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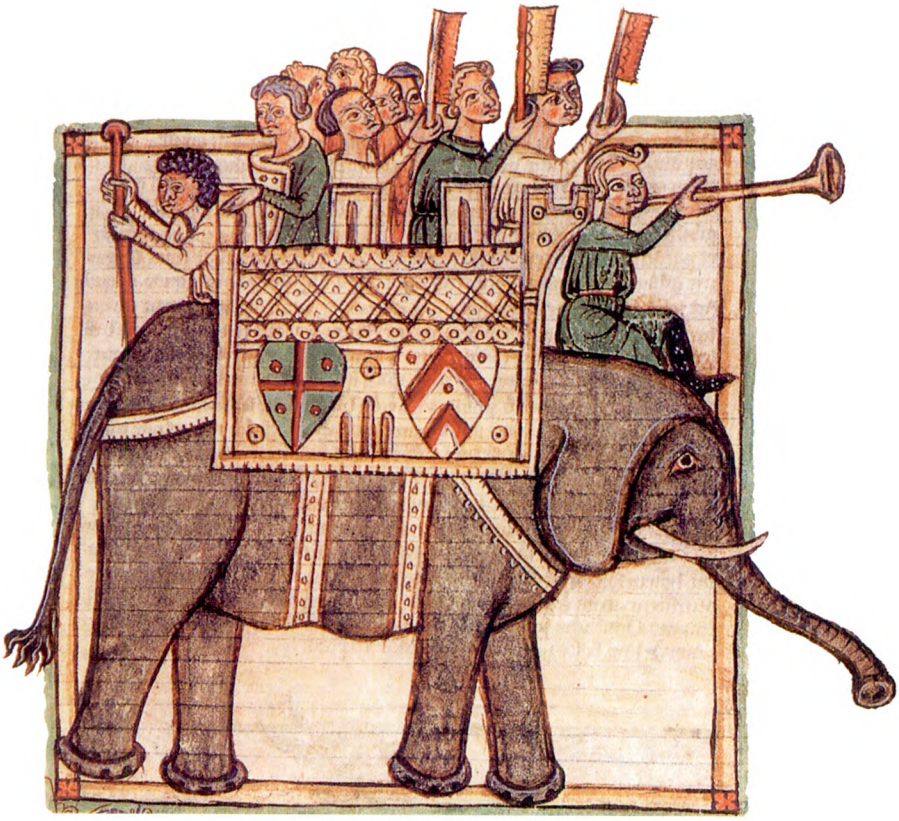
ARISTOTLE'S ANIMALS IN THE MIDDLE AGES AND RENAISSANCE



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EDITED BY

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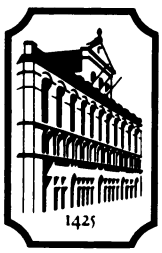

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PREFACE

This volume contains the papers read at an international colloquium on "Aristotle's Animals in the Middle Ages and Renaissance". Since 1994 a research group from the De Wulf-Mansion Centre (Institute of Philosophy) has been working on the tradition and reception of Aristotle's biology in the Middle Ages. The principal result of this project, which is endowed by the Research Fund of the Catholic University of Leuven and the Flemish "Fund for Scientific Research", will be the edition of *De historia animalium*, prepared by Pieter Beullens and Fernand Bossier for the "Aristoteles Latinus". In June 1996 an international workshop was organized on "The Tradition of Aristotle's *De historia animalium*" (a report of which was published in the *Bulletin de Philosophie Médiévale* 38 [1996], 169-176). This workshop launched the conference held at the Institute of Medieval Studies in May 1997.

Although most contributions in this volume primarily concern scientific texts, several papers explore the integration of zoological information into a symbolical or moral discourse. For the links between "the two cultures" – between the sphere of natural science and the sphere of art and religion – were still very strong in the Middle Ages and the Renaissance, as is made clear in the introductory paper which analyzes Thomas Aquinas' exploitation of Aristotelian zoology in his exegesis of the sacred rhetoric of Job. In fact, zoology remained for centuries a science based on texts, a corpus of commentaries on the Philosopher's books. Accordingly, the reception of Aristotle's zoological works is studied in this volume from the perspectives of three disciplines, viz. the history of texts, the history of philosophy, and cultural history.

The first section of this volume is devoted to the fortune of Aristotle's zoological treatises in the West. Michael Scot's *De animalibus*, and especially his translation of an Arabic version of the *Historia animalium*, is the object of Aafke van Oppenraay's research. Mauro Zonta presents the most important Hebrew authors whose knowledge of Peripatetic zoology was based on the Arabic and Arabico-Latin traditions. Pieter Beullens explains the manner in which Scot's translation of the zoological texts was transformed into a widespread florilegium.

A second group of scholars study the influence of Aristotle's zoology on some representative philosophical and scientific texts. Remke Kruk focuses on the transmission of this zoology in the Arabic culture,

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particularly in al-Marwazî's *Book on the Natures of Animals*. The presence of *De animalibus* in Arnoldus Saxo's *De floribus rerum naturalium*, the oldest scholastic encyclopedia, is investigated by Isabelle Draelants. Henryk Anzulewicz draws attention to the manner in which Albertus Magnus made use of Aristotle's zoology in his early writings. Miguel de Asúa situates Peter of Spain's Commentary on *De animalibus* within the context of the thirteenth-century debate between medicine and philosophy. Taking a different point of view, Silvia Nagel distinguishes two redactions of Peter's Commentary on *De animalibus*. Christian Hünemörder uncovers the sources of zoological ideas in the third version of Thomas of Cantimpré's *De natura rerum*. Theodor Köhler demonstrates that Aristotle's zoology determined the development of scholastic epistemology and anthropology. Guy Guldentops describes the topos of the sagacious bee, as it appears in some thirteenth-century philosophical texts. Stefano Perfetti scrutinizes the hermeneutical methods that renowned Renaissance philosophers applied in their commentaries on *De partibus animalium*. Aristotle's apport to embryology in the sixteenth and early seventeenth centuries is sketched by Jan Papy.

Finally, two examples of the literary and artistic adaptations of Aristotle's zoological writings are introduced. Baudouin van den Abeele sheds light on a fourteenth-century moralizing allegory of *De animalibus*, and Michael Camille examines the relationship between Aristotle's zoology and illuminations in medieval manuscripts.

Many interesting subjects were not discussed at the Conference. To our surprise, there were few papers on the fortune of Moerbeke's new translation of the zoological corpus, even though it included the previously little known treatises *De motu animalium* and *De progressu animalium*. Scot's translation was apparently so predominant in the Latin West that Moerbeke's labour left few traces. A thorough inquiry into the influence of the latter's Graeco-Latin translations is a desideratum. Albert the Great's major commentary on *De animalibus*, still awaiting an adequate critical edition, deserves more attention. The reception of the biological works in Byzantium is an altogether unexplored area. However lacunous this volume may be, the editors hope it will offer an attractive survey of the current research on the medieval and early modern reception of Aristotelian zoology. If one reads through the diverse papers, then it becomes clear in how many different ways Aristotle's books on animals have fertilized the cultural life of the Middle

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Ages and the Renaissance. Thus, it is no exaggeration to claim that without the zoological doctrine of the Philosopher our culture would have lacked a great deal of its scientific realism and of its humanistic wealth. May this volume guide the reader through the fascinating world of "Aristotle's Animals", which are, as Allan Gotthelf observes in his Closing Words, "everlasting in the way that is possible to them".

We wish to express our gratitude to the "Fonds voor Wetenschappelijk Onderzoek – Vlaanderen" and the "Universitaire Stichting van België" for their generous financial aid. We are also indebted to Werner Verbeke, the secretary of the Institute of Medieval Studies, for his careful reading of the volume.

C.S. - G.G. - P.B.

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CARLOS STEEL

ANIMAUX DE LA BIBLE ET ANIMAUX D'ARISTOTE

Thomas d'Aquin sur Béhémoth l'éléphant

Dans la préface de son encyclopédie *De natura rerum*, Thomas de Cantimpré raconte comment il a recherché pendant quinze ans, avec beaucoup d'effort, dans les bibliothèques de France et d'Allemagne, et même au delà de la mer, en Angleterre, les textes les plus intéressants des philosophes et des savants concernant la nature et les propriétés des créatures. Il a ainsi rassemblé dans une seule œuvre tout ce qui semblait "mémorable" sur les pierres, les plantes et les arbres, et particulièrement toutes les informations sur les animaux. Parmi ses sources anciennes il mentionne en premier lieu Aristote, puis Pline et Solinus, mais également des auteurs chrétiens comme saint Basile et saint Ambroise, lesquels, dans leurs commentaires sur l'*Hexaéméron*, avaient consacré de longues digressions aux différentes créatures. Pourquoi un frère dominicain mettrait-il tant d'énergie dans ce projet d'histoire naturelle? Voici comment il justifie son projet: "Si quelqu'un étudie mes écrits, il y trouvera, pourvu qu'il la sorte de l'enveloppe qui la recouvre, une matière suffisante pour étayer la foi et corriger les mœurs. Ainsi, parfois, le prédicateur, cessant adroitement de suivre la trace des Écritures, laissant là les oracles des prophètes, peut, pour éveiller les esprits frustes, apporter, avec une foi éclairée, le témoignage des créatures. Et si l'auditoire est devenu insensible aux paroles de l'Écriture, trop souvent entendues et ressassées, ces nouveautés charmeront les oreilles paresseuses."[1] Comme il ressort de ce texte, Thomas a conçu son encyclopédie avant tout en fonction de la tâche du prédicateur, pour édifier la foi et corriger les mœurs. Pour accomplir cette tâche, le prédicateur devra parfois s'écarter du texte biblique et se

1. Cf. Thomas Cantimpratensis, *Liber de natura rerum*, ed. H. BOESE (Berlin/New York, 1973), p. 5, 91-96: "Hiis ergo scriptis si quis studium adhibuerit, ad argumenta fidei et correctiones morum integumentis mediis sufficientiam reperiet, ut interdum predicatore quasi e vestigio scripturarum apte digresso cessantibus eloquiis prophetarum ad evigilationem brutarum mentium oculata fide creaturarum adducat testes, ut si quem sepius audita de scripturis et inculcata non movent, saltem nova in ore suo pigritantium aures demulceant."

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lancer dans des digressions sur les propriétés des animaux afin de captiver ainsi davantage l'intérêt de son auditoire.

Un tel projet d'une histoire des animaux en fonction de l'édification morale et religieuse n'était pas nouveau. Il suffit d'évoquer ici le *Physiologus*, ce texte fabuleux produit à Alexandrie dans la communauté chrétienne au début du troisième siècle. L'auteur y passe en revue les différents animaux dont il est question dans la Bible. Chaque chapitre commence par une citation biblique dans laquelle un animal particulier est mentionné. Suivent quelques renseignements sur la physiologie et les habitudes de l'animal en question. Enfin, l'auteur utilise ces informations pour développer la signification symbolique de cet animal pour le chrétien: il symbolise le Christ, l'Église ou la Synagogue, le diable et ses tentations, le croyant ou le pécheur, etc. Cet opuscule a connu un succès immense tant en Orient qu'en Occident, comme en témoignent les multiples versions, paraphrases, adaptations, suppléments, résumés, traductions, dont sont issus les nombreux bestiaires du moyen âge.[2]

Mais ce n'est pas le *Physiologus,* c'est une autre autorité qu'invoque Thomas de Cantimpré pour justifier son entreprise, laquelle lui a coûté presque quinze ans de travail: saint Augustin dans son *De doctrina christiana.*[3] Dans ce traité, Augustin a examiné en détail ce que les différentes sciences profanes peuvent apporter à l'intellectuel chrétien. Le programme d'études qu'il trace est étroitement subordonné à l'utilité que peut en retirer le chrétien: "pour alimenter, défendre et fortifier la foi qui nous conduit au bonheur." Or cette foi est fondée sur l'Écriture, texte infiniment riche, mais complexe et difficile à comprendre. Pour être capable d'interpréter les livres saints et d'y puiser la sagesse, le chrétien a besoin du secours de nombreuses sciences, comme la grammaire, la dialectique, la rhétorique et tant d'autres. Il lui sera également utile d'être suffisamment instruit dans l'histoire naturelle. Il pourra ainsi acquérir quelque connaissance "sur la nature et les habitudes des

2. Pour un aperçu des différentes attitudes envers les animaux au moyen âge, cf. M.I. GERHARDT, "Zoologie médiévale: préoccupations et procédés", dans *Methoden in Wissenschaft und Kunst des Mittelalters*, éd. A. ZIMMERMANN (Berlin, 1970), p. 231-248.

3. Cf. *De natura rerum*, 19,7, p. 414, 9-12: "illud beatissimi patris Augustini dictum in libro De doctrina Christiana diu habentes pre oculis, ubi dicit utilissimum fore, si quis laborem assumeret, quo in unum volumen naturas rerum et maxime animalium congregaret."

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animaux." Pourquoi? Certainement pas pour satisfaire quelque curiosité intellectuelle: car c'est là un vice qu'il faut condamner. Le seul but de ces connaissances en matière de zoologie, c'est de nous aider à mieux comprendre le texte biblique. En effet, comme on le sait, l'Écriture sainte parle parfois des animaux de manière symbolique pour expliquer une doctrine religieuse ou morale. Mais ces figures sont souvent difficiles à interpréter. Ainsi, Jésus nous ordonne d'être "astucieux comme les serpents" (*Matth.* 10, 16). C'est un conseil difficile à suivre, puisque ce même serpent est solennellement maudit par Dieu après le péché au paradis: "parce que tu as fait cela, maudit sois-tu entre tous les bestiaux et toutes les bêtes sauvages" (*Gen.* 3, 14). Comment donc Jésus a-t-il pu nous demander de nous conformer à cet animal maudit? On répondra que ce n'est pas la même propriété du serpent qui est donnée en exemple dans la parole de Jésus et qui est maudite après le péché originel. Si nous voulons donc interpréter correctement les multiples figures rhétoriques que l'Écriture développe au sujet de cet animal, il est nécessaire de connaître d'abord les propriétés physiologiques et les habitudes de cet animal. Car "l'ignorance des choses, à son tour, rend obscures ces expressions figurées, quand elle porte sur les propriétés des êtres animés, des pierres, des plantes, ou autres créatures, qui sont mis dans les Écritures, en vue d'une signification symbolique."[4] Il est donc utile d'avoir une certaine connaissance de la nature, mais pas trop, afin de ne pas s'y perdre. Si quelqu'un, dit Augustin, pouvait recueillir chez les divers auteurs tout ce qui est utile pour un chrétien sur ces sujets (animaux, plantes, pierres, etc.), il rendrait un grand service à ses frères qui n'auront plus à perdre leur temps dans ces études. Il leur suffira de consulter une telle encyclopédie. Voici ce qu'Augustin en dit (le texte est repris par Thomas de Cantimpré): "Si quelqu'un de ceux qui en sont capables se sentait le goût de consacrer généreusement son activité à l'utilité de ses frères, il pourrait fort bien noter tous les lieux géographiques, tous les animaux, herbes, arbres, pierres, métaux inconnus et tous les objets de toute nature mentionnés par l'Écriture, les classer par genres, les décrire un par un, et les consigner dans un écrit séparé."[5]

4. Cf. *De doctrina christiana*, II, 16, 24: "rerum autem ignorantia facit obscuras figuratas locutiones." J'utilise l'édition et la traduction de G. COMBÈS et FARGES dans la *Bibliothèque Augustinienne*, 11 (Paris, 1949), p. 275.

5. Cf. *De doctrina christiana*, II, 39, 59, p. 329.

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Voilà excellemment défini le programme d'une encyclopédie naturaliste chrétienne, et c'est dans un tel projet que se sont lancés maints auteurs au cours du moyen âge. Cependant saint Augustin aurait probablement été fort scandalisé s'il avait pu connaître le type d'encyclopédie que Thomas de Cantimpré et tant d'autres auteurs ont développé au cours du XIIIe siècle. Car, rappelons-le, Augustin avait averti ses lecteurs de ne jamais s'adonner trop à ces sciences profanes. "Ne quid nimis"! Mais au XIIIe siècle on a l'impression que certains frères dominicains, comme Thomas de Cantimpré et Albert le Grand, se lancent dans cette investigation de la nature motivés par la seule curiosité de connaître. Il ne s'intéressent pas seulement aux animaux dont parle la Bible, ni aux seuls aspects de leurs mœurs qui nous sont donnés en exemple. Ils veulent connaître le monde des animaux dans toute sa complexité. L'intérêt pour les animaux est devenu tellement grand que les digressions des prédicateurs risquent même d'éclipser le message biblique. Cette curiosité grandissante au sujet des animaux a certainement été déclenchée et nourrie par la découverte de l'œuvre zoologique d'Aristote. Aristote est d'ailleurs mentionné par Thomas de Cantimpré dans sa préface comme la première autorité en ce domaine, il est celui qui dépasse en science tous les autres auteurs. Certes, les connaissances zoologiques d'Aristote n'étaient pas entièrement absentes à la période précédente, mais elles circulaient d'une façon implicite et indirecte sous forme d'adaptations, de paraphrases et de citations de toute sorte (chez Pline, Virgile et les commentaires de l'*Hexaéméron* déjà cités). Mais au début du XIIIe siècle les animaux d'Aristote entrent en masse dans le monde latin grâce aux traductions des œuvres zoologiques. Un peu avant 1220, Michel Scot avait achevé sa traduction latine de l'ensemble des 19 livres *De animalibus*, transmis par la tradition arabe. Cette collection comprenait l'*Historia animalium*, le *De partibus animalium*, et le *De generatione animalium*. Dans le "Corpus Aristotelicum", les dix livres de l'*Historia animalium* sont sans doute l'œuvre la moins philosophique d'Aristote. Elle a d'ailleurs été conçue par son auteur comme un travail de documentation, une recherche, une "historia" au sens original de ce terme. L'introduction de cette œuvre d'Aristote, avec sa vaste et riche documentation sur les animaux, a profondément modifié et augmenté les connaissances zoologiques de l'Occident.

