

Articoli/8

Albert the Great on Animal and Human Origin in his Early Works*

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Among historians of philosophy and science, Albert the Great (ca. 1200-1280) is well-known for his scientific outlook on animals. His mature commentary on the *De animalibus* (after 1258) has been praised for its revival of a *scientia de animalibus*, covering animal diversity in its psycho-physiological nature, generation and habitat, and the causes that lead to this diversity. Far less attention has been paid to the genesis of this scientific outlook, found in his early theological works. This lack of attention, however, has resulted in two gaps in the literature. On the one hand, we have not fully appreciated Albert's motivations and reasons for his mature scientific decisions. On the other hand, we have not fully grasped the systematic impact that his appropriation of the *scientia de animalibus* had on the developments of related systematic fields, such as his eschatology and theological anthropology. The purpose of this paper is to begin to address this second gap in the literature. I show how and why Albert's systematic integration of the Aristotelian model of animal epigenesis into his eschatology and theological anthropology resulted in a thorough modification of his Christian conception of the human soul's *creatio ex nihilo* in his mature works.

1. Ahead of the Pack: Animals and Science

When it comes to animals, Albert the Great (ca. 1200-1280) is highly regarded for his «scientific» outlook on them¹. For decades of present-day

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¹ Cf. H. Balss, *Albertus Magnus als Zoologe*, Munich 1928; C. Hünemörder, *Die Zoologie des Albertus Magnus*, in *Albertus Magnus Doctor Universalis 1280/1980*, ed. by G. Meyer OP and A. Zimmermann, Mainz 1980, pp. 235-248; G. Guldentops, *The Sagacity of the Bees. An Aristotelian topos in thirteenth-century philosophy*, in *Aristotle's Animals in the Middle Ages and Renaissance*, ed. by C. Steel, G. Guldentops, and P. Beullens, Leuven 1999, pp. 275-296; K.F. Kitchell Jr and I.M. Resnick, *Introduction: The Life and Works of Albert the Great*, in *Albertus Magnus On Animals. A Medieval Summa Zoologica*, ed. by id., Baltimore-London 1999, pp. 1-42; M. Tkacz, *Albert the Great and the Revival of Aristotle's Zoological Research Program*, in

scholarship, his famous commentary on the *De animalibus* (after 1258)² has been praised for having (re-)established the sciences of biology, zoology, and ornithology³. His synthetic moves concerning content and genre have been among the latest subjects of great esteem⁴. His natural scientific method, including observation and experiment and relying on suppositional necessity (as opposed to absolute necessity), has long been acclaimed as ground-breaking⁵. Yet what stands at the heart of all these accomplishments, so we are told by scholarship, is Albert's intrinsic interest in animals. For, unlike his Platonic-Augustinian predecessors, who relegated animals to the fringe by considering them mere footprints of God (*vestigia Dei*)⁶, Albert fully engages with animal life. On the basis of his autonomous conception of the natural sciences⁷, Albert's *De*

«Vivarium», XLV, 2007, pp. 30-68; B. Roling, *Die Geometrie der Bienenwabe: Albertus Magnus, Karl von Baer und die Debatte über das Vorstellungsvermögen und die Seele der Insekten zwischen Mittelalter und Neuzeit*, in «Recherches de théologie et philosophie médiévales», LXXX, 2013, pp. 363-466; M. Tkacz, *Albert the Great on Logic, Knowledge, and Science*, in *A Companion to Albert the Great. Theology, Philosophy, and the Sciences*, ed. by I.M. Resnick, Leiden 2013, pp. 507-540.

² Approximately in the 1210s, Michael Scot translated the Arabic compilation of Aristotle's *Historia animalium*, *De partibus animalium*, and *De generatione animalium* into Latin and entitled it *De animalibus*. Extant 13th century commentaries include Peter of Spain's and of Peter Gallego's commentaries. Albert's commentary, however, was most influential for later developments and commentators. Cf. B.G. Dod, *Aristoteles latinus*, in *The Cambridge History of Later Medieval Philosophy from the Rediscovery of Aristotle to the Disintegration of Scholasticism 1100-1600*, ed. by N. Kretzmann et alii, Cambridge 1982, pp. 45-79, here p. 77; M.J.C. de Asúa, *The Organization of Discourse on Animals in the Thirteenth Century. Peter of Spain, Albert the Great, and the Commentaries on De Animalibus*, unpubl. dissertation, Catholic University of America 1991, pp. 5-26; K.F. Kitchell Jr and I.M. Resnick, *Introduction: The Life and Works of Albert the Great*, cit., p. 39.

³ Cf. K.F. Kitchell Jr and I.M. Resnick, *Introduction: The Life and Works of Albert the Great*, cit., p. 33.

⁴ Cf. M.J.C. de Asúa, *The Organization of Discourse on Animals*, cit., pp. 229-233.

⁵ Cf. W.A. Wallace OP, *Albertus Magnus on Suppositional Necessity in the Natural Sciences*, in *Albertus Magnus and the Sciences. Commemorative Essays 1980*, ed. by J.A. Weisheipl OP, Toronto 1980, pp. 103-128; K.F. Kitchell Jr and I.M. Resnick, *Introduction: The Life and Works of Albert the Great*, cit., pp. 27-34; M. Tkacz, *Albert the Great and the Revival of Aristotle's Zoological Research Program*, cit., p. 30-68; M. Tkacz, *Albert the Great on Logic, Knowledge, and Science*, cit., pp. 507-540.

⁶ Cf. K.F. Kitchell Jr and I.M. Resnick, *Introduction: The Life and Works of Albert the Great*, cit., pp. 22-27.

⁷ Cf. Albertus Magnus *Physica* I.1-4, ed. Coloniensis 4/1, 1-8. Secondary sources cf., for instance, E.A. Synan, *Introduction: Albertus Magnus and the Sciences*, in *Albertus Magnus and the Sciences. Commemorative Essays 1980*, cit., pp. 1-12; B.M. Ashley OP, *St. Albert and the Nature of Natural Science*, in *Albertus Magnus and the Sciences. Commemorative Essays 1980*, cit., pp. 73-102; M.D. Jordan, *Albert the Great and the Hierarchy of Sciences*, in «Faith and Philosophy», IX, 1992, pp. 483-499; A. Zimmermann, *Gedanken Alberts des Großen zu den Zielen und Leitlinien der Naturforschung, in Dombau und Theologie im mittelalterlichen Köln. Festschrift zur 750-Jahrfeier der Grundsteinlegung des Kölner Domes und zum 65. Geburtstag von Joachim Kardinal Meisner*, ed. by L. Honnefelder, N. Trippen, and A. Wolff, Cologne 1998, pp. 429-437; H. Anzulewicz, *Zwischen Faszination und Ablehnung: Theologie und Philosophie im 13. Jahrhundert in ihrem Verhältnis zueinander*, in «Archa Verbi», Subsidia I, 2007, pp. 129-165; L. Spruit, *Albert the Great on the Epistemology of Natural Science*, in *Erfahrung und Beweis. Die Wissenschaften von der Natur im 13. und 14. Jahrhundert*, ed. by A. Fidora and M. Lutz-Bachmann, Berlin 2007, pp. 61-75; H. Anzulewicz, *Alberts Konzept der Bildung durch*

animalibus covers animal diversity in its psycho-physiological nature, generation, and habitat on the one hand, and the causes that lead to this diversity on the other. In short, we are told that Albert's scientific approach to animals in his mature work of the *De animalibus* presents us with the foundations of animal study for centuries to come⁸.

This reading of Albert's scientific outlook on animals is highly persuasive and there is much valuable scholarship to draw on. Yet despite this acclaim and renown that Albert's scientific outlook on animals in his mature works has received, it is remarkable that there have been only very few studies on the *development* of this scientific outlook on animals, which is found in his early theological works⁹. One possible reason for such a shortcoming may be that Albert scholarship has so far applied an implicitly positivist outlook of progression to his *corpus*¹⁰. Analysing what we would nowadays consider his scientific works

Wissenschaft, in *Albertus Magnus und der Ursprung der Universitätsidee*, ed. by L. Honnefelder, Berlin 2011, pp. 382-397; S. Donati, *Alberts des Großen Konzept der scientiae naturales: Zur Konstitution einer peripatetischen Enzyklopädie der Naturwissenschaften*, in *Albertus Magnus und der Ursprung der Universitätsidee*, cit., pp. 354-381; H. Möhle, *Albertus Magnus und die Vielheit der Wissenschaften*, in *Albertus Magnus und der Ursprung der Universitätsidee*, cit., pp. 301-331; D. Twetten and S. Baldner, *Introduction to Albert's Philosophical Work*, in *A Companion to Albert the Great. Theology, Philosophy, and the Sciences*, cit., pp. 165-172; D. Twetten, S. Baldner, and S.C. Snyder, *Albert's Physics*, in *A Companion to Albert the Great. Theology, Philosophy, and the Sciences*, cit., pp. 173-219.

⁸ Cf. references in note 3.

⁹ H. Anzulewicz, *Die aristotelische Biologie in den Frühwerken des Albertus Magnus*, in *Aristotle's Animals in the Middle Ages and Renaissance*, cit., pp. 159-188; H. Anzulewicz, *Albertus Magnus und die Tiere*, in *Tiere und Fabelwesen im Mittelalter*, ed. by S. Obermaier, Berlin 2009, pp. 29-54.

¹⁰ In the history of science, or rather the meta-history of science, such approaches to the material have long been identified, scrutinised for their limitations, and partly overcome, cf. A. Debus, *Chemists, Physicians, and Changing Perspectives on the Scientific Revolution*, in «Isis», LXXXIX, 1998, pp. 66-81. Jump-started in the middle of the 20th century by the two famous historians of science Dame Frances A. Yates and Walter Pagel, these meta-debates decidedly take into consideration the full *corpus* of a thinker within which his scientific developments occur. In one of his early requests to a still selective community of historians of science, the late Walter Pagel urged that scientific practices be changed and, «instead of selecting data that 'make sense' to the acolyte of modern science, ... [the historian of science] should therefore try to make sense of the philosophical, mystical or religious 'side-steps' of otherwise 'sound' scientific workers of the past—'side-steps' that are usually excused by the spirit or rather backwardness of the period. It is these that present a challenge to the historian: to uncover the internal reason and justification for their presence in the mind of the savant and their organic coherence with his scientific ideas. In other words it is for the historian to reverse the method of scientific selection and to restate the thoughts of his hero in their original setting. The two sets of thought—the scientific and the non-scientific—will then emerge not as simply juxtaposed or as having been conceived in spite of each other, but as an organic whole in which they support and confirm each other» (Original in W. Pagel, *William Harvey's Biological Ideas: Selected Aspects and Historical Background*, Basel/New York 1967, p. 82., quoted from A. Debus, *Chemists, Physicians, and Changing Perspectives on the Scientific Revolution*, cit., p. 70). One should add here that the initial reception of Yates and Pagel stimulated research into hermetic and, what we would potentially consider «esoteric» themes. Yet this should be regarded as an overreaction to the predominance of positivist approaches at that time. Contemporary scholarship takes more nuanced stands and applies Yates' and Pagel's insights to the complete *corpora* of a wide range of historical thinkers, as is evident from Debus' discussions and contemporary scholarship, which is itself more inclusive in that it takes the balanced approaches to these *corpora* that Yates

as the principal object of study over the large remainder of his works, it seems that, on the basis of present-day selection criteria, Albert's treatment of animals is implicitly regarded as a linear trajectory that culminated in the «scientific» summit of the *De animalibus*. What appears to be a fully developed *scientia de animalibus* is thought to be sufficiently progressive and worthy of our attention. Yet, such an implicit positivist outlook with its present-day selection criteria would have arguably been alien to Albert himself. He instead engaged with animals across his entire *corpus*. He developed many of his final words on them in his early theological works¹¹, writing them against the background of his reconciliatory motivations and theological anthropology¹².

