings out the point that a genuine incarnation could have been effected through means other than entering into the existing human lineage, but that such alternatives would have been less fitting.<sup>2</sup>

In contrast with Augustine and Aquinas, John of Damascus seems to maintain that God's incarnating into the existing human lineage was not merely fitting but necessary in order to provide atonement for us. He writes in the *De Fide Orthodoxa* book 3, chapter 12 (1958, 292-293).

For the holy Virgin did not give birth to a mere man but to true God, and not to God simply, but to God made flesh. And He did not bring His body down from heaven and come through her as through a channel, but assumed from her a body consubstantial with us and subsisting in Himself. Now, had the body been brought down from heaven and not been taken from our nature, was there any need for His becoming man? God the Word was made man for this reason: that that very nature which had sinned, fallen, and become corrupt should conquer the tyrant who had deceived it.

Here St. John appears to adopt the view that God the Son's assumption of human nature required entering into the existing human lineage. Making a wholly new body and soul (i.e., bringing a body "down from heaven") and assuming it would not have constituted the assumption of a genuinely human nature. It might have looked and functioned like a human, but it would not have been genuinely *consubstantial* with us. For St. John, it seems one cannot sharply distinguish nature and lineage in the way supposed by Augustine and Aquinas; indeed, apparently, a body brought down from heaven *ipso facto* does not share our nature.

Now, this passage from St. John is not wholly unambiguous; while he does contrast the status of the body brought "down from heaven" with the *consubstantial* status of the incarnation occurring in cooperation with the Blessed Virgin, one might nevertheless read the rhetorical "was there any need for His becoming man?" as indicative of a presumption that entering into the body brought "down from heaven" would still have counted as really *becoming a man*.<sup>3</sup> Yet that point is perhaps counterbalanced by John's contention that a body brought down from heaven would not have been "that very nature that had sinned." At any rate, while I am less confident of my interpretation now than I was formerly, I still think it a reasonable reading; hopefully an enterprising patristics scholar will happen upon this discussion and subject the passage to further analysis. (My complete ignorance of Greek does not help matters; a parsing of the original language here could be quite useful.)

St. Anselm seems to take a stance intermediate between that of Augustine and Aquinas on the one hand, and St. John on the other. He writes in *Cur Deus Homo* book 2 chapter 8 (2007, 295):

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<sup>2</sup> My thanks to an anonymous referee for the *JAT* for drawing my attention to this passage in the *Compendium*.

<sup>3</sup> My thanks to an anonymous referee for the *JAT* for this criticism.

It now remains for us to ask from where and in what way God will assume a human nature. Either he will assume it from Adam or he will make a new human being in the same way that he made Adam, from no other human being. But if he makes a new human being not of Adam's race this new man will not belong to the human race that is born of Adam. And for that reason he will not owe a recompense for the human race, since he will not belong to the human race. For just as it is right that a human being should make recompense for human guilt, so too it is necessary that the one who makes recompense be either the sinner himself or someone of the same race. Otherwise neither Adam nor his race will make recompense for itself. Therefore, just as sin was transmitted to all human beings from Adam and Eve, so too only they or someone born from them ought to make recompense for human sin. Since Adam and Even cannot do it, the one who will do it must be descended from them.

Anselm's idea then is that God could make a new human being who would be genuinely human (and so presumably consubstantial with us); however, because this new human would not be a lineal descendant of Adam and Eve, it would not be able to redeem members of that lineage. Common humanity is not really what is essential for redemption but rather common humanity *plus* common lineage. So, while Anselm's *anthropology* is closer to that of Aquinas and Augustine on this point, the *theological upshot* he draws is the same as John's: unless the incarnation takes place within the existing lineage of Adam and Eve, that incarnation will not be efficacious for our redemption.