La traduction de Michel Scot est un exploit extraordinaire, mais sa version basée sur l'arabe s'éloigne souvent considérablement de l'ori-

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ginal grec d'Aristote. C'est presque plus une paraphrase qu'une traduction. La première traduction littérale basée directement sur le texte grec est due à Guillaume de Moerbeke. Guillaume a travaillé à cette traduction vers 1262-1263.[6] C'est donc un de ses premiers travaux philologiques, et quel travail! Pour se rendre compte des difficultés d'une telle traduction, il faut essayer de lire les traités zoologiques en grec et sans les commentaires modernes. C'est surtout la traduction du vocabulaire technique dans la description des différents types d'animaux qui pose d'énormes problèmes. Moerbeke a fait du très bon travail, et sa version est sans doute un grand progrès par rapport à celle de Scot. Et pourtant, il faut admettre que sa traduction, bien que meilleure et plus correcte que celle de Scot, n'a pas eu le succès qu'elle méritait. On n'en connaît qu'une trentaine de manuscrits et les citations en sont rares. Il semble que la traduction de Scot ait déjà eu une telle autorité dans les milieux universitaires que celle de Moerbeke (qui était plus difficile à lire) n'est pas vraiment parvenu à la remplacer. On continuera donc à citer Aristote selon Scot jusqu'à la Renaissance. Seul Henri Bate, qui était un ami de Moerbeke, cite de longs extraits de la seconde traduction de l'*Historia animalium*, et souvent il la confronte au texte de Scot.[7]

Mais le premier à avoir reconnu la valeur de la nouvelle traduction et le premier à l'avoir utilisée a été un confrère du traducteur, Thomas d'Aquin. Le fait peut nous étonner, parce qu'à la différence de son maître Albert, Thomas ne montre certainement pas un grand intérêt pour les questions zoologiques.[8] Les références aux œuvres zoologiques d'Aristote sont rares et marginales dans l'exposé de l'Aquinate. Cependant, dans sa manière de citer ces textes, on peut constater une évolution remarquable. Au début de sa carrière, Thomas citait les traités zoologiques selon la traduction de Scot et sous le titre général *De*

6. F. BOSSIER et P. BEULLENS préparent à Louvain une édition critique de l'*Historia animalium* pour la série *Aristoteles Latinus*. Pour la chronologie de la traduction des œuvres zoologiques, voir l'étude de F. BOSSIER, "Méthode de traduction et problèmes de chronologie", dans *Guillaume de Moerbeke. Recueil d'études*, éd. J. BRAMS et W. VANHAMEL (Louvain, 1989), p. 257-294.

7. Dans l'encyclopédie de Bate, *Speculum divinorum et quorundam naturalium*, et surtout dans la partie XIX, on trouve de longues citations de l'*Historia animalium*; cf. l'article de G. GULDENTOPS publié dans ce même volume.

8. Cf. C. HÜNEMÖRDER, "Thomas von Aquin und die Tiere", dans *Thomas von Aquin. Werk und Wirkung im Licht neuerer Forschungen* (Berlin/New York, 1988), p. 192-210.

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animalibus. Mais dès qu'il eut pris connaissance de la nouvelle version, Thomas cita ces traités de préférence par leurs titres originaux qu'il connaissait par la traduction de Moerbeke; toutefois, sans doute par la force de l'habitude, il ne cesse pas totalement d'employer la désignation ancienne, *De animalibus*. La nouvelle traduction "est parvenue à la connaissance de saint Thomas au moment où il rédigeait le livre II de la *Somme contre les Gentils*."[9] On peut même constater dans l'autographe que, en II, 21, Thomas a corrigé de sa propre main le titre ancien "in XVI De animalibus", le remplaçant par "libro de generatione animalium." Thomas a travaillé aux livres II-III de la *Somme* pendant son séjour en Italie, quand il enseignait au "studium generale" des dominicains à Orvieto, probablement entre 1261 et 1264.

C'est à la même époque que se situe la composition de son *Commentaire sur Job.*[10] Dans ce commentaire, précisément aux chapitres 40-41, on trouve six citations littérales de l'*Historia animalium* selon la nouvelle version de Moerbeke, bien que sous le titre ancien de la version de Scot *De animalibus.*[11] Thomas y cite également quelques passages sur les mœurs des animaux qui proviennent du *De natura rerum* de Thomas de Cantimpré, du *De proprietatibus rerum* de Barthélemy l'Anglais et du *De animalibus* d'Albert. Pourquoi donc Thomas, qui n'était pas grand amateur des questions zoologiques, a-t-il voulu montrer, dans ces derniers chapitres du *Commentaire sur Job*, qu'il était bien informé sur les mœurs des animaux?

Comme on le sait, le livre de *Job* a la structure d'une *disputatio* sur le problème du mal. C'est la souffrance du juste qui amène à mettre en accusation Dieu lui-même. A la fin du livre, Dieu lui-même intervient comme un "magister" qui détermine la question: "ideo Dominus tamquam quaestionis determinator..."(ch. 38, 13-14). En fait, Iahvé y tient deux discours. Il décrit d'abord comment la sagesse divine se manifeste dans les créatures, et jusque dans le comportement des animaux.

9. Cf. R.-A. GAUTHIER, *Saint Thomas d'Aquin. Somme contre les Gentils. Introduction* (Paris, 1993), p. 86.

10. Cf. *Sancti Thomae de Aquino Opera Omnia. Tomus XXVI. Expositio super Iob ad litteram* (Romae, 1965). Ci-dessous, j'utiliserai cette "editio Leonina" pour toutes mes références. J'ai profité aussi de l'introduction, due au Père Antoine DONDAINE.

11. Par contre, au ch. 27, 36, Thomas renvoie au *De historiis animalium,* mais il paraît citer la version de Scot! Une autre citation de cette version se trouve au ch. 40, 496, mais cet usage s'explique par l'intermédiaire de Cantimpré. Voir l'introduction du Père DONDAINE dans la Leonina, p. 19*.

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Beaucoup d'animaux sont ainsi passés en revue: l'ibis, le coq, la lionne, le corbeau, le bouquetin et la biche, l'onagre, le bœuf sauvage, l'autruche, le cheval, le faucon et l'aigle. Lorsque l'homme voit l'œuvre grandiose de la création et comment la providence divine s'étend par elle, il n'ose plus mettre Dieu, créateur tout-puissant et infiniment intelligent, en jugement. Dans le second discours (ch. 40-41), Dieu montre à Job qu'il a même le pouvoir de maîtriser les forces animales les plus dangereuses, comme les monstres mythologiques de l'océan et des fleuves, Léviathan et Béhémoth. Si les exégètes sont d'accord sur le sens général de l'argument, les détails du texte de ces chapitres posent beaucoup de problèmes. Déjà le texte hébreu est difficile à comprendre. Que faut-il dire alors du texte de la vulgate latine qui s'écarte souvent beaucoup de l'original? On comprend bien pourquoi le premier grand commentateur de *Job* dans la tradition latine, saint Grégoire, avait, dans ses célèbres *Moralia in Iob,* davantage insisté sur la signification spirituelle et morale du texte que sur son sens littéral et historique. Dans sa préface, Grégoire avait même remarqué que certains passages ne pouvaient être compris "iuxta litteram"; sinon ils pourraient induire en erreur les lecteurs non instruits.[12] Qu'il soit difficile, voire impossible de trouver un sens littéral à certains passages du Livre de Job, presque tous les commentateurs médiévaux l'ont admis. Thomas se distancie de cette méthode exégétique et propose d'expliquer le texte selon le sens littéral. Car, dit-il, il n'y a pas moyen d'améliorer l'éxégèse spirituelle de saint Grégoire: "Intendimus librum istum secundum litteralem sensum exponere; eius enim mysteria tam subtiliter et diserte beatus Gregorius papa nobis aperuit ut his nihil ultra addendum videatur."[13] En effet, selon Thomas d'Aquin seul le sens littéral peut être l'objet d'une réflexion scientifique; seul il peut faire office de preuve dans une argumentation théologique rationnelle, parce qu'il signifie ce qu'avait immédiatement en vue l'auteur du texte sacré. Thomas aborde donc le livre de Job avec le souci de redécouvrir sa véritable signification en écartant toute explication et application spirituelles.[14] Cependant, ce choix herméneutique allait mettre

12. Cf. Grégoire le Grand, *Epistola fratri Leandro*, dans *Moralia in Iob*, cura et studio M. ADRIAEN (Turnholti, 1979-1985), p. 4, 120-121: "aliquando autem intellegi iuxta litteram nequeunt."

13. *Super Iob*, prologus, l. 96-102.

14. Je ne fais que résumer ici les conclusions de l'éditeur de l'*Expositio super Iob* dans la Leonina, p. 26*.

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Thomas devant de sérieuses difficultés quand il arriverait à la description des monstres mythologiques Léviathan et Béhémoth. Ici, en effet, il ne pouvait échapper à la conclusion qu'il s'agissait d'une description figurative du diable et qu'il devrait abandonner la recherche du sens littéral. Quand donc il commence l'explication de cette péricope, il se défend contre un interlocuteur imaginaire qui lui objecte qu'il faut interpréter même ce passage "ad litteram." Selon Thomas, Dieu lui-même démontre dans son discours qu'il faut comprendre la description de Léviathan et Béhémoth comme un discours symbolique sur le diable. En effet, il révèle lui-même le sens de ses paroles quand il dit de Léviathan qu'il est "rex super universos filios superbiae"(ch. 41, 25) et de Béhémoth "principium viarum Dei" (ch. 40, 14). Comme ces paroles ne peuvent s'appliquer qu'au diable, il faut lire toute la description qui les précède comme un discours figuratif et en rechercher le sens spirituel. L'auteur biblique veut y montrer que Dieu a même le pouvoir de maîtriser le diable et d'utiliser les forces du mal en vue du bien. D'ailleurs, la structure dramatique du livre de Job demande qu'on retrouve le diable à la fin. En effet, le livre commence par un prologue dans lequel le Créateur est mis en question par le diable, il devrait donc se terminer par la victoire de Dieu sur le diable.[15]

Cependant, même si l'on admet qu'il s'agit dans ces chapitres d'une description symbolique du diable, on ne pourra jamais interpréter ce texte convenablement si l'on n'a pas compris d'abord le sens littéral sur lequel est basé le sens figuratif. Or l'auteur sacré nous représente le diable sous la figure des deux animaux les plus énormes qui existent: d'une part l'éléphant, qui est le plus grand des animaux terrestres (c'est Béhémoth), d'autre part la baleine, qui est le plus grand des animaux aquatiques (c'est Léviathan). Que le diable soit représenté comme un animal, ne doit pas nous étonner. En effet, si on a l'habitude de comparer l'homme déchu par le péché aux bêtes irrationnelles, de même aussi l'ange déchu, le diable, peut être comparé aux bêtes. Et si on considère l'excellence de la nature dans laquelle il a été créé avant le péché, il convient de décrire cet ange déchu comme si c'était un animal énorme.[16]

15. Cf. *Super Iob*, 40, l. 258-281: "Posset autem forte alicui videri quod Dominus ad litteram intenderet exprimere proprietates elephantis et ceti...."

16. Cf. *Super Iob*, 40, l. 239-246: "sicut angeli in sua dignitate remanentes excellentiam quandam habent supra hominum dignitatem, ita etiam daemones excellentiam quandam et principatum in malitia supra homines habent; et ideo sub figura

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Pour bien comprendre le texte de Job sur Béhémoth et Léviathan, il faut d'abord y reconnaître une description historique de l'éléphant et de la baleine; puis on montrera comment le sens figuratif se greffe sur le sens littéral. Pour développer son commentaire littéral, Thomas a donc besoin d'une information scientifique adéquate sur l'éléphant et la baleine. Il trouve cette information chez ceux qui font autorité en matière d'animaux, Aristote évidemment, mais aussi Thomas de Cantimpré, Barthélemy l'Anglais et Albert. Qui a rassemblé cette documentation? Il n'est pas probable que Thomas l'ait fait lui-même, car il n'était pas très versé dans la littérature sur les animaux et il n'avait certainement pas le temps de s'en occuper. En tout cas, celui qui lui a communiqué sa documentation connaissait très bien l'œuvre zoologique d'Aristote. En effet, il faut avoir parcouru les neuf livres de l'*Historia animalium* pour pouvoir repérer les passages intéressants sur l'éléphant. Or, la traduction de ce texte venait juste de sortir et n'avait certainement pas eu beaucoup de lecteurs. Quoi de plus vraisemblable donc que de supposer que ce fut le traducteur lui-même, Guillaume de Moerbeke, qui fournit à Thomas la documentation sur l'éléphant dont il avait besoin! Le fait que Thomas ait été le premier à utiliser cette nouvelle version dès son achèvement montre, je pense, encore une fois qu'entre ces deux confrères dominicains il a dû exister une communication privilégiée pendant le séjour de Thomas en Italie. Mais je ne veux pas revenir ici sur ce sujet.[17] Par ailleurs, il y a la citation d'Albert. Ici encore on est incliné à supposer que c'est Albert lui-même qui a communiqué à Thomas le texte du *De animalibus* (tiré de son bestiaire, plus exactement du livre 24) quand il séjourna lui-même à Viterbe et à Orvieto entre 1261et 1263.

quorundam excellentium et quasi monstruosorum animalium describuntur. Inter omnia autem animalia terrestria excellit elephas magnitudine et virtute, inter animalia vero aquatica excellit cetus."

17. Cf. C. STEEL, "Guillaume de Moerbeke et saint Thomas", dans *Guillaume de Moerbeke. Recueil d'études*, ed. J. BRAMS et W. VANHAMEL (Louvain, 1989), p. 57-82. Dans cet article, j'ai situé les premiers contacts de Thomas avec les nouvelles traductions de Moerbeke vers 1266-67, ce qui m'obligeait à situer la composition de certains textes de Thomas, comme la *Somme contre les Gentils* II-III, à la fin de son séjour en Italie. Je crois maintenant que cette hypothèse doit être abandonnée. Cependant, on peut toujours défendre l'hypothèse d'une communication entre Thomas et Guillaume si l'on admet que Guillaume est revenu de Grèce plus tôt et qu'il séjournait à la curie papale à Orvieto dès avant 1265. Nous n'avons malheureusement aucune information sur le lieu de séjour de Moerbeke entre le 23 décembre 1260 (Thèbes) et le 22 novembre 1267 (Viterbe). Mais il est probable qu'il est rentré en Italie avant 1267.

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Voyons maintenant en détail comment Thomas a pu retrouver dans la description de *Job* 40, 10-19 des informations scientifiques sur l'éléphant.[18] C'était là pour Thomas une tâche difficile, d'autant plus que, selon les exégètes modernes, la description de Béhémoth concerne plutôt l'hippopotame que l'éléphant.

Dans la description de l'éléphant qui servira comme "figura diaboli", on peut distinguer les parties suivantes:

1. convenientia elephantis ad hominem (v.10a; l. 282-311)
2. proprietates elephantis
   a. cibus (v.10b; l. 312-322)
   b. coitus (v.11-12; l. 323-370):
      - principium libidinis
        - figura coitus
        - organa coitus
   c. motus (v.13; l. 371-385)
3. mansio elephantis (v.16-17; l. 424-449)
4. potus elephantis (v.18; l. 450-474)
5. venatio elephantis (v.19; l. 475-508)

Dans chaque section, on peut distinguer l'explication littérale ou scientifique du texte de l'explication figurative. Les versets 14-15 (commentés aux l. 386-423) constituent une exception dans ce schéma. Pour ces versets, en effet, Thomas ne donne pas une explication littérale en les rapportant à l'éléphant. C'est en effet par ces paroles que Dieu a voulu nous révéler le sens figuratif de tout l'exposé sur Béhémoth et Léviathan: comment le diable entre dans les voies de la providence.

Avant de commencer la description de l'éléphant, l'auteur biblique rappelle qu'il existe entre Béhémoth et l'homme une certaine ressemblance et correspondance: "Ecce Vehemot quem feci tecum"(v.10), dit Iahvé. Si le sens temporel de l'expression "tecum" ("je l'ai créé en même temps que toi") est peu probable , il faut interpréter cette phrase comme une indication d'une "convenientia" entre Béhémoth et l'homme: il est une créature "tout comme toi." Evidemment, cette similitude n'existe pas au niveau du corps; selon Thomas, elle ne concerne que la nature intellectuelle. Cela est vrai pour le diable, qui n'est pas un être originalement pervers, comme le supposent les Mani-

18. Ci-dessous, je limiterai mon analyse à la section consacrée à Béhémoth, l'éléphant.

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chéens, mais qui était, avant sa chute, une créature intellectuelle tout comme nous, et même supérieure à nous. Mais même si on prend le texte *ad litteram* et qu'on l'applique à l'éléphant, on peut trouver chez lui "un vestige d'une similitude avec la nature intellectuelle." Car, comme le dit Aristote, "l'éléphant est de tous les animaux sauvages le plus facile à domestiquer. Car il se laisse éduquer (παιδεύεται) et comprend beaucoup de choses puisqu'on lui apprend même à s'agenouiller devant les rois."[19] Cela n'implique évidemment pas que l'éléphant dispose de l'intellect comme l'homme, mais il possède une "vis aestimativa", qui est foncièrement bonne. Dans les bestiaires, l'éléphant est même souvent cité comme exemple de douceur, de mansuétude et de chasteté.[20]

Mais passons maintenant aux propriétés de cet animal. L'orateur divin nous explique d'abord comment il se nourrit et comment il s'accouple. Il est naturel qu'il commence par traiter de ces deux choses. En effet, explique Thomas, les plaisirs des animaux se situent de manière toute spéciale dans ces deux activités. En ce qui concerne la nourriture, une seule remarque suffit: "Fenum quasi bos comedet" "il se nourrit d'herbe comme le bœuf"(v. 10b).[21] L'éléphant est en effet un herbivore. Le sens figuratif de cette *littera* est que le diable lui aussi trouve son plaisir à paître sur la terre, c.-à-d. parmi les choses terrestres.

La description du coït des éléphants est plus détaillée; la chose fascinait déjà Aristote. D'abord, l'auteur biblique indique d'où procède la libido chez les animaux: "fortitudo eius in lumbis eius", "sa force réside dans ses reins." Ce qui veut dire que c'est à partir des reins que la semence descend dans les "membra genitalia".[22] Le verset suivant nous décrit comment se fait le coït chez l'éléphant, au moins si on lit ce texte en se souvenant de ce que dit Aristote dans son *De historia animalium* V, 2: "La femelle de l'éléphant supporte le coït en s'abaissant et le mâle monte sur elle."[23] En partant de cette information d'Aristote,

19. Cf. *Hist. An.*, VIII(IX), 45, 630b18-20.

20. Pour un aperçu de ce qu'on peut trouver dans les bestiaires et encyclopédies au sujet de l'éléphant, cf. X.R. MARIÑO FERRO, *Symboles animaux. Un dictionnaire des représentations et croyances en Occident* (Paris, 1996), p. 126ss.