If we therefore consider Albert's outlook on animals apart from its early theological context of genesis, we may not only fail to see his motivations, justifications, and reasons that underlie his key scientific decisions on animals. Even more serious than this shortcoming in content may be two gaps in his systematic concerns. By focussing predominantly on Albert's *De animalibus*, we may fail to uncover how and why he solidified some systematic criteria over the course of his *corpus*, whereas he subjected others to integrative reinterpretations in light of, what he considered, more fundamental principles. Most importantly, though, we may overlook the systematic impact that Albert's appropriation of the *scientia de animalibus* had on the developments and resulting conceptions of related systematic topics or other fields of inquiry. We may, for instance, find it difficult to answer pressing questions about his move away from a paraenetic treatment of animals in his moral theology to a literal engagement with animals in his systematic theology¹³. We may find it similarly difficult to see his achievements in reconciling Aristotelian explanations on the nature of animals with Christian explanations on the nature of humans. We may find it hard, too, to understand his systematic integration of the Aristotelian account of animal epigenesis into his eschatology and theological anthropology and the resulting modification of his Christian conception of the human soul's *creatio ex nihilo* in his mature works.

and Pagel called for in the first place. In other words, the practice of contemporary history of science is to give as much weight to the «hard science» as to aspects that we would nowadays consider «non-scientific». Thanks a lot to Sietske Fransen (MPIWG Berlin) for drawing my attention to these meta-debates in the history of science and for discussing them with me.

¹¹ Cf. H. Anzulewicz, *Die aristotelische Biologie in den Frühwerken des Albertus Magnus*, cit., pp. 159-188; H. Anzulewicz, *Albertus Magnus und die Tiere*, cit., pp. 29-54.

¹² On Albert's systematic theology, cf. especially H. Anzulewicz, *The Systematic Theology of Albert the Great*, in *A Companion to Albert the Great. Theology, Philosophy, and the Sciences*, cit., pp. 15-67. On Albert's conception of theology in general cf., for instance, M. Burger, *Albertus Magnus. Theologie als Wissenschaft unter der Herausforderung aristotelisch-arabischer Wissenschaftstheorie*, in *Albertus Magnus und der Ursprung der Universitätsidee*, cit., pp. 97-114; M. Olszewski, *The Nature of Theology According to Albert the Great*, in *A Companion to Albert the Great. Theology, Philosophy, and the Sciences*, cit., pp. 69-104; W. Senner, *Zur Wissenschaftstheorie der Theologie im Sentenzenkommentar Alberts des Großen*, in *Albertus Magnus Doctor universalis 1280/1980*, cit., pp. 323-343; I. Craemer-Ruegenberg, *Albertus Magnus. Völlig überarbeitete Neuauflage der Originalausgabe*, ed. by H. Anzulewicz, Leipzig 2005, pp. 52-68.

¹³ This topic is briefly addressed in H. Anzulewicz, *Albertus Magnus und die Tiere*, cit., pp. 32-34.

The purpose of my paper, then, is to discuss this last point in greater detail and to show how Albert integrates the Aristotelian model of epigenesis for the origin of animal souls in his early eschatology and theological anthropology on the one hand, and how and why this integration resulted in his concoction of a model of epigenetic creationism for the human soul on the other. In this way, I elucidate the prominent systematic role that Albert assigns to animal epigenesis. Due to its constraints, however, my study can only be a humble beginning of a fresh look at the role of animals in Albert's *corpus*. Yet it is hopefully a step in the direction of a new and deeper appreciation of their systematic value. What I cannot cover here, yet what is ultimately required to complement my study, is Albert's reliance on the body of his Aristotelian sources. These, so it seems, would account for the precise facilitation of Albert's systematic integration of the models of epigenesis and *creatio ex nihilo*.

In what follows, then, I proceed in three steps. I first expose Albert's theological model of absolute psychological creationism for the origin of the human soul as found in the midst of his theological project. This first section serves to uncover the inherent tensions in this model and its inconsistent application of fundamental principles. In a second step, I turn to Albert's model of epigenesis for the origin of animals and their souls, also found in the midst of his theological project. This section serves to show how this Aristotelian model broke into Albert's theology and how its systematic appeal lay in its inherent consistency in contrast to the model of absolute psychological creationism for the human soul. I also identify this consistency as a driving factor for Albert's systematic reconception of his model of *creatio ex nihilo*. As a final step, I turn to a brief revision of Albert's innovative model of epigenetic creationism for the origin of the human soul in his mature works. This last section serves to show how Albert accomplished the systematic integration of both models, unifying the causal origin for human and animal sensitive and nutritive souls. With this move, I contend, Albert could consistently account for the union of the soul and of the composite in animals and humans alike. But he could also remain truthful to his theological commitments, against the background of the Neoplatonic principle of *opus naturae est opus intelligentiae*.

2. Separating the Sheep from the Goats: The Human Soul's Origin *ab extrinseco*

When Aristotle's *libri naturales* together with the accompanying Peripatetic works arrived in Paris in the early decades of the 1200s, they were received with a two-fold attitude: they were studied diligently in the private sphere on the one hand and set aside with caution in the public sphere on the other¹⁴. By the

¹⁴ Concerning the condemnations and use of Aristotle's *libri naturales* at the University of Paris before 1255, cf. C. Lohr, *The New Aristotle and «Science» in the Paris Arts Faculty (1255)*, in *L'enseignement des disciplines à la Faculté des arts (Paris et Oxford, XIIIe-XVe siècles): Actes du Colloque international*, ed. by O. Weijers and L. Holtz, Paris 1997, pp. 251-269. Concerning the

late 1260s, however, all these works had duly arrived at the University of Paris: they had become the standard curricular readings at the arts faculty and they constituted the philosophical toolkit for theologians, lawyers, and physicians alike¹⁵. This remarkably rapid appropriation of an entirely new system of thought was greatly aided by Albert the Great's commentaries on the entire *corpus Aristotelicum*, which he concluded in 1268. Arguably, Albert's decision to make all these works «intelligible to the Latins», as he famously declared around 1251 in his commentary on the *Physics*, was a pivotal moment for the rise of Aristotelianism in the Latin West¹⁶. But was it equally such a moment for the question of the origin of human and animal souls? Looking at the complete *corpus Albertinum*, one has to say that this is not the case. While Albert devotes his upmost attention to this topic in his *De animalibus* and his *Liber de natura et origine animae* (both after 1258), he begins to think about it much earlier in his career. This we can easily gather from his earliest systematic theological works that predate the first of his commentaries on the *corpus Aristotelicum* by roughly a decade¹⁷. For it is here that Albert begins to carve out his largely unchanging

constitutions of the *Ordo praedicatorum*, which heavily regulated the use and study of secular literature as well, cf. *Constitutiones antiquae Ordinis Praedicatorum* II.28, in *De oudste constituties van de Dominicanen*, ed. by A.H. Thomas, Leuven 1965, p. 361.7-11.

¹⁵ G. Leff, *Das Trivium und die drei Philosophien*, in *Geschichte der Universität in Europa*, ed. by W. Rüegg, vol. 1, Munich 1993, pp. 279-302; J. North, *Das quadrivium*, in *Geschichte der Universität in Europa*, cit., pp. 303-320; A. García y García, *Die Rechtsfakultäten*, in *Geschichte der Universität in Europa*, cit., pp. 343-358; N. Siraisi, *Die medizinische Fakultät*, in *Geschichte der Universität in Europa*, cit., pp. 321-342.

¹⁶ Cf. Albertus Magnus *Physica* 1.1.1, ed. Coloniensis 4/1, 1.9-14. In this paper, all Latin quotations are taken from the following works: Albertus Magnus, *Commentarii in II Sententiarum*, in *Alberti Magni Opera Omnia* 27, ed. by S.C.A. Borgnet, Paris 1894; —; *Commentarii in IV Sententiarum* (dist. XXIII-L), in *Alberti Magni Opera Omnia* 30, ed. by S.C.A. Borgnet, Paris 1894; — *De IV coaequaevis* (= *Summa de creaturis*, pars I), in *Alberti Magni Opera Omnia* 34, ed. by S.C.A. Borgnet, Paris 1895; — *De animalibus libri XXVI*, in *Beiträge zur Geschichte der Philosophie des Mittelalters XV-XVI*, 2 vols., ed. by H. Stadler, Münster 1916-1920; — *De bono*, in *Alberti Magni Opera Omnia* 28, ed. by H. Kühle et alii, Münster 1951; — *Liber de natura et origine animae*, in *Alberti Magni Opera Omnia* 12, ed. by B. Geyer, Münster 1955; — *De sacramentis*, *De incarnatione*, *De resurrectione*, in *Alberti Magni Opera Omnia* 26, ed. by A. Ohlmeyer, I. Backes, and W. Kübel, Münster 1958; — *De natura boni*, in *Alberti Magni Opera Omnia* 25/1, ed. by E. Filthaut, Münster 1974; — *Physica*, pars I, libri 1-4, in *Alberti Magni Opera Omnia* 4/1, ed. by P. Hossfeld, Münster 1987; — *Quaestiones*, in *Alberti Magni Opera Omnia* 25/2, ed. by A. Fries, W. Kübel, and H. Anzulewicz, Münster 1993; — *De homine*, in *Alberti Magni Opera Omnia* 27/2, ed. by H. Anzulewicz and J. R. Söder, Münster 2008; Thomas Aquinas, *Summa Theologiae* I.50-119, in *Sancti Thomae Aquinatis Opera Omnia* 5, ed. by Commissio Leonina, Rome 1889; Aristotle, *De animalibus*, *Michael Scot's Arabic-Latin Translation*, Part Two: *Books XI-XIV: Parts of Animals*, ed. by A. van Oppenraaij, Leiden/New York/Cologne 1998; Aristotle, *De animalibus*, *Michael Scot's Arabic-Latin Translation*, Part Three: *Books XV-XIX: Generation of Animals*, ed. by A. van Oppenraaij, Leiden/New York/Cologne 1992; Albertus Magnus *on Animals. A Medieval Summa Zoologica*, ed. and trsl. by K.F. Kitchell Jr and I.M. Resnick, Baltimore/London 1999. All translations are mine unless otherwise indicated.

¹⁷ For the dates of the different works in the *corpus Albertinum*, cf. *Zeittafel*, in *Albertus Magnus und sein System der Wissenschaften*, ed. by Albertus-Magnus-Institut, Münster 2011, pp. 28-31.

model on the epigenesis of the animal soul in juxtaposition to and in the context of his absolute creationist model on the origin of the human soul¹⁸.

Perhaps the most general way in which Albert distinguishes animal nature from human nature evolves around what he takes to be their specific difference: humans are rational animals, whereas brutes are irrational animals. This standard Aristotelian distinction between animals and humans is even sharpened when Albert famously declares that humans do not differ just specifically from animals, but almost generically. Humans, we learn from his *De animalibus*, differ «in more than species from the brutes and they seem to have a certain difference in genus over them since they participate in animality itself in respect to a power which is different from that in other animals»¹⁹. Albert's overly optimistic view of the human difference here does not present us with a standard Aristotelian view, but it certainly suits his take on Aristotelianism that is deeply informed by his Christian commitments. In order to account, then, for the origin of such a generic difference of humans from animals, Albert initially resorted to the prevalent theological model of his times: absolute psychological creationism, as I call it²⁰. This model maintains not only that the rational human soul originates from God's *creatio ex nihilo*, but most importantly that it does so in its totality. Albert's commitment to this model in his early works runs deep, for in the first passage ever where he brings it to the forefront, he does not simply provide an account of the generic difference between humans and animals on its basis. Rather, he applies this model to a theological argument for the resurrection of the human body.