For clarity's sake, it might be helpful to lay out the three alternatives side-by-side in table form:

<b>St. Augustine &amp; St. Thomas</b>	<b>St. John of Damascus</b>	<b>St. Anselm</b>
God could have become incarnate outside of Adam's lineage, and that incarnate being would have had a genuine human nature and could have redeemed humanity thereby. However, it was better for God to become incarnate through Adam's lineage.	God could have become incarnate outside of Adam's lineage, but that incarnate being would not have had a genuine human nature and could not have redeemed humanity thereby.	God could have become incarnate outside of Adam's lineage, and that incarnate being would have had a genuine human nature, but because it would not have been part of Adam's lineage such an incarnation would not have been capable of redeeming humanity.

Which of these three perspectives is correct? In answering this question, it would help first to clarify whether, in the case of the natures of living things, belonging to a species requires lineal descent from members of that species. Thankfully modern biology has a good deal to say about this. In contrast with older intrinsic essentialist conceptions of species (according to which species membership was solely a matter of possessing a certain intrinsic essence, with accompanying characteristic properties), most conceptions of species in modern biological theory maintain that lineal descent is a necessary condition for species membership. And this shift in the conception of species is no mere shift in labeling conventions; there are theoretical justifications for it, justifications deeply embedded in contemporary biology. As such, there is good reason to think that St. John has the better of this debate — or at least good reason *if* one takes on board the admittedly controversial premise that the natural sciences can properly influence theological and philosophical understandings of human nature.

Throughout I am presupposing the basic legitimacy of what Barbour (1966) referred to as the “integration” model of the relationship between science and theology. While this model has many defenders within contemporary theology, it remains fairly controversial. By contrast, within analytic philosophy of science, and especially within the growing sub-field referred to as ‘metaphysics of science,’ the idea that metaphysics should take into account (without slavishly adhering to) the best contemporary scientific theories is considerably less controversial. I cannot attempt to defend the integration model here, in either the theological or philosophical context. Regrettably, readers committed to its rejection are not likely to gain much from the present discussion.

The remainder of this short paper is divided as follows: in the next section I provide a primer on modern biological taxonomy, emphasizing the idea that lineage is necessary for species membership. Then I lay out in greater detail the implications of this for the Christological discussion, and address some potential criticisms. I conclude with a brief recap.

It is perhaps worth emphasizing at the outset the importance of the fact that, in light of modern biology, what it is to have a “nature” should be regarded somewhat differently today than it was in the patristic era in which Christological doctrine was articulated. This fact, while occasionally noted,<sup>4</sup> has not been much explored in recent theology and bears further discussion. The present work can be seen as an initial foray into this larger terrain and an attempt to illustrate the point that modern biology need not, in all cases, be seen as threatening orthodox Christology (or indeed orthodox theology generally); in fact, modern biology might shed new light on longstanding debates internal to it.

## 2. A Quick Primer on Modern Biological Taxonomy

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<sup>4</sup> For instance Deane-Drummond (2012) alludes to it.

“Taxonomy” refers to the theory and practice of classifying organisms. Looking out at the vast range of organisms in nature, and noting assorted commonalities between them, the taxonomist seeks to categorize these organisms into types arranged in a hierarchy of generality (species, genus, family etc.). In current biological taxonomy, there is an important divide between two perspectives on classification: *phenetic* vs. *phylogenetic*. In phenetic classification, organisms are categorized on the basis of statistically calibrated phenotypic similarities (i.e., similarities in observable characteristics like physical structure, blood type, metabolism, etc.). By contrast, in phylogenetic classification not all similarities are admissible for use in classification; rather, *only those similarities resulting from common ancestry (lineal descent) should count*. There are different schools of thought within phylogenetic classification (e.g., evolutionary taxonomy vs. process cladism), but for present purposes the debates between those sub-divisions can be left to one side.<sup>5</sup> Important though those debates may be, they involve disagreements the depth and import of which remain comparatively minor when compared to the fundamental split between phenetic and phylogenetic approaches to taxonomy.