21. Pour rendre le texte biblique, j'ai utilisé autant que possible la traduction de la Bible de Jérusalem. Mais dans les nombreux cas où le texte de la vulgate s'écarte de l'hébreu, j'ai adapté la traduction française à la vulgate.

22. Cf. *Hist. An.*, III, 1, 510a15.

23. Cf. *Hist. An.*, V, 2, 540a20-23.

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on peut facilement expliquer ce qui est dit implicitement dans les versets 11-12: "et virtus in umbiculo ventris eius", "sa vigueur réside dans son nombril". En effet, explique Thomas, il faut que l'éléphant mâle qui pose son nombril sur le dos de la femelle, ait beaucoup de vigueur dans son nombril, sinon il risquerait une fracture de l'ombilic "vu que se cognent ces corps énormes". Le texte continue: "stringit caudam suam quasi cedrum", "il radit sa queue comme un cèdre." Comme le remarque Thomas, c'est ce que font les animaux qui pratiquent ce type de coït: ils serrent leur queue entre les jambes. Finalement l'écrivain biblique décrit les organes sexuels de l'éléphant: "nervi testiculorum eius perplexi sunt." Le terme "testiculi" de la traduction vulgate explique comment Thomas a pu interpréter tout ce passage dans un sens sexuel. Le texte hébreu n'a nullement cette signification: "les nerfs de ses cuisses s'entrelacent." Pour mieux comprendre la phrase obscure "nervi testiculorum eius perplexi sunt", Thomas fait encore appel à Aristote. Le Philosophe explique, en effet, dans l'*Historia animalium* que chez tous les animaux terrestres qui sont vivipares, les testicules ont des nerfs et des conduits qui se recourbent.[24]

Cependant, en interprétant tout ce passage dans un sens sexuel, Thomas s'aventure sur un chemin glissant. Car quelle peut bien être l'utilité de connaître la vie sexuelle des éléphants pour celui qui veut comprendre comment le diable est présenté sous cette figure? Que peut-on conclure de toute cette description au sujet du diable? Il est exclu qu'on puisse appliquer tout cela au diable *ad litteram*, à moins qu'on ne suppose que les diables peuvent copuler avec des femmes selon le mode animal et corporel. La question de savoir si les anges ou les diables pouvaient avoir un commerce corporel avec des femmes était fort discutée dans l'antiquité, comme en témoigne saint Augustin dans *De civitate Dei*, XV, ch. 23, un passage que Thomas cite lui-même dans ce contexte. On sait que la croyance aux démons 'incubes' était répandue au moyen âge. Dans les rares cas où Thomas traite de ce sujet, il refuse toujours d'admettre que les démons, qui sont des êtres spirituels, puissent avoir une relation charnelle avec un être humain. S'il est dit que des enfants sont nés "ex coitu daemonum", il faut l'interpréter dans le sens qu'un démon, utilisant la complicité d'un homme a eu commerce avec une femme.[25] La semence dont est né cet enfant, est celle de

24. Cf. *Hist. An.*, III, 2, 510a13-20.

25. Cf. *Summa Theologiae*, I, q. 51, art. 3, ad 6, texte inspiré du même passage de saint Augustin dans le *De civitate Dei*.

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l'homme, non pas du démon (ce qui serait impossible). Quoi qu'il en soit, Thomas s'empresse de préciser ici qu'il ne faut pas utiliser ce passage de *Job* pour justifier la croyance que "les démons copulent de façon corporelle comme les animaux." On ne peut adapter littéralement au diable ce qui est dit dans ce texte "metaphorice". En décrivant l'éléphant et son activité sexuelle, l'auteur biblique a voulu évoquer comment le diable incite les hommes à se délecter dans toutes sortes d'obscénités. Le démons montrent par leur "vigueur" tant "in lumbis" que "in umbiculo" qu'ils peuvent séduire les hommes aussi bien que les femmes. Les humains sont en effet une proie facile à cause de la concupiscence de la chair. Et une fois qu'on est tombé dans ce type de vice, il est très difficile de s'en libérer: on est comme entrelacé et lié par la douceur du plaisir sensible, "nervi testiculorum eius perplexi sunt." C'est ce plaisir obscène qui est décrit sur le mode métaphorique dans les versets précédents.

Mais passons au mouvement de l'éléphant. Voilà encore un problème pour le zoologue. Comment faut-il se représenter le mouvement d'une telle masse de chair? On raconte, dit Thomas, que les éléphants ont des pattes inflexibles ("inflexibiles pedes, tibias et crura") afin de mieux supporter le poids de leur corps, et "qu'ils ont des os solides sans articulations" ("habent ossa solida sine iuncturis"). Thomas a trouvé cette information curieuse chez son homonyme de Cantimpré, qui écrit: "habent ossa solida sine iuncturis; unde crura et tybias flectere non possunt."[26] Voilà pourquoi les éléphants ne peuvent pas se relever quand ils tombent. Cette explication fantaisiste est un lieu commun de tous les bestiaires médiévaux depuis le *Physiologus*, qui dit de l'éléphant qu'il n'a pas d'articulations, et qu'il se penche pour brouter, sans plier les genoux.[27] Déjà Diodore de Sicile et Strabon avaient donné la même information.[28] On ne s'étonnera donc pas que Thomas a voulu retrouver cette caractéristique de l'éléphant dans le texte de *Job*: "Ossa eius velut fistulae aeris, cartilago ipsius quasi laminae ferreae", "Ses os sont comme des tubes d'airain, son cartilage est comme du fer forgé"(v.13). La première partie du verset se rapporte aux instruments extérieurs du mouvement: le tibia et le haut de la patte qui sont comme des tubes d'airain difficiles à fléchir; la seconde partie aux ins-

26. Cf. *De natura rerum*, 4, 33, p. 130, 163-164. La citation vient d'un passage que Cantimpré a emprunté au "Liber rerum".

27. Cf. *Physiologus*, éd. F. SBORDONE (Romae, 1936), p. 130, 2-5.

28. Cf. Diodore de Sicile, III, 27, 2, et Strabon, XVI, 4, 10.

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truments internes, le cartilage et les nerfs. Si l'on veut connaître le sens métaphorique de cette description, quand on l'applique au diable, c'est facile. Il s'agit de l'obstination du diable à faire le mal: il ne se laisse pas fléchir.

Le passage suivant "Ipse est principium viarum Dei. Qui fecit eum applicabit gladium eius"(v.14-15) est difficile à interpréter littéralement comme une description de l'éléphant. Thomas y voit un développement au niveau figuratif sur le diable, qui est lui aussi instrument de la providence divine. En effet, Dieu utilise plusieurs voies pour amener l'homme au bien; parfois même il est obligé de le punir, et il utilisera à cette fin le diable "en lui appliquant son glaive". Car le diable n'a par lui-même aucun pouvoir de nuire à l'homme. Il le peut seulement "ex permissione divina."

Le verset suivant "Huic montes herbas ferunt" (v. 15) se rapporte à ce que nous savons déjà de l'éléphant: c'est un herbivore. Le sens métaphorique en est que ceux qui dans ce siècle occupent des hautes positions ("dans la montagne") s'offrent facilement comme proie au diable dans leur recherche de plaisir. Et ils couvrent de leur protection les hommes qui sévissent d'une manière bestiale. D'où il est dit: "Omnes bestiae agri ludent ibi."

Nous sommes ainsi arrivés à la question du lieu où séjournent ("mansio") les éléphants. Ici encore, c'est Aristote qui nous guide. Il nous enseigne que les éléphants vivent dans des lieux écartés et principalement aux abords des fleuves.[29] Or, à côté des fleuves, on trouve normalement beaucoup d'arbustes ainsi que des saules, qui donnent un ombrage épais. Voilà pourquoi il est dit dans le texte biblique: "Sub umbra dormit in secreto calami in locis humentibus. Protegunt umbrae umbram eius, circumdant eum salices torrentis", "Sous l'ombre il dort dans le secret des roseaux dans les lieux humides. Les ombres protègent son ombrage et les saules du torrent le couvrent" (v. 16-17). Ces deux versets évoquent de façon poétique un lieu humide et très ombragé où l'on est bien protégé contre la chaleur. Car, dit Thomas utilisant encore ses autorités, l'éléphant aime habiter des lieux humides; il est en effet de nature "mélancholique" et d'une complexion sèche et il cherche à se protéger contre la chaleur et la sécheresse.[30] S'il faut chercher un sens figuratif à ce passage, on peut y lire que le diable séduit

29. Cf. *Hist. An.*, V, 2, 540a20-21.

30. L'éditeur de la Leonina renvoie à Albert, *Quaestiones super de animalibus*, II, q. 14, éd. E. FILTHAUT (Monasterii Westfalorum, 1955), p. 115, 74-77.

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ceux qui vivent dans l'ombre, c.-à-d. dans l'*otium* d'un *dolce far niente*, et dans les lieux humides, c.-à-d. ceux qui recherchent partout le plaisir.

Vu la constitution de cet animal, on comprendra aussi pourquoi il a besoin d'énormes quantités d'eau. Comme le raconte Aristote: "un jour, un éléphant but en une seule fois quatorze métrères macédoniens d'eau et il recommença le soir à en boire huit autres."[31] L'écrivain sacré exprime la même observation dans un langage hyperbolique, quand il dit que l'éléphant boit autant d'eau que tout ce qui passe par le Jourdain: "Absorbebit fluvium et non mirabitur, habet fiduciam quod influat Iordanis in os eius", "Il absorbera un fleuve et ne s'étonnera pas; le Jourdain s'écoulera jusque dans sa gueule, sans qu'il s'en émeuve" (v. 18). Appliquant ce verset au diable, on pourrait dire que le diable a confiance qu'il pourra convaincre et entraîner dans le mal les hommes "instables" qui sont préoccupés par les soucis de ce monde, car ce sont eux qui sont désignés par le "fleuve Jourdain". Mais tous les hommes ne se laissent pas vaincre par le diable. Au contraire, il y en a qui obtiendront la victoire. Et le premier vainqueur du diable, c'est le Christ. C'est cette victoire finale sur le diable que Dieu décrit dans la dernière section du texte, consacrée à la chasse à l'éléphant.[32]

Le thème de la chasse à l'éléphant a donné lieu au moyen âge à toutes sortes de légendes basées sur des informations empruntées à des auteurs anciens, à des récits de voyageurs en pays lointains, à la fantaisie des chasseurs. C'est ici que le mélange du scientifique, de l'historique, du merveilleux et du symbolique, mélange si caractéristique des bestiaires médiévaux est le plus évident. Capturer un éléphant, c'est évidemment un exploit difficile, étant donné la grandeur de l'animal, et si nous croyons les autorités, il existe plusieurs stratégies pour y réussir.

Ainsi Thomas de Cantimpré distingue dans son encyclopédie deux manières de chasser l'éléphant. Voici d'abord ce que racontent les anciens. "Deux filles vierges s'avancent nues dans le désert où habitent les éléphants, l'une portant une urne, l'autre une épée. Comme elles chantent à haute voix, l'éléphant les entend et accourt immédiatement. D'instinct, il reconnaît l'innocence de leur chair virginale; et d'un tendre amour, il adore leur chasteté et commence à lécher leur poitrine et

31. Cf. *Hist. An.*, VII(VIII), 9, 596a7-8.

32. Ce passage se prolonge dans la section consacrée à Léviathan, qui traite des différentes manières de chasser la baleine.

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leurs seins et au cours de cette délectation magnifique il tombe dans un profond sommeil. Sans tarder l'une des jeunes filles lui plante l'épée dans la partie tendre du ventre et provoque ainsi une hémorragie, tandis que l'autre, dans l'urne, recueille le sang. C'est le symbole du sang du Christ jailli de son flanc, versé par l'une des jeunes filles, la Synagogue, et recueillie dans l'urne du calice par l'autre, l'Église."[33] Mais à côté de cette histoire merveilleuse Cantimpré connaît aussi une autre manière de chasser l'éléphant: "Est et alia elephantum venatio secundum Aristotilem."[34] Selon Aristote les chasseurs montent sur des éléphants domestiqués et vont ainsi à la recherche d'éléphants sauvages. Quand ils en ont trouvé, ils commandent aux éléphants domestiques de les pourchasser et de les frapper jusqu'à ce qu'ils s'arrêtent épuisés. Alors les chasseurs montent sur les animaux sauvages et les piquent avec des javelots jusqu'à ce que les éléphants craignent les hommes. Et on lie leurs pattes antérieures jusqu'à ce qu'ils deviennent tranquilles. Cantimpré a trouvé ce renseignement dans l'*Historia animalium* VIII(IX), ch. 1 (610a24-32), qu'il connaissait dans la traduction de Michel Scot. Remarquons qu'il juxtapose les deux renseignements, l'un, d'Aristote, à prétention scientifique, et l'autre, merveilleux et symbolique, sans aucun effort pour les combiner. Il s'agit simplement de differents "modi venationis". Or, c'est ce passage de Cantimpré que Thomas avait devant lui quand il a commenté le verset 40, 19 de *Job:* "In oculis eius quasi hamo capiet eum, et in sudibus perforabit nares eius", "On le saisira par les yeux comme avec un hameçon, et on lui percera le nez avec des pieux". Thomas reconnaît dans ce passage difficile une allusion aux deux modes de chasse dont parlent les encyclopédistes. Le second mode ("est autem et alius modus venationis", l. 495-496) correspond exactement à celui dont parle en second lieu Cantimpré ("Est et alia elephantum venatio..."). C'est en fait l'explication qu'Aristote donne au livre VIII(IX) *De animalibus.* Il ne faut pas s'étonner que Thomas d'Aquin utilise ici l'ancien titre de la version arabo-latine de Scot et qu'il cite Aristote selon cette version et non pas selon celle de Moerbeke. En fait, Thomas ne cite ici Aristote que par l'intermédiaire de Cantimpré. On peut retrouver une allusion à ce mode de chasse qui utilise des javelots pour domestiquer les animaux

33. Cf. *De natura rerum*, 4, 33, p. 127, 44-57. Déjà Élien (*De natura animalium*, I, 38) fait remarquer : "cet animal se laisse dominer par le beauté d'une femme et sa colère s'apaise quand il est hébété par sa grâce."

34. Cf. *De natura rerum*, 4, 33, p. 127, 57 - 128, 65.

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dans la seconde partie du verset 19: "in sudibus", c.-à-d. avec des pieux ou des piquets, ils perforent son "nez", c.-à-d. l'endroit le plus sensible de sa chair. Mais quant il s'agit d'expliquer la première partie du verset qui devrait nous informer sur le "primus modus venationis", Thomas abandonne Cantimpré et son histoire des deux jeunes vierges, sans doute parce qu'il n'a pas eu confiance dans un récit aussi fabuleux. Il se tourne vers un autre encyclopédiste, Barthélemy l'Anglais, qui dans son *De proprietatibus rerum*, XVIII, ch. 43, offre une théorie de la chasse aux éléphants qui correspond mieux au verset "in oculis eius quasi hamo capiet eum." Voici ce que dit Barthélemy: "On creuse une fosse souterraine sur le chemin de l'éléphant. Si celui-ci, ne l'ayant pas vue, y tombe, un des chasseurs vient frapper et piquer l'éléphant, puis vient un autre chasseur, qui frappe le premier et qui l'empêche de frapper l'éléphant, puis donne de l'orge à l'animal. Au bout de trois ou quatre fois, l'éléphant s'attache à celui qui l'a défendu et il devient doux et obéissant." Voilà encore une belle histoire qui remonte à Avicenne et, par son intermédiaire, à Aristote.[35] Mais comment Thomas peut-il y trouver une explication du verset biblique? Le lien entre les deux se trouve dans l'expression "quasi hamo capiet", "il le prend comme avec un hameçon."[36] En effet, les chasseurs dont parle Barthélemy mettent de la nourriture devant les yeux de l'éléphant afin de le capturer. Ils font ainsi comme des pêcheurs qui utilisent un appât pour attirer les poissons. D'où il est dit "In oculis eius quasi hamo capiet eum." Tout en admirant ce tour de force herméneutique il faut admettre que l'explication que Thomas offre ici pour la *littera* du texte est problématique. Le seul rapprochement qu'on puisse faire entre la pêche à la ligne et la chasse à l'éléphant est l'appât...! On a l'impression que Thomas n'a pas trouvé d'autre issue que de lire dans ce verset biblique une allusion aux deux modes de chasse qu'il connaissait par les autorités sur les animaux. C'était pour lui le seul moyen d'interpréter un texte aussi obscur que ce verset 19.

35. Cf. Aristote, *Hist. An.*, VIII(IX), 1, 610a24-32; Avicenne, *De natura animalium*, (Venise, 1508 [= Louvain, 1961]), VIII, 3, f. 38rb; Barthélemy l'Anglais, *De genuinis rerum coelestium, terrestrium et inferarum Proprietatibus* (Francofurti, 1601), XVIII, 43, p. 1064; Albert, *De animalibus*, VIII, §30-31, 582, 31 - 583, 20.

36. Les mots "quasi hamo" ne se trouvent ni dans le texte hébreu ni dans la version grecque. Il faut les ajouter au verbe "capiet" et prendre l'expression "quasi hamo capiet" comme un ensemble. Probablement le traducteur latin s'est-il laissé inspirer pour sa traduction par la suite du verset ("perforabit") et par le verset suivant où l'on lit "hamo".

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Mais il y a plus que ça. Le terme "hamus" nous offre aussi le point de départ pour la signification mystique du texte. En effet, ce passage exprime symboliquement la manière dont le Christ a vaincu le diable. Le Christ a montré au diable sa nature faible, c.-à-d. sa nature humaine et mortelle, comme un appât, afin de l'attraper. Puis, il a employé son pouvoir divin contre le diable: "Per hoc autem mystice designatur quod Christus diabolum superavit ostendens ei naturam infirmam ut sic quasi hamo ab eo caperetur, et postmodum virtutem suam in eum exercuit" (l. 503-507).