The [truth] of the human body²¹ is other than that of other bodies. For other bodies have their form caused by nature, just as the bodies of brutes, because, as the Philosopher says in his book *De animalibus*, the nutritive and sensitive [form] is caused

¹⁸ These early theological works roughly fall into two realms of systematic theology. On the one hand, they comprise the two moral theological treatises *De natura boni* and *De bono*. On the other, they comprise the five doctrinal treatises *De sacramentis* (sacramentology), *De incarnatione* (Christology), *De resurrectione* (Eschatology), *De IV coaequaevis* (theology of creation), and *De homine* (theological anthropology); cf. H. Anzulewicz, *The Systematic Theology of Albert the Great*, in *A Companion to Albert the Great. Theology, Philosophy, and the Sciences*, cit., pp. 15-67, here esp. pp. 38-57. These latter doctrinal treatises decidedly follow the lead of the contemporary theological *summae* and Peter Lombard's *Sententiae* in method and content. Covering important parts of creation as hierarchically ordered reality that stems from and strives towards God, these treatises proved highly responsive to Aristotelian insights, particularly with regard to the sublunary living realm of creation.

¹⁹ Albertus Magnus, *De animalibus* XX.2.6, ed. Stadler p. 1319.40-42; trsl. as in *Albertus Magnus on Animals. A Medieval Summa Zoologica*, cit., p. 1407.88: «Plus igitur quam specie differt a brutis, et videtur ad ipsa quamdam habere generis differentiam, cum ipsam animalitatem secundum differentem potestatem ab aliis animalibus participet». For an illuminating secondary source on this matter, cf. also G. Guldentops, *Albert the Great's Zoological Anthropocentrism*, in «Il mondo animale, Micrologus», VIII, 2000, pp. 217-235.

²⁰ Concerning the traditional model of *creatio ex nihilo* as, for instance, in Clement of Alexandria, cf. H. Karpp, *Probleme altchristlicher Anthropologie. Biblische Anthropologie und philosophische Psychologie bei den Kirchenvätern des dritten Jahrhunderts*, Gütersloh 1950, pp. 92-131.

²¹ This is the narrower topic of the question, cf. Albertus Magnus, *De resurrectione* 1.6, ed. Coloniensis 26, p. 248.39; 1.6.5, ed. Coloniensis 26, p. 251.23-24.

by the nature in the semen. But the substantial form of the human body is the rational soul, which is infused from the outside [*ab extrinseco*] by the creator and which does not come from nature [*a natura*], as the Philosopher says in the same work. This is why from the conjunction of the body to this [form] another disposition [*potentia*] can be caused [in this body] that is not perfected by nature but by the creator²².

Albert's main point in this passage from his *De resurrectione* (before 1244) is that due to the distinctive origin of the human rational soul from divine *creatio ex nihilo*, the human body possesses a distinctive corporeal disposition for divine perfection. This distinctive disposition thus serves Albert as the proximate explanatory principle for human corporeal resurrection, whereas the human soul's origin from God constitutes the remote explanatory principle. At the same time, though, Albert sharply contrasts this creationist human psychological origin with a philosophical model of animal psychological origin. Since the animal soul arises from the natural cause of the male semen, the animal is incapable of possessing a distinctive corporeal disposition for divine perfection. This is why it is not subject to corporeal resurrection and why its psychological as well as corporeal teleology lies in the realm of nature.

In order to strengthen his argument for the different corporeal teleologies of humans and animals Albert even goes so far as to draw on Aristotle's famous distinction between *ab extrinseco* origin and *a natura* origin from his *De animalibus*: the human rational soul comes «*ab extrinseco* from the creator», whereas the animal sensitive soul comes «*a natura*». Yet Aristotle himself would neither have subscribed to Albert's absolute psychological creationism for the human soul, as Albert takes for granted here, nor to a resulting corporeal disposition for the resurrection in virtue of this creation. Instead, the Stagirite reserved extrinsic causality for the rational part of the human soul alone²³.

To make his argument work fully, though, Albert implicitly grounds it on two additional systematic commitments. On the one hand, he grounds it on the famous Neoplatonic scheme of egress-regress and, on the other, on the principle of substantial union of the composite. The Neoplatonic egress-regress scheme commonly maintains that any being that originates from God directly must — in some way or another — return to Him directly. Consequently, since the human soul originates directly from God's *creatio ex nihilo*, it must return to Him directly upon the corruption of the human body, and in Albert's eyes

²² *Ibid.* ed. Coloniensis 26, p. 252.8-19: «Ad aliud dicendum, quod aliud est de humano corpore quam de aliis corporibus. Alia enim corpora habent formam causatam a natura sicut corpora brutorum; anima enim vegetabilis et sensibilis causantur a natura, ut dicit Philosophus in libro De animalibus, quae est in semine. Sed forma substantialis corporis humani est anima rationalis, quae ingreditur ab extrinseco per creatorem, et non est a natura, ut dicit ibidem Philosophus. Et ideo ex coniunctione corporis ad illam potest causari aliqua potentia quae non completur per naturam, sed per creatorem». Cf. also Albertus Magnus, *De homine*, ed. Coloniensis 27/2, pp. 565.47-566.39.

²³ Cf. Aristotle, *Gen. An.* II 3, 736a27-29; Aristotle, *De animalibus* XVI 3, *Michael Scot's Arabic-Latin Translation*, ed. van Oppenraaij, p. 74. Ps.-Aristotle, *De causis proprietatum elementorum*, c. 1, Venetiis 1560, f. 281rA. Cf. also Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 73.11-34; p. 83.36-37.

it does so in the beatific vision and in affective union with God²⁴. Yet it should be noted that Albert's application of this egress-regress scheme in our passage here is overextended in scope. For not only does it include the human rational soul, which he indeed takes to be created *ex nihilo*, but also the human body. This body, however, as we learn from his somewhat later *De homine*, originates naturally and not by creation²⁵.

Albert's second systematic grounds concern the substantial union of a composite nature, which entails that the soul of any living being be the essential form of the body. Substantial union of the composite is ensured when the soul, by its very essence, is present in the whole of the body and when it is the principle of life in the body²⁶. In Albert's eyes, substantial union of the composite does not only seem to apply to humans in this life, but has also deep consequences for the next life. For it is only on the basis of such a substantial union with the incorruptible human soul that the human body possesses its specific human corporeal disposition for the resurrection. Indeed, no other body — be it plant or animal — would receive such a disposition from its nutritive soul or sensitive soul, simply because the rational soul is the only one capable of providing it to the body. In sum, then, Albert's argument for the human body's resurrection here implicitly relies on the Neoplatonic egress-regress scheme and on the presumption of substantial union of the composite human being. Explicitly, however, it turns on his earliest application of the theological model of absolute psychological creationism²⁷.

The more we progress in Albert's early theological works, the more traction his model of absolute psychological creationism gains for wider systematic contexts. In another early discussion on the origin of the human soul in his *Quaestio de origine animae* (before 1244), Albert states explicitly that *creatio ex nihilo* applies to its lower parts of the *anima sensitiva* and *anima nutritiva* as

²⁴ Cf. for instance, Albertus Magnus, *Quaestio de visione Dei in patria*, ed. Coloniensis 25/2, pp. 96.8-101.59; *De resurrectione* 4.1.9, 3; 4.1.11, 1 ad 2, ed. Coloniensis 26, p. 331.27-44; p. 333.49-59; *Commentarii in IV Sententiarum* 49.6, ed. Borgnet 30, p. 676B.

²⁵ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 137.62-70: «Sine praeiudicio aliorum non discedimus a nostra sententia, quam supra posuimus in quaestione de creatione, scilicet quod formae omnes praeter animam rationalem potentia sunt in ipsa materia generabilium et corruptibilium, et educuntur per actionem calidi et frigidi et humidi et sicci commixtionem. De anima autem rationali sola dicimus quod ipsa infundendo creatur et creando infunditur a prima causa, quae est deus gloriosus et sublimis». *Ibid.* pp. 141.71-142.5: «Ad id vero quod obicitur specialiter de anima et probatur quod sit in semine, dicimus quod concedimus duo prima quae probant semen esse causam efficientem generationis. Sed dicimus quod secus est in anima hominis; haec enim secundum principalem partem sui absoluta est a materia et non est alicuius partis corporis actus. Et ideo cum operatio ipsius non dependeat a corpore, principium non potest habere a virtutibus corporalibus, sicut expresse probatur in xvi de animalibus; et ideo anima rationalis dicitur divina, quae sola egrediatur ab extrinseco, scilicet a deo create. Unde virtus quae est in semine hominis, non est nisi formativa et generativa organorum».

²⁶ Cf. K. Krause and H. Anzulewicz, *Albert the Great on totalitas: Remarks concerning the concept and its hermeneutical significance*, Conference Paper at «Totalitas. Aux origines d'un concept», Université de Caen, 4.-5. February 2015, to be published.

²⁷ Cf. also Albertus Magnus, *De homine*, ed. Coloniensis 27/2, pp. 86.41-88.27; pp. 570-572; *Commentarii in II Sententiarum* 1.12, ed. Borgnet 27, p. 34B.

well. At the same time, though, he contrasts this theological model with his take on alternative models of the soul's origin: an alternative theological model of traducianism and the new Aristotelian model of epigenesis. Yet Albert rejects both models as insufficient in their explanatory value for the origin of the human soul, since neither of them can account for the substantial union of all its parts.

We say that the rational soul does not originate from material transfer [*ex traduce*], but, according to the authority of the Psalm, it alone is individually created by God. For to come to be from material transfer can be said in two ways. Either that it is divided by itself from the generator, be it that its part is in act according to certain thinkers, be it that its entirety is in potency according to Aristotle. And in this way the body originates from material transfer. Or [to come to be] is said from material transfer inasmuch as it is divided by another division. And in this way, the vegetative and the sensitive soul in other beings can be said to be from material transfer. For they are forms whose being and operation are in matter and therefore they are divided for the division of the body as is evident from plants and annular animals. In these the soul is one in act and many in potency and many [of them] are brought in act by the division of the body, since, on account of the distinction of their organs, the part is disposed to be perfected by the soul just like the whole. But the rational soul is not a form impressed in corporeal matter, because it does not rely on corporeal instruments in its operation. And therefore it originates from neither of the two ways of material transfer [as outlined above]. Rather, it is created and similarly the sensitive and the vegetative soul of the human being [are created], which are one in substance with the rational soul²⁸.

In this passage Albert unambiguously draws a sharp division between two general models of the soul's origin. While the former model relies on the idea of a concomitant transmission of the soul from the parents to the offspring in the act of natural transference, the latter relies on the by now familiar idea of absolute psychological creation. In Albert's eyes, however, natural transference can be construed in different ways: according to the first division, it may be conceived of as actual transmission of the father's soul to his offspring — the traditional traducianist view as, for instance, propounded by Augustine, following Tertullian and other Church Fathers²⁹. In contrast, it may also be

²⁸ Albertus Magnus, *Quaestio de origine animae*, ed. Coloniensis 25/2, pp. 216.45-217.3: «Dicimus, quod anima rationalis non est ex traduce, sed unaquaeque creatur a deo singillatim secundum auctoritatem psalmi. Esse enim ex traduce dicitur duobus modis: aut quod per se dividitur a generante, sive sit actu pars secundum quosdam, sive potentia totum secundum Aristotelem; et hoc modo corpus est ex traduce. Dicitur etiam ex traduce, quod dividitur diviso alio; et hoc modo vegetabilis et sensibilis anima in aliis potest esse ex traduce; sunt enim formae, quarum esse et operatio est in materia, et ideo dividuntur ad divisionem corporis, ut patet in plantis et in animalibus anulosis, in quibus est anima una actu et plures in potentia, et efficiuntur plures actu per divisionem corporis, eo quod propter distinctionem organorum pars est disposita perfici ab anima sicut totum. Anima vero rationalis non est forma impressa in materia corporali, cum in sua operatione non indigeat instrumentis corporalibus; et ideo neutro modo traducitur, sed creatur, et similiter sensitiva et vegetativa hominis, quae sunt una substantia cum ipsa».