For present purposes, it is important to note that today the large majority of taxonomists operate in accordance with the phylogenetic perspective. This is reflective of the centrality of evolutionary theory in modern biology. Organisms are classified in accordance with their location on the evolutionary tree of life. As such, the placement of an individual organism in a certain species requires that that organism find its immediate ancestors in that same species (just as the placement of a species in a certain genus is based on facts about common ancestry, as is the placement of a genus in a family, etc.). This is a substantial departure from pre-Darwinian taxonomy, in which the goal was to classify organisms in accordance with their intrinsic essences. These essences, conceived along broadly Aristotelian lines as underlying substantial forms, manifested in the outward traits catalogued by anatomists (in fact catalogued in a manner roughly analogous to the cataloguing done by modern pheneticists).

To draw out the contrast: in pre-Darwinian taxonomic theory, a cat, an individual member of the species *Felix catus*, is a member of that species because of its intrinsic essence. That essence manifests itself in the morphological, behavioural, and other features characteristic of members of this species. Traditional versions of intrinsic biological essentialism (INBE)<sup>6</sup> are ahistorical, in the sense that if we travelled to Mars and found organisms identical in all these respects to cats on Earth, we could legitimately take them to be cats. Similarly, if tomorrow God were to create *ex nihilo* an animal with the same sort of intrinsic essence as existent cats, INBE would label them all as members of that species. By contrast, neither the Mars-cat nor the new *ex nihilo* ‘cat’ would count as legitimate cats according to the majority phylogenetic perspective operative in modern biological taxonomy: something is a cat only if it is descended from prior members of *Felix catus*. Lineal descent is a necessary condition on species membership. The Mars-cat may be a very similar

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<sup>5</sup> For a thorough yet accessible introduction to the major versions of phylogenetic taxonomy, consult Ereshefsky (2001, pp. 50-79).

<sup>6</sup> I take the acronym from Dumsday (2012a).

organism and may even be capable in principle of interbreeding with Earth-cats. However, because it does not belong to the same lineage, it is not a member of the same species. “Species” is an irreducibly historical category.

This perspective might initially seem counter-intuitive; many are inclined to think that the hypothetical Mars-cat really would be a cat, if indeed it had the identical type of genetic code, morphology, behaviour etc. But the historical conception of species is very much entrenched in contemporary biology, in part because of longstanding problems facing traditional versions of INBE.<sup>7</sup> Of course, as already noted not everyone views taxonomy in this way; some advocates of pheneticism remain, and there has even been something of an attempted revival of INBE in theoretical biology and philosophy of biology.<sup>8</sup> However, even that latter revival is to a degree muted, insofar as some of its proponents argue for a *non-traditional*, moderate version of INBE. On this version, organisms have intrinsic essences, but those essences do not suffice for species membership, with lineage still playing a necessary role in classification. In other words, on moderate INBE species membership is derived from lineage + intrinsic essence, rather than *only* the intrinsic essence (as on traditional INBE), or *only* lineage (as on most existing phylogenetic species concepts). Devitt (2008) and Dumsday (2012a) incline towards moderate INBE, and arguably so do some other neo-essentialists in the philosophy of biology.

The upshot: while there remains some dissent, a large majority of those working in theoretical biology and philosophy of biology (as well as a large majority of working taxonomists) view lineage as at least a necessary condition for species membership — and a smaller majority would go even further and identify lineage as necessary and sufficient for species membership. These facts are of obvious potential theological significance, insofar as orthodox theology demands that in the incarnation God the Son assumed a true human nature, (i.e., that He became a member of our species). To the extent that the conception of the necessary conditions for species membership has changed since the patristic era, so will our conception on the necessary conditions for the incarnation. Let us turn then to these theological implications.

### **3. Lineage as a Necessary Condition for Species Membership: Implications for Christology**

If the broad consensus in modern biological taxonomy is correct, then in order for God to become a member of our species, He could not have simply created a human body *ex nihilo* and assumed that; rather, He had to enter into the pre-existing human lineage. There may be various ways He could make that entrance, though scripture

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<sup>7</sup> For discussion of standard criticisms of INBE, see for instance Dupré (1981), Ellis (2002, pp. 29-30), Ereshefsky (2001, pp. 95-102; 2010), Hull (1965; 1978), Mayr (1959/1976), Sober (1980), and Stamos (2003).