Cette remarque finale de Thomas sur le sens mystique de la chasse à l'éléphant est comme l'écho lointain d'une longue tradition patristique dans laquelle le thème de l'hameçon (*ἄγκιστρον*) et l'appât (*δέλεαρ*) a souvent été développé pour expliquer comment le Christ a pris Satan par la ruse. On retrouve ce thème chez Grégoire de Nysse et chez Maxime le Confesseur. Voici ce que dit Maxime, expliquant de manière audacieuse le verset 7 du Psaume 21: "Je suis un ver." "Le Seigneur accrocha sa chair humaine comme une amorce à l'hameçon de sa divinité, comme pour appâter le diable. Celui-ci, en effet, dragon intelligible, avide de chair humaine, ouvrit sa bouche toute grande autour de cet appât, le croyant, du fait de sa nature humaine, facile à prendre. Il s'enferra ainsi sur l'hameçon de la divinité."[37] Saint Grégoire lui-aussi développe longuement ce thème du Christ comme "hamus" dans ses *Moralia in Iob*. Voici comment il explique le verset "quasi hamo": "Qui pourrait ignorer qu'avec l'hameçon on montre l'amorce et on cache l'aiguillon? Car l'amorce attire de sorte que l'aiguillon puisse piquer. Ainsi notre Seigneur, venant pour racheter l'humanité, s'est fait pour ainsi dire hameçon pour tuer le diable. Car il a assumé le corps afin que ce Béhémoth puisse désirer chez lui, comme sa nourriture, la mort de la chair. (...) Il a donc été pris dans l'hameçon de son incarnation, parce que tandis qu'il désirait en lui l'amorce corporelle, il a été perforé par le crochet de la divinité. "In hamo ergo eius

37. Cf. Maxime le Confesseur, *Quaest. Ad Thalassium*, 64, 491-505 éd. C. LAGA & C.STEEL; traduction (légèrement modifiée) de A. ARGYRIOU dans *Saint Maxime le Confesseur. Le mystère du salut* (Namur, 1964), p. 89-90. On trouvera d'autres exemples chez Grégoire de Nysse, *De tridui spatio*, p. 281, 7-16 éd. E. GEBHARDT (avec référence à *Job*, 40, 25 [= 40, 20 vulg.]); *Or. catech.*, p. 62, 8-13 éd. E. MÜHLENBERG; Jean Damascène, *De fide orth.* III, 1 ainsi que dans le dictionnaire de LAMPE sub verbis *ἄγκιστρον* et *δέλεαρ*.

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incarnationis captus est, quia dum in illo appetit escam corporis, transfixus est aculeo divinitatis."[38]

Nous aurions pu analyser plusieurs autres chapitres du commentaire de *Job*, mais la section consacrée à Béhémoth nous a offert un excellent exemple pour comprendre comment les animaux d'Aristote et les animaux de la Bible se sont rencontrés chez Thomas. Ce n'est plus comme chez son confrère et aîné Thomas de Cantimpré, chez qui les informations scientifiques, les fables et les légendes, les moralisations et symbolisations se juxtaposent pêle-mêle. Chez l'Aquinate, au contraire, il ne peut y avoir aucune confusion entre la zoologie scientifique et le discours figuratif et poétique sur les animaux. Les deux genres sont clairement distingués. Certes, Thomas ne nie pas que le texte biblique ait un sens figuré, moral ou mystique. C'est même le sens ultime du texte pour le théologien qui l'explique en vue de la foi. Mais on ne peut accéder à ce sens métaphorique si on n'a pas essayé de comprendre la "littera" du texte par tous les moyens disponibles. Pour développer une telle interprétation littérale Thomas n'utilise pas les ressources philologiques, littéraires et historiques – comme le ferait l'exégète moderne - mais la zoologie de son temps. En effet, une fois perçu qu'il s'agit dans cette péricope de *Job* d'une description de l'éléphant comme figure du diable, il faut essayer d'interpréter tous les détails du texte et même les passages les plus obscurs en partant des informations scientifiques qu'on trouve dans la tradition sur l'éléphant, son anatomie, ses propriétés, ses mœurs. En effet, puisque c'est Dieu même qui est supposé parler dans ce texte, les informations qu'il nous donne sur l'éléphant doivent nécessairement être véridiques. C'est donc seulement en conformant la 'lettre' à la 'réalité' telle qu'on la connaît par la sience, qu'une explication cohérente et claire du "sensus litteralis" devient possible. Parmi les autorités zoologiques figure évidemment en premier lieu Aristote, mais il y a aussi des encyclopédistes et Albert le Grand.

Comme nous l'avons remarqué, Thomas ne rejette nullement l'interprétation symbolique du texte. Au contraire, on peut constater qu'il retient lui aussi les éléments principaux de la lecture symbolique et moralisante qui fut inaugurée en Occident par saint Grégoire. Mais pour lui cette interprétation doit être basée sur une explication solide

38. Cf. *Moralia in Iob*, XXXIII, 7, 14, p. 1648, 16-25. Il est évident que saint Grégoire dépend ici de Grégoire de Nysse.

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de la *littera* du texte. Si l'on peut adhérer à ce principe herméneutique dans sa généralité, l'application qu'en fait Thomas dans le détail reste pour le moins problématique. Ainsi toutes les informations scientifiques que Thomas a rassemblées minutieusement sur l'éléphant ne nous apportent guère d'éléments intéressants pour développer une interprétation figurée du texte. Au contraire. Ainsi, comme nous l'avons vu, tout l'exposé sur la sexualité des éléphants nous semble conduire vers une mauvaise piste pour l'interprétation symbolique. Et les informations supplémentaires sur les deux modes de chasse à l'éléphant ne nous offrent aucune perspective pour mieux comprendre comment le Christ a pu vaincre le diable. Le seul élément que Thomas retienne en effet pour l'interprétation, est la capture par l'appât. Mais que le Christ ait vaincu le diable "quasi hamo", avait déjà été expliqué "subtiliter et diserte" par Grégoire le Grand. Et pour affirmer cela, on n'a nullement besoin des dernières données scientifiques sur l'éléphant. En somme, ce qu'on pourait surtout critiquer chez Thomas, c'est que le sens figurée n'est pas vraiment basé sur l'explication littérale du texte. Les deux niveaux du texte sont chez Thomas d'Aquin nettement distingués, mais aussi ils ont peu de rapports. Pour les détails de son interprétation métaphorique, Thomas reste redevable à la tradition patristique qu'il connaît par Grégoire. En fait, la littérature patristique dans laquelle on jouait sur tous les régistres de la poétique et de la rhétorique, mélangeait les genres, pratiquait l'allégorie, la typologie, l'association, cette littérature se prêtait beaucoup mieux au développement d'une exégèse symbolique du texte biblique, comme le montrent Grégoire et Maxime. La *littera* de Thomas est devenue trop savante, trop 'scientifique' pour lui permettre encore d'accéder au véritable sens 'mystique' du texte. Mais son commentaire, en même temps qu'il annonce l'exégèse occidentale moderne, témoigne admirablement de cette nouvelle curiosité pour les animaux à la suite de la lecture d'Aristote.

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AAFKE M.I. VAN OPPENRAAY

MICHAEL SCOT'S ARABIC-LATIN TRANSLATION OF ARISTOTLE'S *BOOKS ON ANIMALS*

Some remarks concerning the relation between the translation and its Arabic and Greek sources[1]

Before the year 1220 (in all probability before 1217)[2] in Toledo, Michael Scot completed his Latin translation of Aristotle's *Books on Animals*,[3] from an Arabic translation made during the first half of the 9th century A.D. (possibly by a Syriac-speaking Christian).[4] Later in his career, between 1230 and 1232,[5] when he became acquainted with the Court of the Emperor Frederick II and entered his service, he translated into Latin the *Book of the Natures of Animals*, which constituted the eighth treatise within the part of *Physics* in Avicenna's[6] encyclopedic work, the Shifā'. This translation was dedicated to the Emperor.[7]

1. This article is a revised version of a paper given during the International Workshop 'The Tradition of Aristotle's *De Historia Animalium*' at Louvain, May 30th-June 1st 1996, which was followed by the International Colloquium 'The Reception of Aristotle's Biology in the Middle Ages' at Louvain, May 15th-17th 1997. I owe many thanks to Prof. Werner Verbeke and Prof. Carlos Steel for their willingness to include it in the Proceedings of this Colloquium. I am much indebted to Dr. R. Ellis and Mrs. Erskine (Cardiff) for many useful remarks. I am grateful to Mr. A.P. Runia (Groningen) for translating part of this article into English, and correcting the English of another part.

2. S.D. WINGATE, *The Mediaeval Latin Versions of the Aristotelian Scientific Corpus, with Special Reference to the Biological Works* (London, 1931) p. 74.

3. By Aristotle's *Books on Animals* are meant here the treatises *History of Animals, Parts of Animals* and *Generation of Animals* (19 books). To all appearances, the treatises *Movement of Animals* and *Progression of Animals* were never translated into Arabic, although their existence was known (see R. KRUK ed., *The Arabic Version of Aristotle's Parts of Animals*; Book XI-XIV of the Kitāb al-ḥayawān. Aristoteles Semitico-Latinus Vol. 2 (Amsterdam, Oxford 1979), Introduction p. 13).

4. J. BRUGMAN and H.J. DROSSAART LULOFS eds., *Aristotle, Generation of Animals. The Arabic Translation commonly ascribed to Yaḥyā ibn al-Biṭrīq* (Leiden, 1971), Introd. pp. 5 ff.; KRUK, *Part. An.* (1979) Introd. p. 19.

5. C.H. HASKINS, 'Michael Scot and Frederick II', *Isis* 4 (1922), pp. 253, 257.

6. Abū 'Alī Ḥusayn Ibn Sīnā (d. 1037 A.D.), Kitāb al-Shifā'. The part on animals has been edited by I. MADKOUR (et al.) eds., Ibn Sīnā, al-Shifā'. *La Physique VIIIe - Les Animaux* (fī Ṭabā' al-ḥayawān) (Cairo, 1970).

7. WINGATE, *Latin Versions* (1931), p. 84.

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The part of the *History of Animals* comprising books 1 to 10 corresponds closely in the two Latin translations.[8] It is immediately clear that the same translator is at work here, not only when the text is read, but also when the complete Latin indices are set side by side and the method of translation is compared.[9] Yet differences occur in the translation of some words and animal names. Thus a different translation is used for some words of Avicenna's text compared with the Aristotelian text, while the names of some animals seem to be known in one text but not in the other.

8. The same applies to the parts *Part. An.* and *Gen. An.*, to the extent that they agree with Aristotle's text. However, in the Arabic and Latin versions both treatises likewise contain drastic changes compared with the original Greek text. As regards the Arabic versions of *Hist. An.*, the translation of the Aristotelian text and Avicenna's treatise too display very many similarities (besides considerable differences).

9. A.M.I. VAN OPPENRAAY, 'Quelques Particularités de la Méthode de Traduction de Michel Scot', in *Rencontres de Cultures dans la Philosophie Médiévale. Traductions et Traducteurs de l'Antiquité tardive au XIVe Siecle* (Louvain-la-Neuve, Cassino, 1990), pp. 121-129.

In my opinion, Indices as complete and exhaustive as possible with respect to the various texts which play a central role in the tradition of Aristotle's biological works are indispensable for further study of this tradition. Only in this way can we quickly find and compare parallel passages in this long text. The many necessary conjectures can be tested at once. Without Indices, one would have to rely solely on one's knowledge of Greek, Arabic and Latin. All too often this might lead to a perfectly plausible word which is never really used by the relevant author himself within the treatise. The Indices, however, can be consulted exactly like a dictionary, and the more accurate and complete they are becoming during our work on the edition, the more often they provide the key to problems otherwise unresolvable. At the moment, full Greek and Arabic Indices of *Hist. An.* are sadly lacking, although DROSSAART LULOFS made a provisional Greek Index for books I-IV and a computer-generated index of the whole text will soon be available. A Latin Index of *Hist. An.* is available in computer-generated form. A Greek Index of *Part. An.* was made by L. BODSON, *Aristote, De partibus animalium. Index verborum. Listes de fréquence* (Liège, 1990). Arabic and Latin Indices are found in the edition of Michael Scot's translation of *Part. An.* by A.M.I. VAN OPPENRAAY, *Aristotle, De animalibus. Michael Scot's Arabic-Latin Translation.* Part two, books XI-XIV: *Parts of Animals.* Aristoteles Semitico-Latinus 5.2 (Leiden- Boston - Köln, 1998). Greek, Arabic and Latin Indices of *Gen. An.* were included in the editions of BRUGMAN and DROSSAART LULOFS (1971) and of VAN OPPENRAAY, *Aristotle, De animalibus. Michael Scot's Arabic-Latin Translation.* Part three, books XV-XIX: *Generation of Animals.* Ed. by A.M.I. VAN OPPENRAAY. With a Greek Index to *De generatione Animalium* by H.J. DROSSAART LULOFS. Aristoteles Semitico-Latinus 5.3 (Leiden - New York - Köln, 1992).

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Some words are never recognized in either of the treatises, like تمساح (timsāḥ, 'crocodile'), which is usually transcribed as 'tencheah' (once or twice explained in the margin of the MSS as 'corcodillus'), and ابن عرس (ibn 'irs, 'weasel'), which is partly translated and partly transcribed as 'filius hirz' in Scot's translation of Aristotle's text, whereas in his translation of Avicenna's text it is transcribed completely, as 'enpnerz'.

On the other hand, the bat, *νυκτερίς* in Greek, 'vespertilio' in Latin, is called وطوط by the Arabic translator of Aristotle's text. Avicenna however uses the term خفّاش ; and this also is translated by Scot as 'vespertilio'.

Τὰ τετράποδα ('quadrupeds') is translated as ذوات اربعة ارجل or الحيوان الذى له اربعة ارجل in the Arabic version of Aristotle's text, which Scot rendered by '(animalia) quadrupedia'. In Avicenna's text, however, his equivalent ذوات الاربع is translated as 'quadrupedalia' by Scot.

In Scot's translation of Aristotle's text the snake (حيّة) is always rendered by 'serpens'. In his translation of Avicenna's text however we regularly find 'colubra' next to the term 'serpens' for the same animal.

Some Latin words may be given a broad range of meanings. 'Additamentum', for instance, is Scot's usual translation for Arabic زيادة ('increase', 'growth'). But in *Part. An.* and, occasionally, in *Hist. An.*, the word proves to be a wonderful device for translating all kinds of characteristic parts in the anatomy of animals, in many places sharing this possibility with the Arabic word خرطوم ('proboscis', 'trunk'):

- elephant's trunk (منخر اعنى خرطوم *Scot* 'nasus scilicet additamentum' *PA* II 16, 659a1, 30; 17, 661a27; انف ... وهو الذى تسمّيه العامة خرطوما *Scot* 'nasus ... plebizatur quasi calceus' *HA* I 11, 492b18); in Avicenna's text we find 'nasus' and 'calceus' (ed. Madkour p. 22. 16)
- broad snout of swine (عريض الخرطوم *Scot* 'additamentum latum' *PA* III 1, 662b14)
- mouth of dolphins and selachia (خرطوم *Scot* 'additamentum' *PA* IV 13, 696b32)
- crop of birds (شىء وارم ناتىء *Scot* 'quaedam additamenta prominentia' *PA* III 14, 674b24)
- proboscis of some sea-animals (خرطوم *Scot* 'additamentum' *PA* IV 5, 679b7-8)
- two special probosces of sepias and calamaries (خرطومان *Scot* 'additamenta' *PA* IV 9, 685a33)
- claws of Carabi and Carcini (زبانتان *Scot* 'additamenta' *PA* IV 8, 683b34). In Avicenna's text we also find the translation 'additamentum' for Arabic سنام 'hump of camel' (ed. Madkour p. 27. 1).

These differences are perhaps partly due to the use of different word-lists, which were commonly consulted by the translators. It is conceiv-

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able that, while translating Avicenna's treatise on Animals (in Sicily or in southern Italy), Scot used local wordlists which were different in some respects from those which he had used some 15 years earlier in his translation of Aristotle's text in Toledo.[10] He may also have been helped in his translation work by one or more persons. It seems likely too that, strangely enough, he did not (or at least not always) have his translation of Aristotle's text at hand when translating Avicenna's text.

In this context it is worth noting the translation of the Greek word *ἀσπάλαξ* (خلد kuld 'mole'). In Arist. *HA* I 9, 491b28 and VII 28, 606a1-2 the word is translated correctly by Scot as 'talpa'. In Avicenna's text however (ed. Madkour p. 21. 3) we find the transcription 'choldi' for the same خلد , followed by an explanatory remark of Scot: 'quod est species muris' ('which is a kind of mouse'). It is well-known that the mole was thought of in Antiquity as belonging to the species of mice, since the ancients included many small animals under the name of 'mus', like mouse, rat, marten, sable and ermine. But in two other places in the same treatise (Madkour p. 108. 2, 112. 3) we find the non-classical translation 'mus caecus'. It seems strange that in his translation of the Avicenna text Scot would transcribe the name of an animal that he knew well when he was translating the text of Aristotle, feeling obliged besides to explain the same transcription, whereas he gives another, obviously current, translation for the word later in the same treatise. The animal name 'mus caecus' is not classical; it is however mentioned in Goetz's *Corpus Glossariorum Latinorum* (II 249, 21), which means that at any rate the name was known in the ninth century. I suppose that 'mus caecus' is the translation of the more colloquial Arabic translation for mole, الفارة العمياء , which literally means 'blind mouse' or 'blind rat' and which seems a more precise translation of the Greek *ἀσπάλαξ* (actually meaning 'mole-rat' rather than 'mole'). If it is true that Scot translated the text of Aristotle in Toledo before 1217 and the text of Avicenna about fifteen years later in Sicily (or southern Italy), we may infer that he worked there with different, local glossaries, in which 'mus caecus' figured as the translation of the more literary Arabic word خلد .

An interesting example of the difficulties Scot had to cope with is the translation of the Greek word *ὕστριξ* ('porcupine'). In the Arabic translation of

10. On wordlists and glossaries which circulated in the Middle Ages, see, among others, R. DOZY, *Supplément aux Dictionnaires Arabes* (Leiden, Paris, 1927), Preface pp. viii ff.; J. HAMESSE ed., *Les manuscrits des lexiques et glossaires de l'Antiquité tardive à la fin du moyen âge. Textes et Études du Moyen Age*, vol. 4. Louvain-la-Neuve, 1996. For the development especially of the philosophical terminology see J. HAMESSE ed., *Aux origines du lexique philosophique européen. L'influence de la 'Latinitas'*. Textes et Études du Moyen Age, vol. 8. (Louvain-la-Neuve, 1997).