²⁹ Cf. H. Karpp, *Probleme altchristlicher Anthropologie*, cit., pp. 59-67. J.M. Da Cruz Pontes, *Le problème de l'origine de l'âme de la patristique à la solution thomiste*, in «Recherches de théologie ancienne et médiévale», XXXI, 1964, pp. 175-229; here esp. pp. 175-178 and pp. 184-188.

conceived of as potential propagation of the father's essential characteristics to his offspring whence the gradual formation of a new being comes about — the new epigenetic model as presented by Aristotle and the Peripatetic tradition. In his later works, Albert will frequently refer to this potential propagation by the well-known terms of *inchoatio* or *virtus formativa*³⁰. According to the second division, material transference of the soul may be conceived of as transference by means of corporeal division, as is done by certain plants and animals. Still, it is important to note that Albert does not endorse either kind of natural transference for the human soul here. In fact, he rejects traducianism as a heretical theological model throughout his theological works³¹, he limits the Aristotelian model of epigenesis to animals and plants in his early works³², and he no longer makes reference to the model of corporeal division for humans elsewhere in his works. Indeed, neither of these three divisions of natural transference is applicable to the human soul, as its intellectual operation is performed immaterially in Albert's eyes. It thus cannot substantially derive from a material cause, as is the case with plants and animals, but it must rather come from God's extrinsic causality. This causality, however, extends to the rational soul's nutritive and sensitive parts, too, and thus explicitly includes those parts of the human soul that are physically instantiated and physically operational. Albert's sharp division of the animal soul's origin from the human soul's creation, then, can be said to follow a sharp

³⁰ Albertus Magnus, *Liber de natura et origine animae* I.3, ed. Coloniensis 12, pp. 8.98-9.14: «Patet etiam, quod haec vegetabilis anima educitur ab interiori virtute seminis. Propter quod in sexto decimo libro de animalibus probavimus, quod est in semine, sicut artificis forma est in artificiato, quod iam formam artis incipit induere. Propter quod etiam quidam hanc animam ex traduce esse dixerunt, licet hoc omnino sit falsum. Ex traduce enim dicitur, quod sicut pars quaedam traducitur a toto aliquo, virtus autem formativa, quae inducit animam, non venit in semen sicut pars quaedam animae plantae, cuius est semen, sed potius sicut similitudo quaedam suarum virtutum. De his autem perfecte dictum est in nostro libro de animalibus quinto decimo, ubi de seminum natura in animalibus et plantis late disputatum est». *Ibid.* I.4, p. 10.31-34: «[...] anima sensibilis educitur ex materia suae generationis habente virtutem formativam ex assimilatione cum virtutibus membrorum generantium [...]». *Ibid.* I.5, p. 13.82-91: «Oportet autem scire, quod sicut in aliis ita etiam in homine inchoatio vegetativi est in materia et in esse primo substantiae animandae et inchoatio sensibilis est in vegetativo et inchoatio rationalis est in sensitivo, quia aliter homo constitutus, sicut ante probatum est, esset multa et non unum. Sed quia nihil horum fit nisi per virtutem intellectus et non ex materia aliqua efficitur, ideo terminus esse hominis ad similitudinem intellectus primi, qui divinus est, ex nulla materia fieri perhibetur».

³¹ Cf. Albertus Magnus, *Quaestio de origine animae*, ed. Coloniensis 25/2, pp. 215–218; *De homine*, ed. Coloniensis 27/2, p. 130.71-73: «Et hic occurrit illa disputatio, utrum anima sit ex traduce, quemadmodum dixit Apollinaris quidam haereticus [...]». Albert also rejects this model as against reason and philosophical authority, cf. Albertus Magnus, *Commentarii in II Sententiarum* 18.8, ed. Borgnet 27, pp. 324B-325A, esp. p. 324B: «Dicendum, quod secundum Catholicam fidem, et secundum Philosophos, nulla anima est ex traduce, nec plantae, nec bruti, neque hominis: et per errorem scientiae naturalis inductae sunt opiniones contrariae: dicunt enim quidam, quod materia spiritualis descenditur cum semine, ex qua fiunt anima bruti, et vegetabilis: et hoc numquam aliquis Philosophus sensit, sicut patet in libris eorum, Aristotelis in libris XV et XVI de *Animalibus*, et Avicennae qui exponit Aristotelis verba omnino per alium modum. Et similiter Averroes in libro quodam de *virtute formativa*». For a classic study on this topic, cf. B. Nardi, *La dottrina d'Alberto Magno sull'«inchoatio formae»*, in id., *Studi di filosofia medievale*, Rome 1979, pp. 69-101.

³² See above note 27.

divide between natural and divine causality. While the origin of plant and animal souls is explicable in terms of natural models of traducianism, epigenesis, or corporeal division, the origin of the human soul as a whole is only explicable in terms of a theological model of absolute psychological creationism. This divide along the lines of natural and divine causality, as is evident from the passage above³³, is corroborated by Albert's reference to the theological authority of the Psalm. Yet the passage, too, suggests another and more proximate motif for Albert's adherence to the theological model of absolute psychological creation: the substantial union of the human soul.

Over the course of his following early theological works, most prominently in his *De homine*³⁴, it is this substantial union of the human soul (apart from corporeal resurrection as we have seen above) which demands Albert's repeated insistence on the model of absolute psychological creation.

The rational soul (i.e. the soul of human beings) with all its powers (i.e. the vegetative, sensitive, and rational powers) is neither in the semen like in an efficient cause nor [is it in the semen] by its substance. Rather, it is created by God and infused into the body. For we maintain that in human beings there is one substance, which is the soul, and not three [substances]. And this why we cannot say that this substance is partly created by God with regards to its rational powers and partly educed from the substance of the semen with regard to its vegetative and sensitive powers. But we say that it is created by God in its totality and infused into the body. In contrast, we maintain for the souls of animals and plants that they originate in generation [and that they are] educed from the matter of the semen³⁵.

Clearly, the reason of the human soul's substantial union motivates Albert's systematic adherence to the theological model of absolute psychological

³³ See above note 30.

³⁴ Cf. for instance: Albertus Magnus, *De resurrectione* 1.3, ed. Coloniensis 26, p. 245.12-21; *De IV coaequaevis* 1.1.1 s.c. 3, ed. Borgnet 34, p. 309A; 4.24.2 ad 6, ed. Borgnet 34, p. 481A-B; 4.30.2, ed. Borgnet 34, pp. 500A-501B. Albert repeatedly draws on Aristotle's distinction between the human soul's origin *ab extrinseco* and the animal soul's origin *ab intrinseco* and consistently interprets it in terms of its absolute creation. At the same time, he draws of this principle of absolute distinct origin his *De IV coaequaevis* and *De homine* to account for a variety of matters: (1) for the intellectual mode of human knowing, cf. *De IV coaequaevis* 4.24.4 ad 6, ed. Borgnet 34, p. 481A-B; (2) for his justification of the very existence of the human soul, cf. *De homine*, ed. Coloniensis 27/2, p. 7.68-76; (3) for his defence of the substantial union of the human soul's nutritive, sensitive, and intellectual parts, cf. *De homine*, ed. Coloniensis 27/2, p. 141.11-18 as in the following note.

³⁵ *Ibid.*, ed. Coloniensis 27/2, p. 141.6-18: «Ad id quod quaeritur, utrum anima sit in semine, dicimus quod anima rationalis, hoc est anima hominis, cum omnibus potentiis suis, hoc est vegetabilibus et sensibilibus et rationabilibus, non est in semine sicut in effectivo neque per substantiam, sed creatur a deo et infunditur corpori. Nos enim tenemus quod in homine est una substantia, quae est anima, et non tres; et ideo non possumus dicere quod haec substantia in parte creetur a deo quantum ad rationales potentias, et in parte educatur ex substantia seminis quantum ad potentia vegetabiles et sensibiles, sed totam dicimus creati a deo et infundi corpori. Sed animas brutorum et vegetabilium ponimus per generationem educi ex materia seminis». Cf. *Ibid.* ed. Coloniensis 27/2, p. 86.24-29, ad 6; Aristotle, *Gen. An.* II 3, 736b8-29; Aristotle, *De animalibus* XVI 3, *Michael Scot's Arabic-Latin Translation*, ed. van Oppenraaij, pp. 73-74. For Albert's mature conception, cf. Albertus Magnus, *De animalibus* XVI.1.12, ed. Stadler, pp. 95.25-96.42.

creationism here. Since the specific nature of the rational soul does not allow for its origin from the matter of the semen, it must originate from the altogether different cause of God. Yet it must do so in its totality, including the lower parts of the sensitive and nutritive soul, since otherwise its substantial union cannot be ensured. Indeed, given that the human soul ought to be a substantially unified whole and not divided into three accidentally related and separate souls, it cannot originate in parts from generation and in other parts from creation. Rather, it must originate from creation alone.

To make this argument for the soul's substantial union work Albert yet again relies on an implicit assumption. This time, it is the assumption of numerical proportionality between cause and effect, according to which only a substantially unified cause can ensure the substantial union of its effect. In our passage, then, we see that the substantial union of the divine cause ensures the substantial union of the human soul. This suggests, on the one hand, that Albert here takes numerical proportionality between cause and effect to be the sufficient explanatory principle for the substantial union of the human soul. On the other hand, it shows why all three parts of the human soul, including its *anima nutritiva* and *anima sensitiva*, must be caused by God alone; did these lower parts of the soul originate from the material cause in the semen, the soul's substantial union would be at stake.

In short, Albert applies the theological model of absolute psychological creationism not only to account for the resurrection of the human body, as we have seen above, but also to account for the substantial union of the human soul. In so doing, he extends this model's scope of systematic application dramatically, now including not only the theological discipline of eschatology but also the much wider discipline of theological anthropology. Still, this model's extension in scope comes at a price: it is ultimately unable to draw on some of its most fundamental principles in a consistent way. Indeed, the most pressing inconsistency in this regard becomes apparent in Albert's application of the last principle we just reviewed, the principle of numerical proportionality between cause and effect. This principle, again, maintains that the substantial union of an effect is ensured by the substantial union of its cause. In the case of the human soul the substantial union of God ensures the substantial union of the soul. What remains unclear from this one-off application, however, is whether Albert considers this principle to be of universal application to his overall theological anthropology, or alternatively, whether he had good reasons to draw on it selectively only in the context of the substantial union of the human soul.

A context outside this application to the soul's substantial union seems to provide the answer. In this second context, Albert rejects the *dator formarum* model for the origin of the substantial form of any living being by drawing on precisely this principle of numerical proportionality between cause and effect. This time, however, he applies it to the substantial union of the composite being and not to the substantial union of the soul. Albert's initial presentation of this *dator formarum* model in an objection to the question of generation suggests

that the substantial form of any living being cannot arise from material causes (alone), but rather requires the immediate causality of the separate substance of the Agent Intellect, the *dator formarum*. The reason for this lies in the fact that «the same specific power does not at once produce something and make use of it. When, therefore, the soul of animals and plants is used by the organic body, it does not also produce [this organic body]»³⁶. As is immediately clear, this reason on behalf of the *dator formarum* model rests on the principle of numerical proportionality between a power and its operation: one specific power has one specific operation, but not two. If a natural power like the body thus uses its soul (that is, its substantial form), it cannot at the same time produce this soul. Consequently, the soul's production requires a different cause, which, according to Albert's presentation here, the proponents of the *dator formarum* model take to be the separate Agent Intellect.

In sharp contrast to these proponents, however, Albert himself rejects the *dator formarum* model on the basis of his own principle, namely that of numerical proportionality between cause and effect.

[A]s it is maintained in book VII of the *Metaphysics*, the same being in number cannot originate from two immediate agents, such that one brings about its form and the other its matter. [...] Nor can this [double agency] be maintained to bring about union. For if active and passive qualities were to produce the matter of composites in nature, and if the separate substances were to produce their substantial form, it would be impossible to attain one composite being from matter and form. And therefore we do not take the things to be true that were said about the giver of forms [*dator formarum*]³⁷.