<sup>8</sup> See for instance Devitt (2008), Dumsday (2012a; 2012b), Elder (2008), Kitts and Kitts (1979), Oderberg (2007), Walsh (2006), Webster and Goodwin (1996), and Wilkerson (1995).

and tradition both affirm that this was done via the cooperation of the Theotokos in the virgin birth. The important point for present purposes is that current biology implies Augustine, Aquinas, and Anselm (among others) are incorrect in their view that God could have become human without entering into the lineage of Adam; rather, John of Damascus was right to think that a genuine assumption of human nature required incarnation into the pre-existing human line of descent.

Note that entering this lineage, while a necessary condition for incarnation as a member of our species, is from a theological perspective presumably not sufficient for full humanity; after all, modern biology does not take into account the doctrine of the immortal, immaterial soul, which also plays a key role in the doctrine of the incarnation. Focused as I am on the relevant biology, I have left that factor out of the discussion, but that should not be taken as an indication that it is unimportant. Modern biology prescind from ensoulment, but theology obviously does not.<sup>9</sup>

One could of course dispute the alleged theological implications of modern biology. Consider the following six potential objections:

- (1) Despite its current underdog status pheneticism is the best method of biological classification.
- (2) Traditional INBE, on which lineage plays no necessary role in species membership, is still workable.
- (3) The conception of 'nature' in metaphysics and theology is different from and largely unrelated to that employed in biology. For instance, it might be argued that what the former disciplines are concerned with is the notion of the human being as *rational animal*, where the particular mode of being of the "animality" side of that equation (the specificity of its purely biological nature) is really not crucial.
- (4) All of the preceding is irrelevant because science and theology constitute non-overlapping magisteria, such that scientific findings concerning species membership can have no bearing on Christology.
- (5) One might worry whether, on this view, the virgin birth could itself meet the lineage requirement for species membership. In order to be a legitimate member of a biological lineage (and hence a legitimate member of a certain species), where that lineage is one of sexually reproducing organisms, surely one must have two human parents?
- (6) John the Baptist says that God can make "children of Abraham" from stones (Matthew 3:9 and Luke 3:8). That is solid scriptural evidence that God could create *ex nihilo* full-fledged members of the family of Abraham. If that is possible, then clearly it is possible for God to create a genuine member of the human species *ex nihilo*.
- (7) While John and Augustine appear to differ over the necessity vs. fittingness of a full human nature, does not the discussion of phenetic vs. phylogenetic distinction in taxonomy detract from this point? It would seem that despite the different methods of inferring species membership, both ways have ended up identifying roughly the same

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<sup>9</sup> My thanks to an anonymous referee for prompting me to make this explicit.

group of individuals, *Homo sapiens*, as human. So, how is the discussion of phenetic vs. phylogenetic not moot?<sup>10</sup>

In reply to those six points:

- (1) In theory pheneticism could someday overcome its current minority status in taxonomy. However, this seems unlikely at present, such that those wishing to uphold the Augustinian / Thomistic position on this issue of Christology must admit that they carry the burden of proof on this point, and have their work cut out for them.
- (2) Much the same could be said with respect to traditional INBE. It remains a minority position, such that those wishing to uphold it in defence of the Augustinian / Thomistic position are faced with a difficult task. Moderate INBE is arguably in a stronger position in the context of current philosophy of biology; yet moderate INBE, while re-introducing intrinsic essences, still gives lineage a necessary role in species membership, and so may be of little assistance for the Augustinian / Thomistic position.
- (3) One can certainly claim a conceptual disconnect here, such that “nature” in the context of modern biology is not the same as “nature” referenced in the divinely guided ecumenical councils of the Church (and the resultant creedal statements). However, such a claim is problematic. The revival of INBE, whether traditional or moderate, is an attempt to show that older conceptions of “nature” or “essence” (such as those employed by Aristotle and the patristics) are still workable in the context of modern biology. That revival makes no sense if there is a total disconnect in the relevant conceptual tools. Moreover, the Church fathers themselves did not think there was a sharp disconnect between notions of essence and nature in theology and what they would have thought of as the natural sciences. This latter point should be uncontroversial as an historical claim, though for some concrete examples see for instance St. John’s *Philosophical Chapters* 5-27 (1958, pp. 15-54). With reference to the specific example cited above (the notion that “human” refers to the metaphysical type “rational animal” rather than some distinctive sort of biological organism), it can be countered that it is counter-intuitive to suggest that any animal possessed of rationality would *ipso facto* be human. Imagine a parallel earth in which highly intelligent, morally free conscious beings evolved from dinosaurs instead of from primates: granted such intelligent reptiles would be importantly similar to us in many ways (e.g., they would possess the inherent dignity and moral rights accruing to persons), would they really be the same *kind* of thing as we are? Correspondingly, from the standpoint of metaphysics are