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Aristotle's text it is translated several times as شكاع, which is usually spelt سكاع (or even سقا). In *HA* I 6, 490b29, Aristotle says that some animals have spines instead of hair, like hedgehogs and porcupines; in Scot's translation: 'sicut ericii agrestes et animal quod dicitur succa' ('like hedgehogs and the animal called succa'). 'Succa' is the Latin transcription of Arabic سكاع, and is explained in the margin of the Bruges MS[11] by 'porcus spinosus', a term which Scot himself never uses. In *HA* VII 17, 600a28 سكاع is the translation of the Greek plural ὕστριχες, but here Scot transcribes the word as 'ostarinhaz', and in *HA* VIII 39, 623a33 as 'astoneoz'. Both transcriptions therefore are made according to the Greek, in agreement with the different Arabic textual tradition from book VI onwards (see below). Obviously, Scot does not recognize the animal. In his translation of Avicenna's text, however (Madkour p. 103. 2), at the corresponding place of VII 17, 600a28, the word قنافذ is used in the Arabic text, meaning 'porcupines'; but since it usually means 'hedgehogs', Scot gives his usual translation of قنفذ (qunfuḏ), 'ericius' ('hedgehog'), and it is quite evident that he is unaware of the fact that the porcupine is meant.

Both the Arabic translator and Scot aim at making Aristotle's text accessible to their readers, but each follows his own method to achieve this. In principle they translate the text literally, but they do not hesitate to intervene when a certain passage is liable to become obscure to the reader. For the Arabic translator this meant using paraphrases which were often more elaborate than his source text.[12] He may also have incorporated some glosses that he found in his source text. When he did not understand a Greek expression, he simply left it out. For Scot, the desire for clarity might lead him to reformulate more concisely what he considered too elaborate or unnecessarily repetitious. In this way he often arrived at the conciseness of the original Greek construction, as opposed to his more elaborate Arabic intermediary.[13] In a few places, however, he used a more elaborate reformulation, when he believed that a certain passage required some clarification. On the other hand, Scot silently omitted Arabic words he failed to understand, often because of a mistranslation from Greek to Arabic, or he omitted part of a sentence which would make the translation inconsistent.

So far the edition of Scot's Arabic-Latin translation of Aristotle's *Books on Animals* has been completed as regards the second and third

11. Brugge, Bibliotheek van het Groot Seminarie, 99/112.

12. BRUGMAN - DROSSAART LULOFS (1971), *Introd.* pp. 18 ff.; KRUK (1979), *Introd.* pp. 25-26.

13. VAN OPPENRAAY, 'Quelques particularités' (1990), pp. 123-128.

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parts, *De Partibus Animalium* and *De Generatione Animalium*. Work on the edition of the first part, *Historia Animalium*, is well under way, both in the translation of the Aristotelian text and in that of Avicenna.[14] At this stage the Latin translation of the two works cannot yet be extensively compared. However, some observations can be made about the relationship between the Arabic-Latin translation of the Aristotelian text and its Arabic source text, and, indirectly, the Greek source text.

For one, it has become clear that Scot did not use the original Greek text in his translation work, which contains too many mistakes in relation to the Greek text. Scot may not even have known Greek, but this is still a controversial and as yet unresolved problem in the discussion of his life and works. The question is of importance in respect of the authorship of works translated from the Greek which have been ascribed to him.[15]

The inquiry into the relationship between the Latin text and its two source texts is difficult because (a) the transmission of the text in the Greek MSS offers quite a few variants and Aristotle's original reading or intention cannot be clearly established in all cases, (b) because the Arabic transmission of the text is based on more than one source and the best part of the tradition has only been preserved fragmentarily. In short, we do not have the Arabic text which Scot read in his copy, though the text used by him agrees largely with that of the London MS and for another part with the Leiden MS.[16]

Another cause which complicates the inquiry is the enormous length of the text, which comprises 19 books in the Arabic and Latin versions and constitutes Aristotle's longest work.[17]

14. The edition of both texts is now being prepared by AAFKE M.I. VAN OPPENRAAY at the Constantijn Huygens Instituut in The Hague, where the Latin branch of the Aristoteles Semitico-Latinus project has been housed by the Royal Netherlands Academy of Arts and Sciences since 1994. A critical edition of the Arabic translation of *Hist. An.* is prepared by L. FILIUS, J. DEN HEYER and J.N. MATTOCK (Leiden).

15. J. WOOD BROWN, *An Enquiry into the Life and Legend of Michael Scot* (Edinburgh, 1897), pp. 134-135; C.H. HASKINS (1922) pp. 259-260; R.A. GAUTHIER, *Ethica Nicomachea.* Aristoteles Latinus XXVI 1 (Leiden, Bruxelles, 1974), *Praefatio* pp. cxlii-cxlvii.

16. London, British Library Or. Add. 7511; Leiden, University Library Or. 166. See BRUGMAN-DROSSAART LULOFS (1971), *Introd.* pp. 54 ff; KRUK (1979), *Introd.* pp. 32 ff.

17. 287 pp. in the edition of I. BEKKER, excluding *De incessu animalium* and *De motu animalium*. For the sake of comparison: Aristotle's *Physics* comprises 85 pp., *Metaphysics* 114 pp. in the same edition.

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It is possible, and even likely, that the Arabic translation was made on the basis of more than one Greek MS. In my view, this explains why the Arabic text does not agree with one particular Greek text but, besides showing a general relationship with MSS *ZPΔ*, repeatedly contains readings from other traditions.[18] The tradition of the Arabic text is not simple either, though the text has been integrally preserved in just one MS, unfortunately by no means the best one.[19] As regards *Part. An.* and *Gen. An.*, the text seems to derive from virtually the same source. But a clear break can be seen in *Hist. An.*:[20] from the sixth book onwards Scot apparently had access to a different text, which in many places no longer contains translations of certain animal names, as in the extant Arabic text, but Arabic transcriptions which agree with the names in the Greek text. In this last section of the text the Latin transcriptions mostly agree with these Greek-based Arabic transcriptions, whereas the extant Arabic text gives translations of the names. So for this part of the text Scot's Arabic copy must have come from an Arabic translation which was closer to an originally Syriac intermediary than the extant Arabic text, since the Syriac language can render Greek syntax and transcriptions of Greek words more accurately than the Arabic. We are therefore probably dealing with Arabic transcriptions which have entered an Arabic translation via a Syriac translation or which were drawn from a direct, 'better' Arabic translation.

18. BRUGMAN-DROSSAART LULOFS and KRUK have observed that the Greek text(s) used by the Arabic translator bear a close relationship to MSS ZPΔ (Z = Oxoniensis Collegii Corporis Christi 108; P = Vaticanus gr. 1339; Δ = Parisinus suppl. gr. 333). See BDL (1971) Introd. pp. 11-7; H.J. DROSSAART LULOFS ed., Aristoteles *De generatione animalium* (Oxford 1965), Praefatio pp. xxi-xxiv; KRUK (1979), Introd. pp. 30-31. I have come to the same conclusion during my work on the Arabic-Latin translation of *Part. An.*, finding it repeatedly necessary to discuss the variants of the Greek MSS in the edition' s notes.

19. Teheran, Majles Library 1143. This is the only MS which contains the complete text, but it is a bad copy of the London MS. The London and Leiden MSS have only part of the text (the London MS contains approx. 4 books of *Hist. An.* and all of *Part. An.* and *Gen. An.*; the Leiden MS contains *Part. An.* approx. 3 books, *Gen. An.* 1 book).

20. It is interesting to note that the final parts of Books V (550a9-558b4) and VI (576a3-581a5) do not appear in the Arabic text. Nor does Scot have these passages, which probably means that they were never translated into Arabic.

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Here follow some examples:[21]

1. *HA* VI 6, 563a28-31. *καὶ τῶν ἄλλων δὲ τοῖς μεγάλοις ὁ χρόνος τοσοῦτός ἐστι τῆς ἐπῳάσεως, οἷον χηνὶ καὶ ὠτίδι* (v.l. *χηνὸς καὶ ὠτίδος*)[22] *· τοῖς δὲ μέσοις περὶ εἴκοσιν, οἷον ἰκτίνῳ καὶ ἱέρακι. τίκτει δ' ὁ ἰκτῖνος τὰ μὲν πλεῖστα δύο, ἐνίοτε δὲ καὶ τρεῖς ἐξάγει νεοττούς.*

The period of sitting is the same length for the other large birds, such as the goose and the bustard; for medium-sized birds, such as the kite and the hawk, it is about twenty days. The kite, in general, lays two eggs, but sometimes it brings up as many as three chicks.

وكذلك يفعل سائر الطير العظيم الجثة مثل الوزّ وامثاله . فاما الطائر الوسط الجثة فهو يجلس على البيض ويدفئه عشرين يوما مثل الحدأة واصناف البزاة والحداء تبيض بيضتين اكثر ذلك وربما باضت ثلث بيضات واخرجت منها ثلثة افراخ .

Scot Et est istud tempus in quo aves magnae cubant sua ova, sicut anseres et otidez. Et aves mediocres cubant viginti diebus, sicut milvus et accipiter. Et anchatinez in maiori parte ovat duo ova, et forte pullificabit tres pullos.

We can see here that the item 'other' (*τῶν ἄλλων*) is preserved in Arabic (**سائر**), but not in the Latin translation. The bustard (*ὠτίς*), however, has been replaced in our extant Arabic text by **وامثاله** ('and the like', usually = 'et sibi similis'), whereas Scot has the transcription 'otidez', which must derive from another Arabic text in which the bird was not recognized, but which preserved the original Greek reading in a careful transcription. In this context it is interesting to notice the variant reading *χηνὸς καὶ ὠτίδος*, which Scot's transcription 'otidez' seems to follow closely.

In what follows the Arabic translator paraphrases the Greek text again: the process of *ἐπῳάσις* is rendered by **يجلس على البيض ويدفئه** ('they sit on the eggs and keep them warm'), which Scot translates, twice, by a simple 'cubant'.

But then we again have something curious: the name of the kite (*ἰκτῖνος* in Greek) is translated twice in the Arabic text, like the two times it occurs in the Greek text, once by **حدأة** (ḥid'a) and once by one of the plural forms **حداء**

21. The English translations come from D'ARCY WENTWORTH THOMPSON tr., *Historia Animalium*, in: *The Works of Aristotle* Vol. IV (Oxford, 1910[i] ff.), A.L. PECK tr., Aristotle, *Historia animalium* (Cambridge, Massachusetts 1964, repr. 1970) and D.M. BALME tr., Aristotle, *History of Animals* (ed. A. GOTTHELF, Cambridge Mass., London, 1991). I have made some slight changes here and there. The variants of the Greek text are drawn from the edition of P. LOUIS, Aristote, *Histoire des Animaux* (Paris, 1964 ff.).

22. Codd. Marcianus 208; Laurentianus LXXXVII-4; Moerbeke.

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(ḥidā'). The first time the name of the bird is translated correctly as 'milvus' ('kite'). The second time however the name of the same bird is transcribed, once again following an Arabic transcription which, in turn, must have been based on the Greek: 'anchatinez' (*ἰκτῖνος*), to the point that Scot suspects it to be another bird, for which he actually begins a new sentence.

The expansion made by the Arabic translator, باضت ثلث بيضات ('hatches three eggs'), is simplified by Scot, unless one is to assume that those words were not in his Arabic text, which belonged to a different Arabic textual tradition.

For the sake of completeness, it can be seen that the Arabic translator paraphrases *ἱέρακι* by اصناف البزاة ('kinds of falcons').

2. *HA* VI 10, 565b10-12. *χόριον δὲ καὶ ὑμένες ἴδιοι περὶ ἕκαστον γίγνονται τῶν ἐμβρύων, καθάπερ ἐπὶ τῶν τετραπόδων.*

Each embryo has a chorion and membranes of its own round it, just as in quadrupeds.

وحول كلّ فرخ مشيمة وصفاقات خاصّة كما تكون فى اولاد الحيوان .

Scot Et cuilibet pullo est secundina propria et humanez propria, sicut etiam in quadrupedibus.

This sentence is quoted from the famous Aristotelian description of the smooth dogfish, the Mustelus laevis (a kind of shark). Scot has the translation 'pullus' instead of the required 'embryo', because the Arabic translator rendered the Greek *ἔμβρυον* by فرخ , (instead of جنين), which actually means 'young bird', but within this text may also mean 'young animal' in general, and of which 'pullus' is the perfect translation. صفاقات (*ὑμένες*) is usually translated as 'telae' by Scot. But here again we find a transcription of the Greek form: 'humanez'.

Scot's 'in quadrupedibus' may derive from فى اولاد الحيوان ('in the offspring of animals'), but it is likewise possible that his Arabic text translated the Greek *τῶν τετραπόδων* literally.

3. *HA* VI 18, 573b4-5. *ἐν δὲ τῇ κυήσει ὅ ἂν βλαφθῇ τῶν τέκνων καὶ τῷ μεγέθει πηρωθῇ, καλεῖται μετάχοιρον.*

Any one of the litter which gets injured during pregnancy and stunted in size is called a metachoiron (after-pig).

وربّما اصاب بعض ما يحمل (من) الخنازير الانثى ضرورة وفساد (* * *) .

(*lit.* and sometimes damage and corruption will happen to some of the pregnant female pigs).

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Scot In tempore vero impraegnationis, si aliqua occasio acciderit fetui ut diminuatur in quantitate, dicitur matuahoron.

This is a complicated but interesting case. The Arabic translation, as already noted, means literally: 'and sometimes damage and corruption will happen to some of the pregnant female pigs'. It is immediately obvious that Scot's translation is much closer to the Greek text; especially the transcription 'matuahoron' for *μετάχοιρον* ('after-pig'). The editors of the Arabic text assume a lacuna here, after ضرورة وفساد ('damage and corruption'), on account of the Greek text. It may be, however, that the extant Arabic text never had anything else.

4. *HA* VII 2, 589b26. *ἓν δὲ μόνον νῦν ὦπται τοιοῦτον, ὁ καλούμενος κορδύλος.*

Only one such has been seen at present, the so-called cordylus ('water-newt').

وقد ظهر حيوان واحد الذى يسمّى تمساحا .

Scot Et non fuit visum animal talis dispositionis nisi unus modus tantum, qui dicitur codiloz.

This concerns a passage about animals who can live in water as well as on land. Here too Scot offers a transcription, 'codiloz', following the Greek *κορδύλος* ('water-newt'), whereas the Arabic text has تمساح, which actually means 'crocodile', and which is usually transcribed by Scot as 'tencheah', or a variant thereof.

5. *HA* VII 29, 607a26-27. *τῆς δ' Ἰταλίας ἔν τισι τόποις καὶ τὰ τῶν ἀσκαλαβωτῶν δήγματα θανάσιμά ἐστιν.*

In certain places in Italy the geckos' ('spotted lizards') bites too are fatal.

وفى بعض الاماكن التى فى بلدة اطاليا جراذين تعضّ عضّا مميّتا .

Scot Et in quibusdam locis terrae Italiae est morsus escalabaton mortalis.

Whereas the Arabic جراذين (in the singular form جرذون) is elsewhere transcribed by Scot as 'hardon', we find here again a transcription following the Greek *ἀσκαλαβωτῶν*, even with the inflexional ending.

6. *HA* VIII 5, 611b3-5. *ἀλλὰ τοὺς γέροντας (sc. ἐλάφους) γνωρίζουσι μάλιστα δυοῖν σημείοιν· ὀδόντας τε γὰρ οἱ μὲν οὐκ ἔχουσιν οἱ δ' ὀλίγους, καὶ τοὺς ἀμυντῆρας οὐκέτι φύουσιν.*

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But the older deer are recognized chiefly by two signs: they have few teeth or none at all, and they no longer grow the 'defenders' ('brow-antlers').

وكبرها يعلم من خصلتين اعنى انه لا يكون لبعضها اسنان ومنها ما يكون لها اسنان يسيرة ولا ينبت الاسنان (التى بها تقاتل بعد ذلك الوقت) .

Scot Et senex (*sc. cervus*) cognoscitur duobus, quoniam in isto tempore non habet dentes – et quidam (*sc. cervi*) habent dentes parvos – et tunc non habent cornua quae dicuntur amonitrez.

In this place the Greek *τοὺς ἀμυντῆρας* has been preserved in transcription in Scot's text, but has not been passed down in the extant Arabic text.

The same sometimes applies to combinations of a few words or even entire sentences in the original Greek text, which can be found in Scot's Latin translation but not in the extant Arabic text.

Some examples are:

1. *HA* VI 12, 566b31-567a1. *ζῳοτοκεῖ μὲν οὖν εὐθὺς ἐν αὑτῇ, καὶ τίκτει ζῷα, καὶ χόριον καὶ τἆλλα προίεται ὥσπερ πρόβατον.*

It is internally viviparous and brings forth its young alive, and produces a chorion ('after-birth') and all the rest, just like a ewe.

فهو يحمل حيوانا ويلد حيوانا مثله ومشيمة بعد الحيوان .

(*lit.* et impraegnatur animali et generat animal sibi simile, et secundinam post animal *(sc. expellit)*).

Scot Et generat animal per se, et quando exit fetus, exibit cum eo secundina, et similiter alia animalia, sicut oves.

It is obvious here that Scot possessed an Arabic text different from ours, closely related to the Greek. *Τἆλλα*, however, was interpreted by one of the translators (either Scot or the Arab) as 'other animals', instead of 'other things' that are expelled after child-birth. The whole of the last part of the sentence, 'et similiter alia animalia sicut oves', is not found in our extant Arabic text.

2. *HA* VI 19, 573b25-27. *ἐν ἑκάστῃ δὲ* (v.l. *γὰρ*) *ποίμνῃ κατασκευάζουσιν ἡγεμόνα* <*ἕνα* Aubert-Wimmer> *τῶν ἀρρένων, ὃς ὅταν ὀνόματι κληθῇ ὑπὸ τοῦ ποιμένος προηγεῖται. συνεθίζουσι δὲ τοῦτο δρᾶν ἐκ νέων.*

In every flock they train one of the rams for bell-wether. When he is called on by name by the shepherd, he takes the lead. Rams are trained to this from their

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earliest days.

وانما تهيّء الرعاة فى كلّ قطيع كرّازا واحدا ويعوّدونه التقدّم وقيادة الغنم من شبيبته .

(*lit.* et pastores ponunt in quolibet grege arietem unum rectorem et docent eum se anteriorare ovibus a pueritia).

Scot Et pastores ponunt in quolibet grege arietem unum rectorem, et cum pastor exclamaverit unum eorum nomine proprio, anteriorabit se, et pastores docent hoc a pueritia.