In contrast to the guiding principle of the *dator formarum* model, according to which there must be numerical proportionality between a power and its operation, Albert's reply here is guided by the familiar principle of numerical proportionality between cause and effect. Albert's juxtaposition of principles is certainly no direct rebuttal of the *dator formarum* model, yet it clearly suggests a relative superiority of Albert's principle over that of the *dator formarum* model. Over and above numerical proportionality in power and operation, the substantial union of the composite living beings requires that there be no two immediate causes in their coming to be. The immediate causality of the transcendent Agent

³⁶ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 134.41-48: «[...] non est eiusdem virtutis in specie facere aliquid et uti eo. Cum igitur animae animalis et plantae sit uti corpore organico, non erit eiusdem facere ipsum; ergo anima non est in semine existens, ut faciat corpus organicum vel animam. Et istae rationes omnes sunt ad hoc quod necesse sit ponere datorem formarum, ut posuerunt Plato, Avicenna, Theodorus et sequaces eorum».

³⁷ *Ibid.*, ed. Coloniensis 27/2, p. 141.58-70: «Ad omnia illa quae obiciuntur pro Aristotele contra datorem formarum, in genere concedimus de plano. Sicut enim habetur in VII Primae Philosophiae, idem numero non potest esse a duobus agentibus immediatis, ita quod unum agat formam, alterum materiam ipsius, quia agentium separatorum per substantiam et actum separati sunt effectus per substantiam et actum. Non enim posset poni uniens; et ita si qualitates agentes et patientes facerent materiam compositorum in natura, et substantiae separatae facerent formam substantialem, non posset esse unum compositum ex materia et forma. Et ideo non credimus verum esse, quod dicitur de datore formarum».

Intellect in conjunction with the equally immediate causality of the active and passive qualities in matter would, in fact, inhibit the substantial union of any living being. The *dator formarum* model which proposes such immediate double causality ought thus to be rejected in Albert's eyes. As a consequence of this rejection, however, Albert's application of the principle of numerical proportionality between cause and effect can be identified to be extended in scope: this time, it does not only apply to the context of substantial union of the human soul, as we have seen above, but also to the context of substantial union of composite living beings.

Yet it is precisely this extended scope in application that represents a serious dilemma for Albert's theological model of absolute psychological creationism, which arises from his insistence on the human soul's *creatio ex nihilo* by God on the one hand, and the human body's origin from the male semen on the other³⁸. This insistence, as we can easily see, presents us with exactly the same double causality as the *dator formarum* model does: the immediate causality of God causing the human soul clearly works in conjunction with the equally immediate causality of the human semen causing the human body. Yet following Albert's extended application of the principle of numerical proportionality between cause and effect to composite living beings, such a two-fold immediate causality of God and the male semen cannot possibly result in substantial union of the composite human being.

As a consequence, so it seems, Albert's principle of numerical proportionality between cause and effect would thus either be inapplicable as an explanation for the substantial composition of human beings — in which case he would have to give reasons why they are the exception to the rule — or it would have to be abandoned to account for the substantial composition of all living beings altogether. Given that Albert has no such reasons to supply, it seems that the extended scope of this principle would equally affect his application to the union of the human soul, since the principle's application appears to be arbitrary. While the substantial union of the human soul cannot be accounted for without this principle, the substantial union of the composite human being cannot be accounted for on its grounds and yet this substantial union is fundamental for Albert's resurrection argument, as we have seen above. Consequently, it is here that we have arrived at the insoluble internal inconsistency of his theological model. The only choice for Albert to safeguard this model at this point seems simple. He has to somehow replace the principle of numerical proportionality between cause and effect as a basic explanatory principle for the origin of the human soul with a more sophisticated principle — a move that Albert was seemingly unable to make in his early theological works.

In sum, then, the theological model of absolute psychological creationism is clearly unable to draw on one of its most fundamental principles in a consistent way. Abandoning this principle clearly did not suit Albert in his early works— at least there seems to be no evidence for it. But it is quite probable that he

³⁸ Cf. note 27 and note 42.

developed an increasing awareness of the theological model's inconsistencies, giving him a strong systematic reason to eventually replace this model with the philosophically mixed model of epigenetic creation, as I call it. Albert's initial motivation in separating the sheep from the goats, that is, in accounting for the origin of the human soul from *creatio ex nihilo* by means of the model of absolute psychological creationism as opposed to drawing on the Aristotelian model of epigenesis, ended in stalemate. Further systematic inconsistencies across both models may have added momentum to Albert's eventual abandonment of the original theological model: the epigenesis of the animal *anima sensitiva* and *anima nutritiva* on the one hand and the creation *ex nihilo* of the human *anima sensitiva* and *anima nutritiva* on the other sit equally uneasy with systematic consistency, this time across the disciplines³⁹. The law of parsimony and Albert's neglect of it here can arguably be identified to have increased the systematic difficulties: why posit two different causes for a similar enough effect⁴⁰? Ultimately, though, the decisive impetus to overcome these systematic weaknesses came from the animals. More precisely, it came from Albert's early and decided espousal of Aristotle's model of epigenesis for explaining the origin of animal souls. For it is here that Albert found the key to systematic consistency in answering all the questions of substantial union of the soul and of the composite, to uniform and reasoned application of one's principles, and to their wide-ranging application across the disciplines. All these systematic criteria were desirable not only philosophically, but also theologically, since for Albert faith and reason never were opposite poles; they rather complemented, informed, and matched one another. Let us

³⁹ Cf. for instance Albert's remarks on the development of the lower parts of the soul in the following passage: Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 86.10-22: «Ad aliud dicendum, quod Philosophus non intendit dicere quod anima vegetabilis et sensibilis sint in semine sicut actus in potentia, sed sunt in ipso, ut ibidem dicit, ut artificium in artifice; nec intendit dicere quod anima vegetabilis sit ante sensibilem in homine tempore, sed quod prius manifestantur operationes eius. Et hoc nihil prohibet quod anima rationalis sit substantia una cum sensibili et vegetabili, et tamen prius tempore sint opera vegetabilis quam sensibilis, et sensibilis quam rationalis. Utrum autem anima vegetabilis et sensibilis sint in semine vel ex semine, et quomodo sint et quomodo non, quaeretur infra, cum disputabitur de potentia generativa».

⁴⁰ Similarly, according to the Aristotelian principle of teleology, it is imperative that a living being, even if it is potentially alive as is the semen, be oriented to its formal cause. This principle is often expressed in the phrase that «nature does nothing in vain». In the case of the animal semen, Albert seems to adhere to this principle: the formative power of the animal semen potentially contains not only the entire animal body, but also the entire animal soul with all its parts and faculties. The animal semen, then, can clearly be said to be oriented to its formal cause: in conjunction with the causality of the heavens, it is naturally capable of producing the animal soul as the first actuality of the living being. Yet in the case of the human semen, Albert repeatedly violates this principle, insisting that it is the human body alone which is contained in the formative power of the semen. Cf. Albertus Magnus, *De homine*, ed. Coloniensis 27/2, pp. 141.71-142.5, ad 33-34. The human soul, in contrast, is not potentially contained in the human semen, since, as we have seen, it is created by God *ex nihilo* in its entirety. Consequently, the human semen cannot be said to be oriented to its formal cause, at least not univocally, since it is not naturally capable of producing the human soul as the first actuality of the living being. There is, then, no teleology in the human semen that is naturally capable of the full production of the human being.

turn, therefore, to the model of epigenesis in Albert's early theological works and investigate it as it emerges.

3. A Dark Horse? The Animal Soul's Origin *ab intrinseco*

Albert entertained no doubts as to the consistency of the Aristotelian model of epigenesis for the origin of animals. Derived from Aristotle's *De generatione animalium* (a part of Michael Scot's Latin translation from the Arabic compilation of the *De animalibus*) and accompanied by insights from Avicenna and Averroes, Albert initially appropriated this model in loose knit fashion in his *De homine*⁴¹. Trusting its ability to consistently and truthfully explain the origin of animals as a gradual process, their substantial union as composites, and the substantial union of their souls, Albert first incorporated many of its insights into his theological anthropology.

A systematic reconstruction of Albert's early adoptions of the model of epigenesis exposes, almost on the spot, a striking peculiarity about its causal principles at work. In contrast to Albert's model of absolute psychological creationism for the human soul, which relied on (but ultimately failed to consistently adhere to) the principle of numerical proportionality between cause and effect, his model of animal epigenesis relies on a principle of an ordered combination of causes. At its heart stands the ordered combination of three different kinds of causes: (1) the generative power in the male semen and the generative matter of the menstrual blood, (2) the elemental qualities of heat and moisture as active causes, (3) and the transcendental power of the heavens⁴². These three ordered and combined causes that we can reconstruct from Albert's

⁴¹ On Averroes' account of the epigenesis of animate beings, cf. G. Freudenthal, *The Medieval Astrologization of Aristotle's Biology: Averroes on the Role of the Celestial Bodies in the Generation of Animate Beings*, in «Arabic Sciences and Philosophy», XII, 2002, pp. 111-137; R. Fontaine, *Averroes' Commentary on Aristotle's De Generatione Animalium and its Use in Two Thirteenth-Century Hebrew Encyclopedias*, in *Islamic Thought in the Middle Ages. Studies in Text, Transmission and Translation: in Honour of Hans Daiber*, ed. by A. Akasoy and W. Raven, Leiden-Boston 2008, pp. 489-502.

⁴² Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 139.26-43: «Ad aliud dicendum quod in veritate causae agentes et patientes in natura non sunt nisi qualitates primae in se vel in mixto, sed moventes causae sunt plures; motus enim caeli non est a talibus causis. Sed quia hoc non est ad propositum, dicimus quod formae substantiales sunt a qualitatibus primis agentibus et patientibus; licet enim calidum tantum sit agens, non tamen agit tantum in virtute calidi ignei, quia hoc est consumptivum, ut dicitur in libro de substantia orbis. Agit enim etiam cum virtute calidi caeli et cum virtute calidi animae, ut supra habitum est et expresse scribitur in libro *de animalibus* et in libro de substantia orbis, et virtute illius est inductivum formarum substantialium, et diversificatur in agendo secundum quod diversimode respicitur a lumine descendente a stellis. Diversitas autem descensus illius luminis causatur ex diversitate situs stellarum ex appropinquatione et elongatione earum ad invicem». *Ibid.*, ed. Coloniensis 27/2, p. 137.62-67: «Sine praeiudicio aliorum non discedimus a nostra sententia, quam supra posuimus in quaestione de creatione, scilicet quod formae omnes praeter animam rationalem potentia sunt in ipsa materia generabilium et corruptibilium, et educuntur per actionem calidi et frigidi et humidi et sicci commixtionem». *De IV coaequaevis* 1.1.6, ed. Borgnet 34, pp. 315B-316A.

epigenesis model ensure not only the substantial union of the composite animal, but also that of the animal soul. How exactly, though, do they achieve this?

In a nutshell, these combined causes achieve substantial union of the animal composite and the animal soul by suggesting a gradual process of their formative stages. Beginning in the generative power of the semen, which has its origin in the vegetative soul of the father, the epigenesis of the animal and its soul is shaped by the interplay of efficient and material principles. These principles, as Albert holds, are found in the male and the female. Both of them are required for the epigenesis of most animals, due to the highly differentiated composition of their bodies; exceptions are merely found in some species of fish⁴³. The male parent embodies the efficient principle of epigenesis, giving the generative power through its semen⁴⁴. The female parent embodies the material principle of epigenesis, providing what is required for the male semen to develop into an embryo and finally an animal⁴⁵. For Albert, then, the role of masculinity is to generate its own species from its own semen, whereas the role of femininity is to generate its own species in itself from the semen of another⁴⁶. This does not imply that the male semen encloses the father's soul or any of its parts. On the contrary, according to Albert's epigenetic view, the male semen contains the so-called «generative power». This is caused by the act of the father's soul and channelled through the testicles into the semen⁴⁷.