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<sup>10</sup> My thanks to an anonymous referee for this objection, which I have reproduced here essentially verbatim.

- cats and dogs and snakes and octopi all members of the same kind because they are *non-rational* animals? That would seem to suggest a sharper divide between metaphysics and biology than is plausible; moreover, it certainly suggests a sharper divide than was supposed in much patristic thought — see again the cited passages from St. John.
- (4) I have noted in the Introduction that I am taking it for granted that such a perspective on the science / theology relationship is misguided. I cannot defend this claim here.
- (5) One can note that while modern taxonomy (excluding pheneticism) posits lineal descent as necessary for species membership, it is much less particular regarding the precise *means* of descent. In fact, with respect to sexually reproducing species, it is certainly *not* the case that modern biology rules out standard species membership for sexually reproducing organisms conceived in irregular ways. This is clear from the fact that clones are regarded as members of the same species as their parent organisms, even when those clones are members of a sexually reproducing species (e.g., Dolly the sheep is universally regarded as a legitimate sheep by biologists, even though Dolly was the first adult mammal ever to result from cloning). Now, the incarnation is of course not precisely analogous to cloning; the point is simply that membership in a lineage is not predicated on perfectly normal methods of sexual reproduction being followed in the origin process of the relevant organism. Relatedly, even if one understands the “mechanics” of the incarnation as involving the creation *ex nihilo* of a y-chromosome (the chromosome which renders one male and is acquired from the male parent), that would not necessarily rule out genuine lineal descent; the genetic heritage received from Mary would arguably suffice to render Jesus part of the existing human lineage, if, again, in a nonstandard fashion.
- (6) Given the context of these passages (the public call to repentance), it is not clear that John the Baptist is referring to literal, biological descendants of Abraham here; in fact, it seems more likely that he is referring to Abraham’s spiritual children, those who repent and seek after God.
- (7) In many cases the taxonomic judgements made by an advocate of pheneticism will line up with those made by an advocate of a phylogenetic perspective. But in many cases, they will not. For example, there are many cases in nature of sexually reproducing species whose male and female members differ so radically in outward morphology that on some versions of pheneticism these organisms will be counted as members of different species, despite their ability to reproduce with each other. On phylogenetic species concepts, that sort of conclusion, counter-intuitive both to the biologist and the layperson, is excluded from the outset. Now, presumably no version of pheneticism would be tempted to such an assessment of human beings; the point is simply one illustration (among many) of the fact that the divide between these

schools of taxonomic thought is far from trivial, and that the resultant differences in how we conceive of human nature are significant.

## 4. Conclusion

To sum up: I began by introducing the disagreement within historical Christology concerning whether the incarnation required divine entrance into the existing lineage of Adam. Augustine, Aquinas, and John of Damascus were referenced as illustrative representatives of two competing views. After briefly stating my thesis and providing an outline, in the subsequent section, I provided a short primer on relevant ideas from modern biological taxonomy, noting how the current majority view is that common lineage is a prerequisite for species membership. Finally, I drew out explicitly the implications of that fact for the aforementioned Christological dispute, then stated and replied to seven potential objections.

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