Here again it is clear that Scot had an Arabic copy in which the Greek text had been translated literally, since his text contains an equivalent of *ὅς ὅταν ὀνόματι κληθῇ ὑπὸ τοῦ ποιμένος*).

3. *HA* VIII 5, 611b12-13. *νέμονται δὲ τὸν χρόνον τοῦτον νύκτωρ, μέχριπερ ἂν ἐκφύσωσι τὰ κέρατα.*

During this time they feed by night, until their horns have grown out.

Scot Et in isto tempore pascuntur nocte, quousque creverint cornua eorum.

Aristotle describes the behaviour of deer in the period when they have not yet grown new horns. The above-quoted sentence is entirely lacking in the extant Arabic text. In Scot's translation, however, it has been preserved via another Arabic tradition.

This fact could also explain certain changes in the syntax of the Latin text compared to the Arabic text (apart from the changes Scot virtually had to make, translating from a Semitic language into an Indo-European language), as well as a different position of some small parts of the text and the disappearance of others.[23]

Do all these clues point in the direction of the 'revised version' (اصلاح islāḥ), intriguingly mentioned by Pseudo-Maimonides, a version attributed to Ḥunayn ibn Iṣḥāq?[24]

23. See VAN OPPENRAAY, 'Quelques particularités' (1990). See also Notes in my edition of *PA* (VAN OPPENRAAY, ASL 5.2, 1998) to 673a27 687b21 697b13, and to *GA* 767a7.

24. (d. 873 A.D.). BDL (1971), Introd. pp. 67-70; KRUK (1979), Introd. pp. 18 and 35. See also G. ENDRESS, *Die arabischen Uebersetzungen von Aristoteles' Schrift 'De caelo'* (Frankfurt am Main, 1966), pp. 98-101. Cf. *The Fihrist*, ed. FLÜGEL, p. 251.21:

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An interesting part of the editorial work involves the attempt to give, if necessary, an explanation of the deviant translations in Scot's text with regard to the Greek text. Usually these deviations are demonstrably due to reading or interpretative errors made either by the Arabic translator or by Scot. They may even be the result of a mistake by both authors at the same time.[25] One of the regular stumbling-blocks for the Arabic translator is his lack of knowledge about the Greek system of negations. This repeatedly results in an assertion which is opposite to that in the original Greek text, and two or more negations often lead to a complete chaos in meaning. Mostly Scot has only ventured to make corrections in extreme cases. However, many so-called 'errors' in relation to the Greek text can be attributed to Scot himself, especially where he misinterpreted the Arabic text, which hardly contained any diacritical points, and might therefore have easily led to misunderstandings.

When the Arabic translator has a Greek reading which has not been included in the received text of the various editions, it can often be found in the list of variants, especially in that of Louis' edition. These variants, but also those which are not found in the extant tradition of the Greek MSS, may tell us something about the copy used by the Arabic translator, which was considerably older than the earliest Greek MSS in our possession. It may be possible to isolate these alternative translations and reduce them to variants of the original Greek text. However, this will require separate research, which cannot be carried out within the framework of the project of the first edition of Scot's Latin translation.

'There also exists a Syriac translation, older and better than the Arabic one' (tr. BDL). On Pseudo-Maimonides' Tract, see J.N. MATTOCK ed., Maimonides, *Maqāla taštamilu 'alā fuṣūl min Kitāb al-Ḥayawān li-Arisṭū* (Tract comprising excerpts from Aristotle's *Book of Animals*) (Cambridge, 1966), p. ix.

25. See Note to *Part. An.* I 1, 641b35 in my edition (VAN OPPENRAAY, ASL 5.2, 1998).

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MAURO ZONTA

THE ZOOLOGICAL WRITINGS IN THE HEBREW TRADITION

The Hebrew approach to Aristotle's zoological writings and to their ancient and medieval commentators in the Middle Ages

The so-called 'Hebrew Aristotle', consisting of the whole *corpus* of Aristotle's writings and of their ancient and medieval commentaries as paraphrased, epitomized and translated into Hebrew in the 13th, 14th and 15th centuries, is a rich field of research, which is still expecting a long-due comprehensive examination. Moritz Steinschneider's inventory,[1] though still useful, is now partially surpassed and should be supplemented by the results of recent research. Some years ago, I have tried to give a first tentative description of the translation process of the *Corpus Aristotelicum* into Hebrew accomplished by Jewish European scholars in the Late Middle Ages, where the complex problems arising from the Hebrew tradition of Aristotle's zoological texts have been also mentioned.[2] I had already discussed such problems in a brief article[3] and, more recently, in a longer essay,[4] but they need a more appropriate and comprehensive treatment. To this end, I will take here into account all the existing Hebrew translations – partial or total – of *Historia animalium*, *De partibus* and *De generatione animalium* and of some Greek and Arabic commentaries on these writings. By the way, I will give indications about the diffusion of these translations in the Hebrew scientific-philosophical literature before 1500. Finally, I will try to ascertain their usefulness not only for tracing the history of these texts during the Middle Ages, but also for reconstructing some ancient and

1. Moritz STEINSCHNEIDER, *Die hebraeischen Übersetzungen des Mittelalters und die Juden als Dolmetscher* (Berlin, 1893).

2. Mauro ZONTA, *La filosofia antica nel Medioevo ebraico* (Brescia, 1996), pp. 195-196, 209-210.

3. Mauro ZONTA, "Ibn al-Ṭayyib Zoologist and Ḥunayn ibn Isḥaq's Revision of Aristotle's *De Animalibus*. New Evidence from the Hebrew Tradition," *Aram* 3 (1991), 235-247.

4. Mauro ZONTA, "Mineralogy, Botany and Zoology in Medieval Hebrew Encyclopaedias. 'Descriptive' and 'Theoretical' Approaches to Arabic Sources," *Arabic Sciences and Philosophy* 6 (1996), 263-315, in particular pp. 268-273 and 302-309.

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medieval commentaries on Aristotle's zoology, whose original texts are now missing.

1. A survey of the Arabic tradition

As a matter of fact, the whole Hebrew medieval tradition of Aristotle's zoology depends (directly or not) on the Arabic tradition. Of course, this is not the place to carry out a detailed examination of the latter: I will try to fix some points only, which will be useful for a better understanding of the following exposition.

As fas as we know, only three of Aristotle's zoological writings were almost entirely translated into Arabic: *Historia animalium*, *De partibus animalium* and *De generatione animalium*. They were included in the comprehensive title *Kitāb al-ḥayawān* (*The Book of Animals*) or *Kitāb tabā'i' al-ḥayawān* (*The Book of the Natures of Animals*). The 'current' Arabic version, maybe based on a pre-existing Syriac translation,[5] is falsely ascribed to Yaḥyā Ibn al-Biṭrīq but was probably written, in the first half of the 9th century, by somebody from the school of Usṭāṯ, the Arabic translator of Aristotle's *Metaphysica*; it omits large parts of the original text (*Hist. An.* V, 18-34, 550a8-558b3, and VI, 22-37, 576a2-581a5). This version (I will name it 'pseudo-Biṭrīq') was later translated into Latin by Michael Scot around 1220, under the title *Liber de animalibus*. The sections concerning *Part. An.* and *Gen. An.* have already received critical editions by Joan Brugman, Hendrik Joan Drossaart Lulofs and Remke Kruk,[6] while the section corresponding to *Hist. An.*, imperfectly edited by 'Abd al-Raḥmān Badawī,[7] will be soon critically re-published by Lourus S. Filius, Johannes den Heijer and John Mattock in the series 'Aristoteles Semitico-Latinus'. However, there is evidence that pseudo-Biṭrīq was not the only Arabic medieval translation of Aristotle's zoological works.

5. Cf. the observations by Johannes DEN HEIJER, "Syriacisms in the Arabic Version of Aristotle's *Historia animalium*," *Aram* 3 (1991), 97-114.

6. Aristotle, *Generation of Animals. The Arabic Translation commonly ascribed to Yaḥya ibn al-Biṭrīq*, eds. J. BRUGMAN and H. J. DROSSAART LULOFS, Publications of the 'De Goeje Fund' 23 (Leiden, 1977); Aristotle, *The Arabic Version of Aristotle's Parts of Animals*, ed. Remke KRUK, Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afd. Letterkunde, n.r. 97 (Amsterdam, 1979).

7. Arisṭūṭālīs, *Kitāb ṭiba' al-ḥayawan*, ed. 'Abd al-Raḥmān BADAWĪ (Kuwait, 1977).

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There exists an Arabic summary of *Historia animalium*, including also some brief fragments from *Part. An.* and *Gen. An.*, which appears not to depend wholly on pseudo-Biṭrīq; in some points, it looks even closer to the Greek original. This summary, which is falsely ascribed to Moses Maimonides (I will name it 'pseudo-Maimonides'), has been published by John Mattock in 1966[8]; at the beginning of it, one can read the following sentence: "I have collected (these extracts) from Aristotle's *Treatise on Animals* as revised by Ḥunayn ibn Isḥāq."[9] From these words, one should be lead to conclude that pseudo-Maimonides took his extracts from a lost 'revision' by Ḥunayn of pseudo-Biṭrīq's version – a revision which was likely the result of a comparison to the Greek original text.

At the best of my knowledge, no other trace of such 'revision' by Ḥunayn is found in medieval Arabic literature. However, Arabic medieval bibliographers[10] pointed out the existence of a translation or of a 'revised version' of Aristotle's zoological writings among the works of Abū 'Alī 'Īsā ibn Isḥāq Ibn Zur'a (943-1008), a Christian philosopher living in Baghdad who is described in the Muntaḫab ṣiwān al-ḥikma (*Selection of Case of Wisdom*), a doxographical work falsely ascribed to the 10th-century Arabic writer Abū Sulaymān al-Siǧistānī, as "the last of the (Arabic) translators of Aristotle's books and of their epitomes."[11]

Moreover, in the Arabic medieval tradition there existed a number of summaries and paraphrases of Aristotle's zoology, either translated from the Greek or written by Arabic authors. One of them was ascribed to the Greek writer Nicolaus Damascenus (1st century): probably, it was simply a part of his summary of the whole *Corpus Aristotelicum*, the *Compendium of Aristotle's Philosophy.*[12] We do not know exactly who translated this text into Arabic (maybe, Ibn Zur'a himself); however, it is now almost totally missing, apart from some doubtful traces

8. Maimonides, *Maqāla taštamil 'alā fuṣūl min kitāb al-ḥayawān li-Arisṭū* (Excerpts from Aristotle's Book of animals), ed. and transl. John N. MATTOCK, Arabic technical and scientific texts 2 (Cambridge, 1966).

9. Maimonides, *Maqāla*, ed. and transl. MATTOCK, p. 1.

10. Cf. *Kitāb al-fihrist li-l-Nadīm*, ed. Reza TAĞADUD Teheran, no date), p. 323, lines 1-8.

11. The *Muntakhāb Ṣiwan al-Ḥikmah of Abū Sulaimān as-Sijistānī*, ed. Douglas M. DUNLOP (The Hague, 1979), pp. 143-144.

12. See Nicolaus Damascenus, *On the Philosophy of Aristotle*, ed. Hendrik Joan DROSSAART LULOFS, Philosophia Antiqua 13 (Leiden, 1969).

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which, according to H.J. Drossaart Lulofs, might be found in Syriac.[13] An interesting witness about the contents of Nicolaus' work is given by Averroes in his *Long Commentary on the De anima*. While discussing the relationship between appetite and movement, Averroes says: "Aristotle spoke about this in his treatise *De motu animalium*, but this treatise did not come to us, apart from a little part of Nicolaus' summary".[14] So, according to Averroes' witness, it seems that the summary of Aristotle's zoology ascribed to Nicolaus and known to the Arabic tradition included also some passages from *De motu animalium*.

Another Arabic summary of possible Greek origins is the compendium ascribed to Themistius, found in a manuscript in Taskent and published in 1971 by 'A. Badawī.[15] It embraces extracts from *Hist. An.* I-V, from *Part. An.* II-IV and from the whole text of *Gen. An.* Its authorship has been long questioned: in facts, it seems to depend on pseudo-Biṭrīq, so that it is generally regarded as a mere medieval summary of the previously existing Arabic translation of Aristotle's zoology, and not as an authentic translation from the Greek. Nevertheless, this text has some peculiarities which cannot be so easily explained: in particular, it contains some transcriptions of Greek words and several sentences which are not to be found in pseudo-Biṭrīq, and whose real origin is still unclear.

Finally, among the Arabic commentaries on Aristotle's zoology, those known to the Hebrew medieval tradition are three: the section of

13. See Hendrik Joan DROSSAART LULOFS, "Aristotle, Bar Hebraeus and Nicolaus Damascenus on Animals," in *Aristotle on Nature and Living Things. Philosophical and Historical Studies Presented to David M. Balme on his Seventieth Birthday*, ed. Allan GOTTHELF (Pittsburg, 1985), 345-357.

14. "Et ipse locutus fuit de hoc in tractatu quem fecit de Motu Animalium, sed iste tractatus non venit ad nos, sed quod transferebatur ad nos fuit modicum de abbreviatione Nicolai": cf. Averrois Cordubensis *Commentarium Magnum in Aristotelis De anima libros*, ed. Francis S. CRAWFORD (Cambridge, Mass., 1953), p. 524, lines 59-62.

15. 'Abdurraḥmān BADAWĪ, *Commentaires sur Aristote perdus en grec et autres épîtres* (Beirut, 1971), pp. 193-270. For scholarly discussions about the origin of this text, see Friedrich W. ZIMMERMANN and H. Vivian B. BROWN, "Neue arabische Übersetzungstexte aus dem Bereich der spatantiken griechischen Philosophie," *Der Islam* 50 (1973), 313-324, at pp. 323-324; John N. MATTOCK, "The Supposed Epitome by Themistius of Aristotle's Zoological Works," in *Akten des VII. Kongresses fur Arabistik und Islamwissenschaft – Gottingen 15-22 Aug. 1974*, Abhandlungen der Akademie der Wissenschaften in Gottingen, phil.-hist. Kl. III:98 (Gottingen, 1976), 260-267.

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Avicenna's encyclopaedia, *The Book of the Cure* (*Kitāb al-Šifā'*), devoted to zoology[16]; the *Commentary on the Book of Animals* (*Tafsīr kitāb al-ḥayawān*) by the Nestorian theologian, philosopher and physician Abū l-Faraǧ'Abdallāh Ibn al-Ṭayyib (d. 1043); the compendium of *Part. An.* and *Gen. An.* written by Averroes in 1169 – lost in Arabic, but preserved in a complete Hebrew translation, written by Ya'aqob ben Makhir Ibn Tibbon in 1302.[17] Also the Arabic text of Ibn al-Ṭayyib's commentary is almost completely lost, and no complete translation of it is extant: only two brief quotations, in Latin translation, are found in a zoological work by Peter Gallego, bishop of Cartagena (d. 1267).[18]

2. The Latin-Hebrew translation of the Liber de animalibus

Steinschneider[19] firstly pointed out the existence of a complete Hebrew translation of Aristotle's zoological books. According to him, this translation, which he found in three manuscripts, was made on the basis of Michael Scot's Arabic-Latin translation. However, in the handwritten text there is no sure indication about the date, the place and the name of the translator. Giuseppe Furlani, in an article dating back to 1922,[20] pointed out the existence of a fourth manuscript in London and tried to solve some of these questions. He was only able to conclude that this Latin-Hebrew version of Aristotle's zoology was very literal with regard to its Latin source, and of no use for the reconstruction of the original text. In my above-cited book I have tried to give a tentative explanation of the origins of this translation, which I will resume here in a wider form.

First of all, one has to note that the manuscript tradition is rather scanty. Only three manuscripts containing the complete text are preserved: London, British Library, MS Sloane 3029; Oxford, Bodleian

16. About some quotations of Avicenna's zoology in Hebrew, see Mauro ZONTA, "Sangue e antropologia: un tema della zoologia di Aristotele nelle enciclopedie ebraiche medievali," in *Atti della VII Settimana* "Sangue e antropologia nel Medioevo", ed. Francesco VATTIONI, 3 vols. (Rome, 1993), 2:1113-1140, at p. 1137.

17. See STEINSCHNEIDER, *Hebraeischen Übersetzungen*, p. 145.

18. See August PELZER, "Un traducteur inconnu: Pierre Gallego, franciscain et premier évèque de Carthagène," in *Miscellanea Francesco Ehrle. Scritti di storia e paleografia, Studi e testi* 37 (Rome, 1924), pp. 407-456, at p. 420. The two quotations are published in ZONTA, "Ibn al-Ṭayyib," pp. 246-247.

19. STEINSCHNEIDER, *Hebraeischen Übersetzungen*, pp. 478-483.

20. Giuseppe FURLANI, "Le antiche versioni araba, latina ed ebraica del *De partibus animalium* di Aristotele," *Rivista degli studi orientali* 8 (1922), 1-21.

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Library, MS Can. Or. 66; Wien, Nationalbibliothek, MS hebr. 63. Another codex (Oxford, Bodleian Library, MS Opp. 683) contains only the section corresponding to *Hist. An.* I-IX; moreover, there are some other fragmentary witnesses of the text. What is interesting is that each manuscript gives to the text a different division, according to the following scheme, where the contents of each book are indicated:

Hist. An. Greek text	MS London, Sloane 3029	MS Wien, hebr. 63	MS Oxford, Opp. 683	MS Oxford, Can. Or. 66
I, 1-6	I	I	I	I
I, 7-17	II	II	II	I
II	III	III	III	II
III, 1-19	? [21]	IV	IV	III
III, 20-22	?	V	IV	III
IV, 1-9	?	V	IV	IV
IV, 10-11	?	VI	IV	IV
V, 1-17	?	VII	IV	V
VI, 1-21	?	VIII	V	VI
VII (VIII), 1-2	?	VIII	VI	VI
VII (VIII), 3-30	?	VIII	VI	VII
VIII (IX)	?	IX	VII [22]	VIII
IX (VII) (summarized)	?	X	-	X
X (summarized)	?	X	-	X

An analysis of the paleographical data and a study of the relationship between the above-listed manuscripts[23] leads to the conclusion that the MS Sloane 3029, probably written around the end of the thirteenth century, is the most ancient of them, and probably the nearest to the archetype of the text. The MS Can. Or. 66, was written in Spain or in Provence around 1300: its division of the books, which is more similar to Aristotle's one, is likely the result of a contamination, i.e. a direct comparison of the Arabic 'pseudo-Biṭrīq' translation. In facts, the copyist gives in the margins some passages of *Hist. An.* allegedly taken from the Arabic text (Hebrew *nusḥat ha-'arav*), which closely correspond to the relevant passages of pseudo-Biṭrīq.[24]

21. The beginnings of many books are not indicated in the manuscript.

22. The text in the MS Opp. 683 ends abruptly in correspondence of *Hist. An.* IX, 17.

23. See ZONTA, *La filosofia antica*, p. 196 note 43.

24. Cp. MS Can. Or. 66, fol. 2v = pseudo-Biṭrīq, ed. Badawī, p. 11, lines 6-8; fol. 38r = pseudo-Biṭrīq, ed. Badawī, p. 273, line 15 – p. 274, line 3 (summarized); fol. 38v = pseudo-Biṭrīq, ed. Badawī, p. 275, lines 4-8 (summarized); fol. 45v, left margin = pseudo-Biṭrīq, ed. Badawī, p. 331, lines 1-4; fol. 45v, right margin = pseudo-Biṭrīq, ed. Badawī, p. 330, lines 17-20.