As Avicenna says in the last book of his *Book on the Soul*, the generative power emanates into the organ of generation from the soul that is in the whole body. From this [organ of generation], the power flows into the power of generation in the semen, «which generates its members according to each and every power congruent with it in act, such that each and every member be disposed to receiving its proper power, which

⁴³ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, pp. 128.72-129.12: «Sicut autem dicit Philosophus in X Metaphysicae, masculinum et femininum accidunt omnibus animalibus. Sed in libro De animalibus excipit quoddam genus piscis, in quo non est umquam visus masculus; et hoc necesse est contingere propter similitudinem partium illius piscis. Quando enim corpus animatum omnino est simile in partibus vel minimam habet diversitatem, tunc superfluum cibi ab ultima digestionem accipit virtutem ad proferendum tale corpus; et non est necesse, ut a virtute organi specialis recipiat aliquem influxum ultra hoc. Et ideo cum organa generationis influentia virtutem specialem superfluo quartae digestionis faciant distinctionem maris et feminae, non erit in tali animali distinctio sexus. Et ideo dicunt quidam philosophi et experimentatores quod illud genus piscis est anguilla, in qua numquam apparuit masculus vel femina».

⁴⁴ *Ibid.*, ed. Coloniensis 27/2, p. 137.21-23.32-33: «Dicit enim Aristoteles in XVI: 'Debet femina dare materiam et mas dare id quod creat. [...] Item, ibidem: 'Manifestum est quod materia est ex femina et principium motus est ex masculo'».

⁴⁵ *Ibid.*, ed. Coloniensis 27/2, p. 126.51-57: «Secundaria vero supponitur cum dicitur 'per attractionem aliorum corporum quae illi assimilatur'; illa enim est materia sanguinis menstrui et seminis mulieris, quae attrahitur a semine et commiscetur illi, ut sufficiat ad corporis quantitatem. Alia vero pars sanguinis menstrui derivatur ad mamillas ad nutrimentum quod praeparari debet generato».

⁴⁶ *Ibid.*, ed. Coloniensis 27/2, p. 127.26-31: «Praeterea, hoc patet ex diffinitione masculi et feminae, quae colliguntur ex Libro animalibus et ex principio Libri vegetabilium, hae scilicet, quod 'masculus est, qui generat in alio' suae speciei ex semine proprio, 'femina vero quae geneat in se' ex semine alterius suae speciei». *Ibid.* p. 129.13-15: «Ad aliud dicendum quod femina generat in se ex semine alio, quod est effectivum, sed tamen ex semine proprio, quod est materiale».

⁴⁷ Cf. also *Ibid.*, ed. Coloniensis 27/2, p. 126.39-47.

appears in it». Now, in accordance with this we say that the first generative power, which is a part of the vegetative soul, is in the generator. In animals it certainly has its location in a determinate organ for generation. [...] Yet in the semen, there is the generative power, caused by those things that are neither in the soul nor a part of the soul, even if it is brought about by the act of the soul⁴⁸.

Contrary, then, to preformationism—a competing philosophical model of generation according to which the father's soul or a part of the father's soul would be in the semen⁴⁹—Albert here adopts Avicenna's epigenetic principle of the generative power. Later he will come to call it *virtus formativa*⁵⁰. Yet already here he conceives of it as a power that is in the semen and that contains the efficient and operating potency (rather than as an act) by which it develops into a complete animal⁵¹. Oftentimes, Albert explains this generative power in the semen as derived from the father's soul with analogy of art: just as the artisan's art is found in the artefact, so is the father's soul in the male semen⁵². This virtual presence of the father's soul in the semen is what ensures the specific animal identity across the generations. A horse's generative power in the semen cannot bring forth but a horse. The act of generation originates in the father's soul, is then received in his seminal vessels whence it produces the generative power in the semen. The semen thus endowed is capable of operating and producing the generated animal⁵³, as emerges from Albert's adoption Avicenna's definition of the generative power.

⁴⁸ *Ibid.*, ed. Coloniensis 27/2, p. 128.43-58: «Sicut dicit Avicenna in ultimo libro Sexti de naturalibus, ab anima quae est in toto corpore, virtus generativa emanat in organum generationis; quae virtus influit semini virtutem generationis, 'quae generat membra secundum unamquamque virtutem congruam actioni illius, ita quod unumquodque membrum sit aptum ad recipiendum virtutem propriam, quae apparet in eo'. Et secundum hoc dicimus quod virtus generativa prima, quae est pars vegetabilis animae, est in generante. Et in animalibus quidem situm habet in determinato organo generationis; [...] Sed in semine est vis generativa, causata ab illa, quae nec anima est nec pars animae, licet actione animae operetur».

⁴⁹ Cf. L. Demaitre and A.A. Travill, *Human Embryology and Development in the Works of Albertus Magnus*, in *Albertus Magnus and the Sciences. Commemorative Essays 1980*, cit., p. 407 and p. 422, note 69. J.M. Da Cruz Pontes, *Le problème de l'origine de l'âme de la patristique à la solution thomiste*, cit., pp. 220-222.

⁵⁰ Cf. for instance Albertus Magnus, *De animalibus* XVI.1.4, ed. Stadler, p. 1073.17-31; *Liber de natura et origine animae* I.2, ed. Coloniensis p. 12.66-74. For an excellent paper on this matter, cf. also A. Takahashi, *Nature, Formative Power and Intellect in the Natural Philosophy of Albert the Great*, in «Early Science and Medicine», XIII, 2008, pp. 451-481.

⁵¹ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, pp. 137.70-138.3: «Dicimus etiam quod anima plantae et bruti sunt in semine potentia, non actu, et non potentia materiali tantum, sed potentia efficientis et operantis». *Ibid.*, ed. Coloniensis 27/2, p. 141.19-23: «Ad hoc autem quod quaeritur, utrum sint in semine vel non, dicimus quod sunt ibi per aliquem modum et per aliquem non. Sicut enim habetur in XVI De animalibus, non sunt ibi actu, sed sunt in potentia et potentia efficientis et materiae».

⁵² *Ibid.*, ed. Coloniensis 27/2, p. 141.35-36: «Et ideo dicit Philosophus quod anima est in semine sicut artificiatum in artifice».

⁵³ *Ibid.*, ed. Coloniensis 27/2, p. 126.39-47: «Virtutis enim genus supponitur per hoc quod dicit 'vis vegetabilis animae'. Actus autem eius supponitur dupliciter, scilicet per 'accipere' et per 'operari'. In generante enim accipit primo per attractionem ad vasa seminaria, quae attrahunt semen a toto corpore, et ab ipsis vasis descendit in ipsum vis generativa. Vis autem operans est in semine et non in organo aliquo, et illius est operatio eius quod nascitur».

The generative power is a power of the vegetative soul, which takes from the body of which it is part [something] similar to it in potency. And [it] operates in [this part of the body] through the attraction of other bodies which it assimilates to [the body], [and it operates] by generation and mixture, and it converts [the part] into a similitude of [the body] in act⁵⁴.

What emerges, too, from Avicenna's definition and Albert's subsequent interpretation thereof is that in the absence of the proper conditions and instrumental causes, the generative power in the male semen cannot begin the formation of the embryo. The proper conditions, we find in Albert elsewhere, comprise principally the woman's menstrual blood, the material principle of epigenesis. Its role is two-fold: on the one hand, it is to lay «a foundation for the quantity of the [embryonic] body» and, on the other hand, it is to feed the generated being through transferred nutrition to the breasts. The first role is particularly crucial for the formation of the embryo, since it is here that the menstrual blood is «attracted by the [male] semen and mixed with it» to form, in conjunction with the semen, the corporeal parts of the embryo⁵⁵.

Beside the proper conditions supplied by the woman's menstrual blood, the necessary instrumental causes for the generative power's action are found in the elemental qualities. These, as Albert insists repeatedly, are the proper instruments of the male and female powers, which is why they, too, fall into efficient and material causes. Heat plays the efficient causal role as the male semen's instrument, whereas moisture plays the material causal role as the menstrual blood's instrument⁵⁶. Still, physical heat in the semen can become active only in conjunction with the two other heats of the heavens and of the father's soul's heat⁵⁷. Indeed, when physical heat acts under the power of heavenly heat, Albert explains, «it brings forth the being of the form and the species». When it acts under the power of the soul's heat of the father, however, «it receives the informative and generative power for the organs from the generative power of the father»⁵⁸. Diversity in the activity of heat is primarily caused by the descending

⁵⁴ *Ibid.*, ed. Coloniensis 27/2, p. 126.7-13: «Ad primum ponatur diffinitio Avicennae in VI de Naturalibus, quae est haec: 'Generativa est vis vegetabilis animae accipiens de corpore in quo est partem illi similem in potentia et operatur in ea per attractionem aliorum corporum quae illi assimilant, generari et commisceri, et convertit eam in similitudinem illius in effectu'».

⁵⁵ Cf. note 46 and note 47. Cf. also *Ibid.*, ed. Coloniensis 27/2, p. 127.31-33: «[...] femina generans non descendit semen proprium ad hoc quod effective operetur conceptum».

⁵⁶ *Ibid.*, ed. Coloniensis 27/2, p. 128.65-72: «[...] dicendum quod semen est duplex, scilicet materiale et effectivum. Quod tamen effectivum pars est materiae secundum subiectum primum in quo salvatur. Et primum, scilicet materiale, descenditur a femina per attractum sanguinis menstrui vel alterius humoris, qui est loco eius; secundum autem, scilicet effectivum, descenditur a viro in omnibus animalibus, in quibus est masculus et femina».

⁵⁷ *Ibid.*, ed. Coloniensis 27/2, p. 139.30-43: «[...] dicimus quod formae substantiales sunt a qualitatibus primis agentibus et patientibus; licet enim calidum tantum sit agens, non tamen agit tantum in virtute calidi ignei, quia hoc est consumptivum, ut dicitur in libro De substantia orbis. Agit enim etiam cum virtute calidi caeli et cum virtute calidi animae, ut supra habitum est et expresse scribitur in libro De animalibus et in libro De substantia orbis, et virtute illius est inductivum formarum substantialium».

⁵⁸ *Ibid.*, ed. Coloniensis 27/2, p. 141.31-35: «in virtute caeli, secundum quam potest esse principium formae et speciei, et in virtute animae, secundum quod recipit a virtute generativa

light of the stars, varying itself in causality in accordance with the spatial relation among the stars⁵⁹. Albert's reference to this last cause illustrates his indebtedness to the Peripatetic tradition and its insistence on a combined causality of the spheres and intellects on the one hand and the physical powers in the semen and menstrual blood on the other⁶⁰. Apart from this diversity in the activity of the stars' heat, Albert also describes diversity in terms of the receptivity or disposition of matter. Since matter is disposed in many ways due to its difference in mixture and complexion, it is capable of receiving different kinds of forms. This is why the specific matter capable of receiving an animal form must not simply be receptive of a certain kind of mixture (as this would only result in minerals) or of a certain kind of imbalanced mixture and complexion (as this would result in plants). Rather, it must be receptive of a balanced state of complexion and only then can animals be generated⁶¹. Albert explains in more detail elsewhere that this kind of matter required for animal epigenesis is a kind of «moisture mixed in accordance with the complexion of the semen and with nature»⁶². Here, then, we see the interaction of the elemental qualities as instrumental causes with the male and female active and passive causes. Moisture, which is the instrumental

patris vim informativam et generativam organorum».

⁵⁹ *Ibid.*, ed. Coloniensis 27/2, p. 139.38-43: «et diversificatur in agendo secundum quod diversimode respicitur a lumine descendente a stellis. Diversitas autem descensus illius luminis causatur ex diversitate situs stellarum ex appropinquatione et elongatione earum ad invicem».