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Finally, as pointed out by Furlani,[25] in all the manuscripts several glosses in French language are found; these glosses are extant in the most ancient copy of the text, the MS Sloane 3029, so that we are led to think that they were inserted into the original text by the translator himself. But did he take them from a French text? We know of no medieval French translation of Michael Scot's version of Aristotle's zoology, nor these glosses correspond to those recently found by Pieter Beullens in a 13th-century anthology of *Liber de animalibus*, written in France,[26] so, we can explain them only by supposing that the Hebrew translator knew some French, and possibly spoke it. If so, which conclusion about the period and the place of composition of this translation can be drawn from these data? Obviously, it must have been written between 1220 (when Michael Scot finished his Latin version) and 1300; I would suggest that it was composed, probably in northern France, during the second half of the thirteenth century. This conclusion is not surprising, as it is known that in the same milieu and, possibly, in the same period other Hebrew translations of philosophical and scientific texts were written, such as that of Guillaume de Conches' *Summa philosophiae.*[27]

The most important witness of this translation seems to be Gershom ben Shelomoh's *The Gate of Heavens* (*Ša'ar ha-šamayim*), a well-known Hebrew scientifical encyclopaedia, probably written around 1300 or even shortly after.[28]

The Gate of Heavens is divided into three great sections; the first one, devoted to natural sciences, is sub-divided into ten treatises. In particular, treatises 4-8, which are devoted to zoology (including the study of human anatomy and reproduction), are full of quotations – explicit or not – from Aristotle's *Historia animalium*. Such quotations were mostly identified by Felix S. Bodenheimer in an English translation of Gershom's work,[29] but the direct source from which they were

25. See FURLANI, *Le antiche versioni*, pp. 255-256.

26. See Pieter BEULLENS, "A 13th-century florilegium," published in these proceedings. I have compared the text of this anthology as preserved in: Vatican City, Biblioteca Apostolica Vaticana, MS Regin. lat. 786, fols. 63r-91r.

27. See Yisḥaq Ṣvi LANGERMANN, "Girsah 'ivrit šel ha-enṣiqlopediyyah sel Guillaume de Conches [A Hebrew text of Guillaume de Conches' encyclopaedia]," *Kiryat Sefer* 60 (1985), 328-329.

28. About the datation of Gershom ben Shelomoh's work, see ZONTA, *La filosofia antica*, p. 213.

29. Rabbi Gershon Ben Shlomoh d'Arles, *The Gate of Heaven*, transl. Felix S. BODENHEIMER (Jerusalem, 1953).

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taken has remained unknown. Now, a detailed comparative analysis of the text of *The Gate of Heavens* and of the relevant passages of the Latin-Hebrew translation of *Historia animalium* shows, beyond any doubt, that Gershom employed the latter as his main source. Gershom reproduces almost literally (apart from some brief additions) not only the same Hebrew text, but also – in several cases – the same French glosses. As an example, I give a comparison of the treatment of bees (contained in treatise 6 of *The Gate of Heavens*) to the corresponding passages of the cited translation, as follows:

Gershom ben Shelomoh, *Sefer ša'ar ha-šamayim* (Warsaw, 1876)	Latin-Hebrew translation of *Hist. An.*, MS Wien, hebr. 63	Greek text of *Hist. An.*, VIII (IX), 40
p. 42a, ls. 34-37	fol. 122r, ls. 3-6	624a33-624b3
p. 42a, l. 40 – p. 42b, l. 30	fol. 125r, ls. 5-14	627a20-31
p. 43a, ls. 1-5	fol. 121v, l. 20 – fol. 122r, l. 3	624a26-27
p. 43a, ls. 13-17	fol. 122r, ls. 18-22	625a16-18
p. 43a, ls. 25-29	fol. 124r, ls. 3-8	626a18-23
p. 43a, ls. 29-31	fol. 124r, ls. 8-9	626a25-26
p. 43a, ls. 36-37	fol. 124v, ls. 8-9	626b24-26
p. 43a, ls. 38-40	fol. 124v, ls. 10-11	626b26
p. 43a, ls. 41-44	fol. 124v, ls. 13-15	626b29-32
p. 43a, ls. 44-46	fol. 124v, ls. 17-19	626b32-627a2
p. 43b, ls. 1-3	fol. 126v, ls. 1-4	628b13-14

In order to give a more precise idea of the dependence of Gershom on the Latin-Hebrew translation, we can consider the passage corresponding to *Hist. An.* 628b13-14, where the two Hebrew texts are clearly in agreement versus the Greek text:

Gershom ben Shelomoh, *Sefer ša'ar ha-šamayim*, p. 43b1-3	MS Wien, hebr. 63, fol. 126v, ls. 1-4	Greek text of *Hist. An.*, 628b13-14
[The wasps] live mainly upon meat, and therefore they	The wasps... live mainly upon meat, and therefore they	Their food is taken both from certain flowers
stay near to the places where there is meat, as to slaughter-houses, or to refuse heaps because of the corpses.	stay around refuse heaps...	and from fruits, but for the most part from animal flesh.[30]

30. See Aristotle, *History of Animals. Books VII-X*, transl. D.M. BALME (Cambridge, Mass., 1991), p. 375.

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But they also eat sweet fruits... [31]	But they also eat sweet fruits...

In any case, the above-discussed Latin-Hebrew version, notwithstanding its interest for the history of Aristotle's zoological writings in Hebrew, shows to have little importance for the history of Greek and Arabic interpretations of Aristotle. From this point of view, there is another and much more interesting witness, contemporary to that of the anonymous Latin-Hebrew translator.

3. Shem Tov Ibn Falaquera's compendium of Aristotle's zoological writings and its main sources

The Jewish philosopher Shem Tov Ibn Falaquera, living in Spain during the thirteenth century, is known to the historians of Hebrew literature for his many encyclopaedical works, where Aristotle's zoological writings are often employed as a source. As far as we known, the earliest witness of Falaquera's knowledge of these writings is given by a passage of his *Sefer ha-ma'alot* (*The Book of Grades*), probably written before 1263. Near the end of the book, Falaquera quotes *Hist. An.* III, 20, 522a12-21, as follows:

> Aristotle speaks about this in his *Book of animals*, in the second treatise [sic], while dealing with the limbs of animals, and his words are as follows. Said Aristotle: "There is no milk in the dugs of males, neither in those of man, nor in those of the other animals. (However,) it is possible that there is some milk in the dugs of males, for it happened in a certain town that there was a he-goat and it was milked by its dugs in proportion of a little cheese; after this, a she-goat was impregnated by it and gave birth to a male, which was milked by its dugs like its father. One must know that these facts are possible, and it is possible that in the breasts of some men there is a bit of milk, when they are checked (?), and, if they are milked, much milk comes out of them. (However), this happens to few men, and in a long time." These are (Aristotle's) words (*Das Buch der Grade von Schemtob b. Joseph Ibn Falaquera*, ed. Ludwig Venetianer (Berlin, 1894; reprint Jerusalem, 1971), p. 78, lines 21-30).

A comparison of this passage to the corresponding passage of pseudo-Biṭrīq shows that the former is but a very literal and faithful translation of the latter.[32] But, apparently, pseudo-Biṭrīq's one was not the only

31. See Rabbi Gershon Ben Shlomoh, *The Gate of Heavens*, transl. BODENHEIMER, p. 217.

32. See pseudo-Biṭrīq, ed. BADAWĪ, p. 142, lines 3-11.

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Arabic version of Aristotle's zoology known and employed by Falaquera.

Around 1270 (shortly after having composed *The Book of Grades*) Falaquera wrote a large encyclopaedical exposition of Aristotle's philosophy, under the title *De'ot ha-filosofim* (*The Opinions of the Philosophers*): this is a sort of Hebrew paraphrase of the sections of the *Corpus Aristotelicum* devoted to physics and metaphysics, based on several Arabic sources (mainly commentaries and summaries of Aristotle's writings). The fifth book of this encyclopaedia, bearing the title *On animals* (hereinafter *De'ot* 5), is sub-divided into two main parts. The first one contains a summary of *Hist. An.* I-X; the second one is a wide paraphrase of *De partibus animalium* and *De generatione animalium*.

As for *De'ot* 5.2, the identification of the sources is rather easy. This bulky work, which takes more than one hundred pages in its only surviving manuscript (Leiden, Rijksuniversiteit, MS Or. 4758, fols. 209rb-267rb), consists mainly of a Hebrew translation of Averroes' *Compendium* of *Part. An.* and *Gen. An.*, which shows to be the most ancient extant witness of this text. Here and there, some passages drawn from other sources are quoted: the *Book of the Cure* by Avicenna, an unknown work by a certain Abū Naṣr (al-Fārābī?), the commentary by 'Alī Ibn Riḍwān on Galen's *Ars parva*, Averroes' *Colliget*. Finally, it includes some quotations allegedly taken from Aristotle's very words: in facts, they correspond – notwithstanding some with alterations – to some passages of *Part. An.* and *Gen. An.*, which I have listed elsewhere.[33]

According to what Falaquera himself stated at the end of *De'ot* 5.1, he wrote it on the basis of two main sources. As a matter of fact, Falaquera writes: "I have taken the above-mentioned subjects from the excerpts of the ten books which are Aristotle's words (i.e. *Historia animalium*), and from Abū l-Faraǧ's translation." As I have argued elsewhere,[34] 'Abū l-Faraǧ's translation' should be identified here with Ibn al-Ṭayyib's *Commentary on the Book of animals*, while the 'excerpts' from Aristotle's *Historia animalium* probably correspond to the above-discussed Arabic compendium ascribed to Themistius. However, this explanation does not solve all the questions arising from Falaquera's text.

33. See ZONTA, "Mineralogy," p. 308 note 136.
34. See ZONTA, "Ibn al-Ṭayyib," pp. 239 ff.

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The use of 'Themistius'' compendium by Falaquera is confirmed by several facts. First, *De'ot* 5.1.1-5, corresponding to *Hist. An.* I-V, closely follow the path of chapters 1-5 of 'Themistius': the former and the latter begin and end in the same points of Aristotle's text, and mainly summarize the very same passages. Moreover, in some cases Falaquera clearly shares with 'Themistius' textual readings and words which are not found neither in pseudo-Biṭrīq nor in the Greek text. Finally, in some other cases Falaquera shows to have employed an Arabic translation of *Historia animalium*, so 'supplementing' the passages which are not epitomized by 'Themistius'. A good example of Falaquera's use of 'Themistius' and Aristotle is given by the analysis of the sources of *De'ot* 5.1.1 which I have put here below in *Appendix 1.*

Falaquera's employment of these sources goes on to *Hist. An.* V, 18, where the Arabic text of 'Themistius'' compendium stops abruptly. Rather significantly, from this point onwards the quotations from Aristotle in Falaquera become much less brief and desultory: very long passages of *Historia animalium* are reproduced, with fewer omissions with regard to the Greek text. Falaquera apparently employed, for compiling *De'ot* 5.1.5 (second part) and 5.1.6-10, not a collection of excerpts from Aristotle's zoological writings, like in the previous part of his work, but a complete Arabic translation of them. Now, as we have seen, Falaquera proves to have known pseudo-Biṭrīq, so that one should be lead to think that he simply translated it into Hebrew. But a deepful perusal of *De'ot* 5.1 shows that there are some important differences between Aristotle's text as quoted by Falaquera and that by pseudo-Biṭrīq.

First of all, *De'ot* 5.1.9-10, corresponding to *Hist. An.* IX (VII) and X, actually contains a reworking of Aristotle's words, which sometimes corresponds neither to the letter, nor to the contents of Aristotle's original text and of pseudo-Biṭrīq. The explanation of this fact is probably given by Falaquera himself at the end of *De'ot* 5.1.10, where he writes: "It seems to me that the end of this chapter is taken from the words of the commentator or of the translator of this book, who is named Abū l-Faraǧ (MS Leiden, Or. 4758, fol. 209ra, lines 3-5)." What can be concluded from these data and from this statement? Ibn al-Ṭayyib was surely not a translator from Greek into Arabic, so that he cannot be accounted for the 'translation' here employed by Falaquera. Probably, such a 'translation' of Aristotle's zoological writings was

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merely the text included in Ibn al-Ṭayyib's commentary, but Falaquera was not able to distinguish between the text and the glosses added by the commentator. This could explain the fact that, as I have shown elsewhere,[35] also the quotations from Aristotle found in *De'ot* 5.2 include some explanatory glosses which Falaquera credits to Aristotle himself, but were probably added by Ibn al-Ṭayyib in his commentary. Finally, it is true that Ibn al-Ṭayyib's commentaries seem to have been, mainly, no more than mere paraphrases of Aristotle's words,[36] but it is also plausible that, in the case of *Hist. An.* IX (VII) and X at least, Ibn al-Ṭayyib, particularly interested in medicine as he was, tried to complete and rework the medical informations about human generation given by Aristotle in these books.

Here, another question arises: which Arabic translation was employed by Ibn al-Ṭayyib as a basis for his commentary? If we examine the passages of *Historia animalium* quoted by Falaquera, and omitted in 'Themistius" compendium, we find that, as a rule, these passages agree with pseudo-Biṭrīq, but, in some important cases, are much closer to the Greek original text than the latter. I will list and comment here below some of them.

1. *De'ot* 5.1.1:
While speaking about the number of ribs in men, Falaquera writes: "And one must not rely on what is said about the so-called 'seven-ribbed' (Parma, Biblioteca Palatina, MS parmense 3156, fol. 139r, line 15)."

This passage is missing in pseudo-Biṭrīq (ed. Badawī, p. 38 note), and is also omitted in the Arabic-Latin translation by Michael Scot (see Vatican City, Biblioteca Apostolica Vaticana, MS Chis. E. VIII. 251, fol. 4va, line 32), but is found in the Greek text of *Hist. An.* I, 15, 493b15-16: "We have received no reliable evidence about the alleged seven-ribbed Ligurians (Aristotle, *Historia animalium*, I. Books I-III, transl. A.L. Peck, p. 51)."

35. See ZONTA, "Ibn al-Ṭayyib," p. 242.

36. For such a characteristic of Ibn al-Ṭayyib's commentaries, see Mauro ZONTA, *La tradizione ebraica del Commento Medio di Averroè alla Metafisica di Aristotele*, Ph.D. Thesis (University of Turin, 1995), pp. 62*-64*. It is noteworthy that the second passage of Ibn al-Ṭayyib's *Commentary on the Book of animals* quoted by Peter Gallego and published in ZONTA, "Ibn al-Ṭayyib," p. 247, shows to be no more than a paraphrase of *Hist. An.* VIII (IX), 40, 624b24-30.

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2. *De'ot* 5.1.3:
"In most cases, milk is not found in the dugs of males, but in some places there is a he-goat: from the amount of milk produced by it it is possible to make a cheese, and it (*scil.* the he-goat) impregnates a she-goat. The same thing happened to a kid, which produced the above-cited measure of milk. These facts are interpreted by men as signs and proofs; and when somebody, in a certain place, practised magic with this thing, one of the gods told him: 'You will become rich' (MS parmense 3156, fol. 142v, line 26 – fol. 143r, line 5)."

The first part of this passage, though substantially identical to the corresponding passage of pseudo-Biṭrīq in contents, is – in its wording – quite different from the literal, above-cited quotation of the latter given by Falaquera himself in *The Book of Grades*. This 're-wording' of pseudo-Biṭrīq might be credited to the intervention of Ibn al-Ṭayyib (as we have seen, Falaquera probably took this passage from his commentary).

In any case, the second section of the quotation ("These facts are interpreted by men...") cannot be simply explained as the result of the intervention of the Arabic commentator. The passage corresponds closely to *Hist. An.* III, 20, 522a17-19, where Aristotle writes: "Phenomena of this sort are regarded as signs from heaven. When the owner of the goat in Lemnos consulted the oracle, the god's reply was that he would come into possession of a fortune (Aristotle, *Historia I*, transl. Peck, p. 227)." The Arabic translation by pseudo-Biṭrīq is much more reticent, nearly omitting the whole passage, as follows: "But one must know that these things et similia are signs and proofs of things that will take place in the future (pseudo-Biṭrīq, ed. Badawī, p. 142, lines 8-9);" and a comparison of Michael Scot's translation confirms this omission (see MS Chis. E. VIII. 251, fol. 14va, line 18).

3. *De'ot* 5.1.4:
"Bees smell the honey at a distance; the smell of sulphur kills them, and they do not go near a thing that smells bad (MS parmense 3156, fol. 143r, lines 22-24)."

The first two sentences, corresponding to *Hist. An.* IV, 8, 534b20-21 ("bees and knipes perceive honey at a great distance, no doubt recognizing it by its smell [Aristotle, *Historia animalium*, II. Books IV-VI, transl. A.L. Peck (Cambridge, Mass., 1984), p. 71]"), are missing in pseudo-Biṭrīq's translation of this passage, which runs as follows:

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"Some insects are killed by the smell of sulphur (pseudo-Biṭrīq, ed. Badawī, p. 188, line 7);" the lacuna is found also in Michael Scot's version (MS Chis. E. VIII. 251, fol. 18va, lines 13-15). The last sentence ("and they do not go near a thing...") has no correspondence either in Aristotle or in pseudo-Biṭrīq: it looks like an addition by Falaquera or by Ibn al-Ṭayyib.