⁶⁰ Cf. for instance H. Davidson, *Alfarabi, Avicenna, and Averroes on Intellect*, Oxford 1992; H. Eichner, *Ibn Rushd's Middle Commentary and Alexander's Commentary in their relationship to the Arab commentary tradition on the De Generatione et corruptione*, in *Aristotele e Alessandro di Afrodisia nella tradizione araba. Atti del Colloquio La ricezione araba ed ebraica della filosofia e della scienza greche, Padova, 14-15 maggio 1999*, ed. by C. D'Ancona and G. Serra, Padua 2002, pp. 281-297; G. Freudenthal, *The Medieval Astrologization of Aristotle's Biology: Averroes on the Role of the Celestial Bodies in the Generation of Animate Beings*, cit., pp. 111-137; P. Carusi, *Génération, corruption et transmutation. Embryologie et cosmologie dans l'alchimie islamique au Xe siècle*, in *L'Alchimie et ses racines philosophiques. La tradition grecque et la tradition arabe*, ed. by C. Viano, Paris 2005, pp. 171-188; C. Genequand, *Ibn Rushd, Alexandre d'Aphrodise et le problème de la génération*, in *La lumière de l'intellect. La pensée scientifique et philosophique d'Averroès dans son temps*, ed. by A. Hasnawi, Louvain-Paris 2011, pp. 311-318; G. Freudenthal, *Averroes' Changing Mind on the Role of the Active Intellect in the Generation of Animate Beings*, in *La lumière de l'intellect. La pensée scientifique et philosophique d'Averroès dans son temps*, cit., pp. 319-328.

⁶¹ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 139.57-71: «Dico autem proportionem agentis et materiae, quia calidum et humidum moventia in generatione diversas accipiunt proportionem ad formas substantiales inducendas ex diversitate luminis descendentis a sublimi de stellis et ex diversitate materiae, quae quandoque commixtionem tantum nata est suscipere, et tunc generantur mineralia; quandoque autem commixtionem et complexionem, non tamen ad aequale, sed in qua dominatur substantia terrestri dura, et tunc generantur plantae; quandoque autem complexionem accedentem ad aequale, et tunc generantur animalia. Et sic etiam intelligitur, quod dicit Philosophus, quod omnis generatio est ex convenienti. Conveniens enim supponit proportionem agentis et materiae ad formam, quae inducitur».

⁶² *Ibid.*, ed. Coloniensis 27/2, p. 141.26-28: «[...] materia est humidum commixtum secundum complexionem seminis et naturam». *Ibid.*, ed. Coloniensis 27/2, p. 126.47-51: «Materia vero etiam duplex supponitur, scilicet principalis quae profundatur in membris radicalibus, et hoc est humidum quod est in substantia seminis, et supponitur per hoc quod dicitur 'partem corporis similem illi in potentia'».

cause from the female passive principle receives the complexion of the semen and in conjunction with all other natural causes brings forth the embryo.

Still, the combined interaction of all these causes in epigenesis does not occur at an instant but rather forms the animal gradually through a number of developmental stages. First, as we have seen, is the formation of the semen and its generative power from the father's soul. This semen, then, carries in its generative power all the nutrition whence it is able to form all corporeal organs of the animal body⁶³. The first generated part of this corporeal formation is, as Albert maintains, the heart⁶⁴. From this principal organ all other corporeal organs and parts are successively formed, beginning with the superior members of the body and terminating in its inferior members⁶⁵. Yet simultaneously with the formation of the heart as the first corporeal organ, the nutritive soul, or rather a proto-nutritive soul comes into being (*anima cibativa*). This proto-nutritive soul is not the soul as form of the animal, but rather a simple physiological soul instantiated in the blood⁶⁶ and presupposed for all life as its first act⁶⁷. It long precedes the development of the sensitive soul, which ultimately constitutes the substantial form of animals⁶⁸. Any specific sensitive soul, however, requires first the formation of the sensitive organs, and second the ultimate perfective stage of specific determination⁶⁹. All of these are ultimately sustained by the generative

⁶³ *Ibid.*, ed. Coloniensis 27/2, p. 103.61-63: «[...] in XVI *De animalibus* dicit Philosophus quod virtus informativa et generativa, quae est in semine, trahit in se nutrimentum, ex quo formet organa».

⁶⁴ *Ibid.*, ed. Coloniensis 27/2, p. 49.37-41: «[...] sicut dicit Aristoteles in XVI *De animalibus*, primo generatur cor et ex corde producuntur omnia membra animalis consequenter, et ideo etiam diriguntur ad ipsum per colligationes nervorum et venarum et arteriarum».

⁶⁵ *Ibid.*, ed. Coloniensis 27/2, p. 142.15-19: «[...] sicut ipse dicit in libro *De animalibus*, primo in generatione formantur membra superiora post cor et postea inferiora, et propter hoc in primis quinque mensibus magnus est fluxus nutrimenti in superiora attracti per virtutem formativam, quae est in semine».

⁶⁶ *Ibid.*, ed. Coloniensis 27/1, p. 7.56-61: «Quod autem dicitur in Deuteronomio de brutis quod 'sanguis est eis pro anima', intelligitur quod primi actus animae quoad sua obiecta fundantur in sanguine, secundum quod sanguis est, vel alius humor illi respondens, 'ultimum nutrimentum', ut dicit Philosophus in *Animalibus*». Cf. Aristotle, *Part. An.* II 3, 650a34; *De animalibus* XII 3, *Michael Scot's Arabic-Latin Translation*, ed. van Oppenraaij, p. 49. For Albert's mature conception, cf. Albertus Magnus, *De animalibus* XII.2.1, ed. Stadler, p. 837.6-27.

⁶⁷ Albertus Magnus *De homine*, ed. Coloniensis 27/2, p. 37.26-29: «Sed nutritiva semper nutrit, et propter hoc animata tamdiu vivunt, quamdiu possunt accipere nutrimentum, ut dicit Philosophus». Cf. also Aristotle, *De anima* II 2, 413a30-31. Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 17.40-43: «Ad aliud dicendum quod nutritiva supponitur in vita, quia nutrire est primus actus, secundum quem dicitur vivere in corpore animato, ut habetur in xvi de animalibus». Cf. Aristotle, *Gen. An.* II 3, 736b8-13; *De animalibus* XVI 3, *Michael Scot's Arabic-Latin Translation*, ed. van Oppenraaij, p. 73. For Albert's mature conception, cf. Albertus Magnus, *De animalibus* XVI.1.12, ed. Stadler, p. 1095.4-15.

⁶⁸ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 43.41-43: «Secunda scribitur in XVI *De animalibus*, ubi dicitur quod embryonibus inest anima vegetabilis propter accceptionem nutrimenti ante sensum et rationem». Cf. Aristotle, *Gen. An.* II.3, 736a32-b27; *De animalibus* XVI.3, *Michael Scot's Arabic-Latin Translation*, ed. van Oppenraaij, pp. 72-74. For Albert's mature conception, cf. Albertus Magnus, *De animalibus* XVI.1.10; XVI.1.12, ed. Stadler, pp. 1090.8-1091.33; pp. 1095.4-1096.29.

⁶⁹ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 82.57-65: «Ex eo quod diximus in libro *De anima*, sciet qui voluerit quod necessario erit in concepto prius anima cibativa, et tunc

power of the male in the semen⁷⁰. The final intention present in the generative power of the semen, then, is the educed specific form and with it the completely formed animal⁷¹.

In sum, then, Albert's model of animal epigenesis as incorporated into his early theological anthropology in his *De homine* decidedly follows Aristotle and the Peripatetic tradition. At its bare bones, this model of epigenesis rests on the principles of a gradual process of formative stages on the one hand and of ordered causal combination on the other. The generative power in the male semen acts for the development of a full animal, relying on the proper conditions and nutrition provided by the female menstrual blood, reinforced by the instrumental causality of the active elemental qualities of heat and moisture, and influenced by the heavenly stars⁷².

Most remarkable about Albert's early adoptions of this model of epigenesis is, however, that he nowhere criticises it in its applicability to animals. Nowhere do we find him doubt its systematic applicability, internal consistency, and truth. Before his *De homine*, the model of epigenesis played no important role for Albert. Questions about the human soul and about its absolute creation ruled the scene. The advent of epigenesis threw this traditional theological model into contradictions. Questions like the beginning of human life, the requirement of a proto-nutritive soul for it, the development of the human sensitive soul and its corporeal instantiation all challenged this old model's truth for the human soul. Emerging as a dark horse in Albert's *De homine*, the model of epigenesis stimulated Albert's modification of his model of *creatio ex nihilo* for the human soul. Slowly but surely, the new model's universal explanatory value, its internal consistency, and its comprehensive scope of application contributed to finding a suitably consistent model for the human soul's origin—the model of epigenetic creationism, which Albert confidently presented in his mature works.

erit in eo anima sensibilis, per quam dicitur animal. Et non erit animal et vivum simul neque equus et animal, sed complementum erit in ultimo, quia quodlibet complementum habet proprium suae generationis⁷. Ex hoc accipitur quod vegetabile et sensibile praecedunt se invicem tempore in bruto».

⁷⁰ *Ibid.*, ed. Coloniensis 27/2, p. 137.27-31: «(44) Item, ibidem: 'Sustentatio embryonis erit ex virtute maris, quae est in semine. (45) Item, ibidem: 'Non tantum sensui, sed etiam rationi manifestum est, quoniam conceptum sustentatur ex semine maris». Aristotle, *Gen. An.* II 4, 739a17; 740a5-6; *De animalibus* XVI 4, *Michael Scot's Arabic-Latin Translation*, ed. van Oopenraaij, p. 82, p. 84. For Albert's mature conception, cf. Albertus Magnus, *De animalibus* XVI.1.15, ed. Stadler, p. 1106.8-10; *Ibid.* XVI.2.1, p. 1115.6-13.

⁷¹ Albertus Magnus, *De homine*, ed. Coloniensis 27/2, p. 126.57-62: «Similiter duplex finis est: Per hoc enim quod dicitur 'generari', tangitur figuratio corporis secundum lineamenta membrorum; per hoc vero quod dicitur 'in similitudinem illius in effectum', tangitur finis ultimus, qui est finis intentionis, et est inductio formae specificae in eo quod generatur».

⁷² Cf. Albertus Magnus, *Commentarii in II Sententiarum* 2.12, ed. Borgnet 27, p. 34A-B; cf. also note 44.

4. Killing Three Birds with One Stone: Animals, Humans, Epigenesis, and creatio ex nihilo

However innovative the application of the Aristotelian model of epigenesis for the origin of humans may appear in Albert's mature *Liber de natura et origine animae* (after 1258)⁷³, it offered the solution to the deep inconsistencies of the model of absolute creationism. In his early work of the *De homine*, Albert must have realised that animals and humans are profoundly similar in their physical nature on the one hand, and in their nutritive and sensitive souls on the other. And yet, due to the rational human soul, they are almost generically different, even with regard to their psycho-physiological make-up⁷⁴. Integrating the reality of these similarities and differences into one explanatory model of epigenetic creationism, Albert finally answered the questions of substantial union of the human soul and of the human composite consistently.

At the beginning of his *Liber de natura et origine animae*, Albert resorted to a *reductio ad absurdum* argument, according to which no material cause is capable of producing the effect of an intellectual soul, a substantial form that operates independently of the body⁷⁵. Systematically speaking, this argument justified him in subsuming the intellectual soul's origin to a distinctive *formal* causality of the first cause. This distinctive causality, however, is not *contra naturam*, but rather more internal to nature than any other causality. The principle of *opus naturae est opus intelligentiae* explains why⁷⁶.

It should also be known from what was said before that the substance that is the soul of humans derives partly from the inside [*ab intrinseco*] and enters partly from the outside [*ab extrinseco*]. This is the case because although the vegetative and sensitive [parts of the soul] in humans are educed from matter by the formative power, which is in the drop of the mother and father, this formative power would not have educed them in this way (as they are powers of the rational soul and forms and substances

⁷³ For the illustrious history of the *Liber de natura et origine animae*, first as a part of Albert's *De animalibus*, later as a work in its own right, cf. H. Anzulewicz, *Einleitung, in Albertus Magnus. Über die Natur und den Ursprung der Seele*, ed. and trsl. by id., Freiburg-Basel-Wien 2006, pp. 9-34, esp. pp. 16-23.

⁷⁴ Cf. note 21.

⁷⁵ Albertus Magnus, *Liber de natura et origine animae* I.5, ed. Coloniensis 12, p. 13.25-42: «Ex dictis autem elucescit [...] quod intellectus in animae rationalis natura ingreditur in conceptum ab extrinseco non ita, quod intellectus primus causet ipsum extra naturae opus, sed quia educit eum de luce sua et non de aliquo materialium principiorum. Et si esset de aliquo materialium principiorum, oporteret, quod speciale semen haberet praeter semen maris et feminae, eo quod semen feminae habet in se vegetativum et semen maris habet in se sensitivum in potentia, et neutrum horum sufficit ad intellectum et rationem. Nec potest habere semen, in quo sit in potentia; omnis enim virtus, quae est in semine, sive sit animalis sive caelestis sive elementalium aut mixtionis elementorum, virtus est operans in corpore nec educere potest formam, nisi quae est actus corporis, sicut iam dictum est».

⁷⁶ *Ibid.*, I.1, ed. Coloniensis 12, p. 3.29-34.43-45: «Incipientes igitur a generatione animae accipimus propositionem, quam saepe probavimus, quod omne opus naturae est opus intelligentiae. In omni autem opere quod intelligentia motu corporis exercet, necesse est actum corporis esse rectum et informatum forma intelligentiae corpus illud moventis. [...] Igitur omne opus naturae est ad aliquam formam intelligentiae, quae primus et universalis motor est in tota natura».

of the intellect), unless inasmuch as this formative power is moved and informed by the universal intellect, which is the mover in the work of generation. And this is why the ultimate perfection, which is the intellectual form, does not derive through an instrument or from matter, but it rather flows from the pure and unmixed intellect of the first cause by its light. In accordance with this it is also said that God creates the soul [and does] not [educate it] from something that is predisposed. And in this way the intellect is introduced into the embryo from outside matter, but [it is not introduced there] from an extrinsic agent, because the intellect, which is the author of nature, is not extrinsic to nature, except in this way that it is said to be something extrinsic to the things that it is separate from them by its being and not mixed with them. But in this way the universal agent of the separate intellect is not distant from the generated things by position and place, because it is more intimate to the natural things than any principle of nature. For, these principles of nature act only and can only act inasmuch as they are moved and informed by it⁷⁷.

With this new model of epigenetic creationism, Albert achieved a remarkable systematic consistency not only between the origin of the human soul and the composite human being, but most importantly between the origin of human and animal souls⁷⁸. On the side of the human soul's origin, all that comes directly «from the outside» is the intellectual part of the soul. Here, we find the culmination of the work of the intelligence—the unmediated formal causality of the first cause in nature accounted for by the light metaphor. The *anima sensitiva* and *anima nutritiva* of humans are both on the same causal level as the complete animal soul. They are derived from the formative power of the male semen and the proper conditions of the menstrual blood—the mediated, efficient-formal causality of the secondary causes in nature: «just like in other [living beings] it is equally the case in humans [that] the beginning [*incohatio*] of the vegetative soul is in matter and in the first being of the substance that is to be animated. Similarly, the beginning of the sensitive soul is in the vegetative soul

⁷⁷ *Ibid.*, I.5, ed. Coloniensis 12, p. 14.14-40: «Ostensum est etiam per antedicta, quod substantia illa quae est anima hominis, partim est ab intrinseco et partim ab extrinseco ingrediens, quia licet vegetativum et sensitivum in homine de materia educantur virtute formativa, quae est in gutta matris et patris, tamen haec formativa non educeret eas hoc modo, prout sunt potentiae rationalis et intellectualis formae et substantiae, nisi secundum quod ipsa formativa movetur informata ab intellectu universaliter movente in opere generationis. Et ideo complementum ultimum, quod est intellectualis formae, non per instrumentum neque ex materia, sed per suam lucem influit intellectus primae causae purus et immixtus. Propter quod etiam ex non praeiacenti aliquo creare rationalem deus dicitur animam; et hoc modo intellectus ingreditur in embryonem ab extrinseco materiae, non tamen ab extrinseco agente, quia intellectus, qui est auctor naturae, non est extrinsecus naturae, nisi hoc modo quo extrinsecum rebus dicitur, quod est separatum ab eis per esse et non commixtum cum eis; sed hoc modo a rebus generatis separatus intellectus universaliter agens non distat ab eis per situm et locum, cum potius sit intimior rebus naturalibus quam aliqua naturae principia nec principia naturae aliquid agunt vel agere possunt, nisi mota ab ipso et informata per ipsum».

⁷⁸ The focus of my argument here is on modifications and reconsiderations that concern Albert's own system of thought. It is not to say, though, that this systematic consistency was not previously achieved by his Peripatetic sources and that Albert did something totally new here in comparison to them.

and the beginning of the rational soul is in the sensitive»⁷⁹. Just as the complete animal soul, the human *anima nutritiva* and *anima sensitiva* are subject to a gradual process of formation. They develop in consecutive stages in accordance with the physiological development of the embryo. This does not imply that Albert considered these *animae* to be subsistent souls properly speaking⁸⁰. Rather, he took them to be forming powers, soul potentially and not actually, similar to the *virtus formativa* in the male semen⁸¹. As such, they lead up to the final influx of the intellectual soul, the substantial form of the human being that is derived immediately from the first cause⁸². Similarly, just as in animal epigenesis, the union of the human soul is ensured by its gradual formation through developmental stages toward its substantial *telos*, the rational soul. The combined and ordered causality of the work of the intelligence, the work of formative power in the semen, and the instrumental causes of the female and the elemental qualities brings about this substantial union. On the side of the animal soul's origin, causality and explanatory value of the model of epigenesis remain stable⁸³.

In short, then, epigenesis, animation, ensoulment, the union of the substantial form, and the union of the composite being are now all covered under one fundamental explanatory model for humans and animals alike. Thanks to Albert's decisive insight into the principle of combined causality and

⁷⁹ *Ibid.*, ed. Coloniensis 12, p. 13.82-87: «Oportet autem scire, quod sicut in aliis ita etiam in homine incohatio vegetativi est in materia et in esse primo substantiae animandae et incohatio sensibilis est in vegetativo et incohatio rationalis est in sensitivo, quia aliter homo constitutus, sicut ante probatum est, esset multa et non unum». Albert thus changes his view on the point of efficient causality in the human male semen and grants it the same scope of efficient causality as the animal male semen. Cf. also Albertus Magnus, *De animalibus* XVI.1.12 65, ed. Stadler p. 1095; Albertus Magnus, *Liber de natura et origine animae* I.5, ed. Coloniensis 12, p. 13.25-42.

⁸⁰ Albert's student, Thomas Aquinas, will come to share his fundamental insights on the development of the human soul's lower parts through time, but defend a view of successive replacement of forms. This differs from Albert's model of a gradual development through the *virtus formativa* according to which the development of powers occurs before the human soul as substantial form is infused. Aquinas, in contrast, took the *anima nutritiva* to be the first form of the human embryo and the *anima sensitiva* to replace this lower form once the embryo is sufficiently developed. Last but not least arrives the *anima rationalis*, created *ex nihilo*, to replace the lower soul of the *anima sensitiva*. In Aquinas' eyes, each higher form can perform all operations of the lower form in addition to its own specific operations. Cf. for instance, Thomas Aquinas, *Summa Theologiae* I.76.3-5; I.90.3; I.118.2, ed. Leonina 5, pp. 220-228; 387-388; 566-567. Secondary sources, cf., for instance, H. Seidl, *Zur Geistseele im menschlichen Embryo nach Aristoteles, Albert des Großen und Thomas von Aquin. Ein Diskussionsbeitrag*, in «Salzburger Jahrbuch für Philosophie», XXXI, 1986, pp. 37-63; M.A. Taylor, *Human Generation in the Thought of Thomas Aquinas: A Case Study on the Role of Biological Fact in Theological Science*, unpubl. dissertation, Catholic University of America 1982; J.F. Silva, *Potentially Human? Aquinas on Aristotle on Human Generation*, in «British Journal for the History of Philosophy», XXIII, 2015, pp. 3-21.

⁸¹ Cf. Albertus Magnus, *Liber de natura et origine animae* I.6, ed. Coloniensis 12, p. 14.57-72.

⁸² For a brief overview over these matters in Albert's mature works, including his *De anima*, *De animalibus*, and *Liber de natura et origine animae*, cf. H. Seidl, *Zur Geistseele im menschlichen Embryo nach Aristoteles, Albert des Großen und Thomas von Aquin*, cit., pp. 46-50.

⁸³ Cf. note 3 for references on Albert's mature model of animal epigenesis.

of the overarching principle of *opus naturae est opus intelligentiae*, the model of epigenesis—originally applied to animal and plant generation only—could be extended. The incorporation of formal causality for the rational soul's origin widens the scope of its explanatory value for the origin of humans. In this way, Albert does not just kill two birds with one stone but three: he preserves the systematic consistency for each model separately—the epigenesis of animals and epigenetic creationism of humans—and equally across these models of origin.

In sum, then, we say that every form of nature is a form that is induced from the intelligence, which is the prime mover of nature. And there is no difference whether it is introduced by many or few media or by one medium, just as there is no difference in forms of art with regard to the fact that it is a form of the artist, whether it is introduced by one tool or by many, just like a medium. The introduced form differs in accordance with its proximity to matter and in accordance with its affinity to the mover and in accordance with the mediate distance and proximity to both, yet such that every form that is introduced is in the light of the intellect that moves first in nature⁸⁴.

This systematic consistency across these models of origin, which emerges so prominently in this passage, does not so much eliminate Albert's theological motivations behind his original account of *creatio ex nihilo* as reinforce them by a more sophisticated account of truth. Scientifically speaking, Albert's search for this truth may rely on systematic criteria, on the superior explanatory value found in consistency and scope of explanation, and on a unified procedure for defining the origins of experientially similar beings, namely humans and animals. Motivationally speaking, however, he remains within the boundaries of theology. Faith and reason never are opposite poles for him. Systematic consistency, uniform and reasoned application of principles, a wide scope of their application all ground Albert's shift in explanatory model, theology informs it.

For Albert, the integration of the Aristotelian model of animal epigenesis into his early theological works proved the *stimulus* for a new and pioneering view of the origin of humans and their souls in the Latin West. Throughout his works, Albert was preoccupied with finding a model of creationism that would suit reason and faith. The model that fulfilled his systematic criteria originated in his theological works as that of animal epigenesis. Yet ultimately, Albert's systematic integration of this model into his eschatology and theological anthropology resulted in nothing but a thorough modification of his Christian conception of the human soul's *creatio ex nihilo* on the systematic level. Compared to the old theological model of absolute creationism, the new model of epigenetic creationism consistently accounted for the human soul's origin from an ordered

⁸⁴ Albertus Magnus, *Liber de natura et origine animae* I.1, ed. Coloniensis 12, p. 4.34-46: «Colligendo igitur dicimus, quod omnis forma naturae est forma ab intelligentia, quae primus naturae motor est, inducta. Neque est differentia, utrum per multa aut pauca aut unum medium inducatur, sicut etiam in formis artis non est differentia quoad hoc quod sit forma artificis, utrum per unum instrumentum aut plura sicut per media inducatur, formaque inducta differentias habet secundum propinquitatem ad materiam et secundum affinitatem ad motorem et secundum mediam distantiam et propinquitatem ad utrumque, ita tamen quod omnis forma quae inducitur, in lumine sit intellectus illius qui primo movet in natura».

and combined causality. Animals, then, opened the door to Albert's scientific advancements concerning the origin of the human soul. The appropriation of the precise elements found in his Aristotelian sources facilitated them. How precisely they did so remains to be studied in greater detail in the future⁸⁵. The positivistic lens of a historically selective reading cannot expose this extensive integration and resulting shift in Albert. A non-selective approach that takes into account Albert's own pursuits unveils it and gives us a glimpse at a deeper value of his work for the history of philosophy and science.

⁸⁵The secondary literature listed in note 3 has already investigated the central elements in their indebtedness to Aristotle's *De animalibus*; Albert's indebtedness to the works of Avicenna and Averroes on the topic presented in this study remains to be investigated in greater detail.