4. *De'ot* 5.1.4:
"Most of the males are larger and longer-lived than the females, except for the mules, which are larger and longer-lived than the males (MS parmense 3156, fol. 143v, lines 11-12)."

The second part of this quotation does not have any correspondence either in pseudo-Biṭrīq (ed. Badawī, p. 199, lines 7-8: "the males of the footed and blooded animals are larger and longer-lived than those ones [sic]"), or in Michael Scot's translation (MS Chis. E. VIII. 251, fol. 19va, line 21), but is a literal translation of the relevant Greek text: *Hist. An.* IV, 11, 538a22-24 ("For the most part the males are larger and longer-lived than the females, except for the mule: here the females are longer-lived and larger [Aristotle, *Historia II*, transl. Peck, p. 93]").

5. *De'ot* 5.1.6:
"The male camel is vicious at pairing-time and if a camel or a man approaches him, he harms him (MS parmense 3156, fol. 146v, lines 23-24)."

The Arabic translation by pseudo-Biṭrīq runs as follows: "The male camel is ill-tempered when the pairing-time is come, and does not leave either a man or a camel to approach him, but wounds him (pseudo-Biṭrīq, ed. Badawī, p. 287, lines 7-8)." The Greek text (*Hist. An.* VI, 18, 571b23-25) is slightly different, but closer to the Hebrew translation: "The male camel too is fierce at pairing-time if a human being or another camel comes near him (Aristotle, *Historia II*, transl. Peck, p. 297)." Significantly, the Hebrew text literally corresponds to the relevant passage of pseudo-Maimonides' Arabic excerpts of *Historia animalium*: "The male camel is vicious at pairing-time, and if a man or a camel approaches him, he harms him (Maimonides, *Maqāla*, ed. Mattock, p. 37, lines 11-12)."

6. *De'ot* 5.1.7:
Speaking about the similarity between the soul of children and that of animals, Falaquera states: "And this is not without any reason, because

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what (scil. the character) is generated afterwards is according this comparison (i.e. the same of this), and some of these (characters) are according to analogy (i.e. analogous) (MS parmense 3156, fol. 147r, lines 17-19)."

Almost no trace of this statement is found in the Arabic version, which runs as follows: "It is not strange that the shapes of men and those of beasts are close [sic] in the time of perfection; maybe, the shapes of men are similar to those of animals (pseudo-Biṭrīq, ed. Badawī, p. 304, lines 9-11)." Here, Falaquera translates almost literally the corresponding Greek text: *Hist. An.* VII (VIII), 1, 588b2-4 ("It is not illogical if some characters (in children) are the same in the other animals, while others are very like, and others are analogous [Aristotle, *Historia III*, transl. Balme, p. 61]").

7. *De'ot* 5.1.7:
"The foods differ according to the matter out of which the animal is made. From them there is the increase of every natural thing, because every natural thing is pleasant, and all (the animals) pursue the pleasure which is in nature (MS Leiden, Or. 4758, fol. 201vb, lines 29-33)."

Pseudo-Biṭrīq omits most of this passage, and states: "Everyone of the species of animals pursues the natural pleasure (pseudo-Biṭrīq, ed. Badawī, p. 306, lines 10-11);" and no trace of it is found in Michael Scot's version (MS Chis. E. VIII. 251, fol. 28rb, line 9). However, the Hebrew text corresponds almost perfectly to the relevant passage of the Greek text (cf. *Hist. An.* VII (VIII), 1, 589a6-9: "And their food differs chiefly according to the matter out of which they are constituted. For each one's growth comes naturally out of the same matter. And what is natural is pleasant; and all pursue their natural pleasure [Aristotle, *Historia III*, transl. Balme, p. 67]").

To the above cases other similar passages can be added, chiefly drawn from *Part. An.* and *Gen. An.*, which I have listed elsewhere.[37] But there exists a more consistent proof of the fact that Falaquera knew an Arabic translation not only more 'correct', but also more complete than pseudo-Biṭrīq. As we have seen before, although the latter omits *Hist. An.* V, 18-34, several long passages from these chapters are translated by Falaquera in *De'ot* 5.1.5, as one can see from the following list:

37. See ZONTA, "Ibn al-Ṭayyib," pp. 240-242.

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De'ot 5.1.5, MS parmense 3156, fol. 144v, line 14 – fol. 145r, line 2 = *Hist. An.* 552b1-25;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 2-6 = *Hist. An.* 553a17-26;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 6-7 = *Hist. An.* 553b8-9;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 7-9 = *Hist. An.* 553b14-19;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 9-11 = *Hist. An.* 553b26-31;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 11-14 = *Hist. An.* 554a17-21;
De'ot 5.1.5, MS parmense 3156, fol. 145r, line 14 – fol. 145r, line 2 = *Hist. An.* 556b22-557a18;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 2-5 = *Hist. An.* 557b1-9;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 5-10 = *Hist. An.* 558a4-11;
De'ot 5.1.5, MS parmense 3156, fol. 145r, lines 11-17 = *Hist. An.* 558a17-30.

Moreover, some of these passages literally correspond to the relevant passages in the Arabic epitome ascribed to Maimonides, which is allegedly taken from a 'revision'. See e.g. the following passage: "They say that, when this animal (i.e. the salamander) enters (a fire), it exstinguishes it. And in a certain river, at the beginning of autumn, there is a spherical object, bigger than grapes, which goes out of the river; when its mouth opens, a living four-footed bird goes out from it, and lives and flies till to the noon; when the sun drops, it dies and survives one day (only). For this reason, it is named 'son of the day' (MS parmense 3156, fol. 144v, lines 23-27)." This passage translates, with some differences, *Hist. An.* V, 19, 552b15-23; however, it has a precise parallel in pseudo-Maimonides' epitome, as follows: "It is said that, when this animal (i.e. the salamander) enters a fire, it exstinguishes it. On the river known as Hypanis, which surrounds the place called Bosphorus, at the approach of winter, an object resembling a bag, and bigger than a grape, is found. It comes out of the river, and on its splitting open a four-winged flying creature emerges. Its span of life and flight lasts until afternoon; it is then dissolved by the heat of the sun, and it dies at sunrise. It lives for one day (Maimonides, *Maqāla*, ed. and transl. Mattock, p. 31, line 14 – p. 33, line 5)."

So, from the above-discussed data we can reach the following conclusions about the main sources of Falaquera's zoology:

Falaquera knew pseudo-Biṭrīq, but he apparently chose not to use it while writing *De'ot* 5.1 and 5.2;

in *De'ot* 5.1 Falaquera combined two sources: the Arabic compendium of *Hist. An.* I-V ascribed to Themistius, and a 'correction' or 'revision' of pseudo-Biṭrīq, probably the same used by pseudo-Maimonides;

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this 'revision' was known to Falaquera through the intermediation of Ibn al-Ṭayyib's commentary. The same commentary was used as a source also in *De'ot* 5.2.

Falaquera's compendium of Aristotle' zoology was rather widely employed by his successors: in particular, the text of *De'ot* 5.1 circulated autonomously in some manuscripts during the 14th and 15th centuries. Moreover, *De'ot* 5 was likely used by Gershom ben Shelomoh as a source for the zoological parts of *The Gate of Heavens.*[38]

4. *A Hebrew fragment of Nicolaus Damascenus' lost compendium of* De motu animalium*?*

There is another interesting witness by Falaquera, which might improve our knowledge of the medieval tradition of Aristotle's zoological works. In his book *The Guide to the Guide* (*Moreh ha-moreh*), a philosophical commentary on Moses Maimonides' *Guide of the Perplexed* written in 1280, Falaquera quotes Aristotle's *Book of animals* twice. The first quotation, which might have been taken from Ibn al-Ṭayyib's commentary, has been discussed elsewhere[39]; the second quotation, on the contrary, is still in need of an identification. It runs as follows:

> Said Aristotle in *the Book of animals*: "In the animal, when one side – *i.e.* the right one – stretches, the other one -*i.e.* the left one – contracts, and this happens in a continuous way. The limb which gives continuity to these two movements is necessarily still: this is the heart. In facts, every movement composed by pulling and pushing needs a still object which gives continuity to these movements, like the center in the circle. Such a still object is the beginning of the pushing movement and the end of the pulling movement."[40]

Which is the source of this passage? An attentive analysis shows that it looks like a summary of *Mot. An.* 7-10, 701b2-703b2, a passage dealing with the origin of the movement in animals (Aristotle puts it in the heart). It is difficult to indicate a literal correspondence, but there

38. See ZONTA, "*Sangue e antropologia,*" pp. 1133-1135.

39. See ZONTA, "*Sangue e antropologia,*" pp. 1126-1127.

40. Cf. Shem Tov Ibn Falaquera, *Sefer moreh ha-moreh*, ed. Mordekay L. BISLICHES (Pressburg, 1837), p. 55, lines 3-7; Yair SCHIFFMAN, '*Moreh ha-moreh*' *le-R. Sem Tob ben Yosef Ibn Falaqera* [The *'Moreh ha-Moreh'* by Shem Tob Ibn Falaquera], Ph.D. Thesis, 2 vols. (Hebrew University of Jerusalem, 1991), 2:88, line 21 – 89, line 2.

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are many resemblances in the contents: in facts, in this passage of *De motu animalium* Aristotle states that

> the movement of animals resembles that of marionettes which move as the result of a small movement, when the strings are released and strike one another... That which first causes movement in the animal must be situated in a definite beginning... The joint is the beginning of one thing and the end of another... Since there is similarity in the left and the right sides of the body, and the opposite parts can be moved simultaneously... it necessarily follows that the origin of movement in the moving soul must be between them... The functions of movement are thrusting and pulling, so that the organ of movement must be able to increase and contract... (Aristotle, *Parts of Animals. Movement of Animals. Progression of Animals,* transl. A.L. Peck and E.S. Forster (London, 1968), pp. 463, 469, 471 and 475).

So, Falaquera's quotation seems to have been taken from an Arabic compendium of De motu animalium. As we have seen, *Mot. An.* was never translated into Arabic as a whole;[41] however, a compendium of it, ascribed to Nicolaus Damascenus, was known to Averroes – one century before Falaquera. Is Nicolaus the source of this passage? It is very difficult to solve such a question, because – apart from the brief quotation by Averroes – no textual evidence of Nicolaus' compendium of *De motu animalium* is extant. In any case, it is noteworthy that the summarizing character of Falaquera's quotation, which puts together scattered passages from its source, closely resembles the main feature of Nicolaus' compendium of Aristotle's *Hist. An.*, *Part. An.* and *Gen. An.*, according to H.J. Drossaart Lulofs' study of some supposed Syriac fragments of it.[42]

5. Themistius' lost paraphrase of Aristotle's zoological writings: an unknown witness in the Hebrew tradition?

The last but not the least among the most important witnesses of the knowledge of Aristotle's zoology in the Hebrew medieval tradition is

41. However, it seems to have been known to Ibn Bağğa, who refers to it in his commentary on Aristotle's zoology: see Remke KRUK, "Ibn Bajja's Commentary on Aristotle's De animalibus," in *The Ancient Tradition in Christian and Islamic Hellenism. Studies on the Transmission of Greek Philosophy and Sciences dedicated to H.J. Drossaart Lulofs on his ninetieth birthday*, ed. Gerhard ENDRESS and Remke KRUK (Leiden, 1997), 165-179, at p. 168.

42. See DROSSAART LULOFS, "*Aristotle, Bar Hebraeus*".

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contained in a commentary on Peter of Spain's main logical work, the so-called *Tractatus*, written by the Jewish Provençal philosopher Ḥizqiyyah bar Ḥalafta (*alias* Bonenfant de Millau) in 1320, and preserved in Oxford, Bodleian Library, MS Mich. 314, fols. 43r-126v. Ḥizqiyyah probably knew not only Latin but also Arabic, and in facts quotes a number of Arabic medieval sources. Among these quotations, one can find the following one:

> And Themistius wrote in his compendium[43] of Aristotle's *Animals*: "The cause of the males and the females is the right or wrong proportion of the semen, together with the external causes related to this, like time, place, food and heat." He wrote: "If the semen too comes out of all the limbs, it goes out of nails and hair. But the newborn has to be born a child, not an old man, and we have said that the semen comes out of the uniform limbs, i.e. the flesh, the nerves and the blood-vessels, because they are fundamental limbs, while the non-uniform limbs, such as the face, the hands and the feet *etcetera*, are composed by them. The pleasure of coition does not necessitate that the semen comes out of the whole body, as Empedocles said; its cause is the (sexual) excitation, and this is the reason why the pleasure of who indulges in coition is smaller. Because of this, imperfect sons are generated by perfect parents, and vice versa (MS Mich. 314, fol. 116r, lines 17 ff.)."

This brief passage might be of some importance for clarifying a very obscure page of the history of Aristotle's zoology in the Arabic Middle Ages. It is known that the philosopher Themistius (4th century A.D.) wrote paraphrases of many writings by Aristotle; but, until now, the only known witness of the existence of a 'paraphrase' by Themistius concerning Aristotle's zoological writings – which is totally ignored by ancient sources – was an Arabic collection of excerpts, mainly – but not totally – relying on pseudo-Biṭrīq.

Now, if one considers the structure of the above-cited passage, one finds that its characteristics are rather close to those usually found in Themistius' paraphrases, as it contains reworkings, and in some cases literal renderings of several statements found in *Gen. An.* I, 18. In particular:

1. the statement that "the cause of the males and the females is the right proportion of the semen" echoes *Gen. An.* 723a29-32 – although

43. The Hebrew term here employed is *kelalim*, corresponding to the Arabic ǧawami', 'compendium'.

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the reference to the "external causes" finds no correspondence in this book, and might be traced back to *Gen. An.* IV, 2 (767a28-35);

2. the statements about the provenience of the semen from the uniform limbs paraphrases – rather freely – *Gen. An.* 722a17-30;

3. the final passage about the causes of sexual pleasure summarizes *Gen. An.* 723b34-724a7. However, it is noteworthy that the ascription to Empedocles of the doctrine putting the origin of the semen in the whole body is not explicitely found in Aristotle (apart from an unclear statement in 722b8 ff.). Finally, one has to note that the Arabic text behind Ḥizqiyyah's Hebrew quotation is similar, but certainly not identical to the relevant text by pseudo-Biṭrīq (cf. pseudo-Biṭrīq, eds. Brugman and Drossaart Lulofs, p. 28, lines 7 ff.).

There is only one text – as far as I know – where the same features, and even literal correspondences to this passage are to be found. It is the corresponding section of the Arabic compendium ascribed to Themistius and published by Badawī:

> And we say that for this (i.e. for the difference between males and females) there is another reason, i.e. the right or wrong proportion of the semen (...). The pleasure of coition does not necessitate that the semen comes out of the whole body, as Empedocles said, because of[44] the (sexual) excitation, and this is the reason why the pleasure of who indulges into coition is smaller. Because of this, imperfect[45] sons are generated by perfect parents, and vice versa (cf. Badawī, *Commentaires*, p. 246, line 18 - p. 247, line 3).

Generally speaking, this passage looks like a summarized version of the wider passage ascribed to 'Themistius' and transmitted by Hizqiyyah bar Halafta. So, it seems to me that the question of the origin of 'Themistius'' compendium of Aristotle's *Hist. An.*, *Part. An.* and *Gen. An.* transmitted by the Arabic tradition needs fresh discussion in the light of this discovery. Was Ḥizqiyyah's quotation taken from a more complete Arabic 'paraphrase' of Aristotle's zoological writings, ascribed to Themistius? And, if so, what is the relationship between it and the Arabic 'Themistius'' compendium?

6. Some tentative conclusions

I will try now to give a tentative answer to this and to the other pro-

44. The Arabic text seems to be corrupt here.
45. Arabic *naqiṣ*; here, Badawī's edition has the corrupt reading *ba'd*.

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blems arising from the above-discussed data (see also the *stemma* which I have put here below, in *Appendix 2*).

The first conclusion is that there really existed a 'revision' of the Arabic translation of *Hist. An.-Part. An.-Gen. An.* ascribed to Ibn al-Biṭrīq. Of the complete text of such a 'revision', which is now apparently lost, only some fragments are likely to survive: the Hebrew quotations by Falaquera (probably, through Ibn al-Ṭayyib's Arabic commentary) and the extracts preserved in pseudo-Maimonides' epitome. The 'revision' consisted of several textual improvements and of the insertion of some of the passages of the original text, omitted by pseudo-Biṭrīq; among them, there was *Hist. An.* V, 18-34, but probably not *Hist. An.* VI, 22-37 (which seems to be unknown to Falaquera and to pseudo-Maimonides as well). However, the name of the Arabic translator who compiled such a revision, probably through a comparison of pseudo-Biṭrīq to the text of a Greek manuscript, remains obscure. I would incline to identify him as Ibn Zur'a (who is mentioned by Arabic medieval bibliographers as a 'reviser' of Aristotle's zoological works) rather than as Ḥunayn ibn Isḥāq: as we have seen, the latter's name is found only by pseudo-Maimonides' epitome, so that it might well be the result of a scribal error (maybe, 'Ḥunayn ibn Isḥaq' is simply a corruption of 'Īsā ibn Isḥāq', the first name of Ibn Zur'a).

The second conclusion is as follows: the *Commentary on Aristotle's Book of animals* by Abū l-Faraǧ Ibn al-Ṭayyib, lost in Arabic, was well known to the 13th-century Latin and Hebrew traditions. All the extant traces of it lead us to think that it was a sort of 'paraphrase', rather than a literal commentary on Aristotle – more in the style of Averroes' *Middle Commentaries* than of his *Long Commentaries*. Ibn al-Ṭayyib probably used to reproduce substantially the same text of his source (here, the 'revision' of pseudo-Biṭrīq), inserting into it some brief glosses. Only the last two books of his commentary (corresponding to *Hist. An.* IX (VII) - X) seemingly consisted of a more radical reworking of Aristotle's text, as it results not only from Falaquera's quotations, but also from one of the Latin quotations found in Gallego's work,[46] which is drawn from Ibn al-Ṭayyib's commentary on *Hist. An.* X but has no correspondence at all in Aristotle's text.

46. Cf. ZONTA, "Ibn al-Ṭayyib," pp. 246-247 (the first quotation).

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The third conclusion is that an Arabic paraphrase (or compendium) of Aristotle's zoological writings (*Hist. An.-Part. An.-Gen. An.*) ascribed to Themistius existed, and was known and used among 14th-century Jewish Provençal philosophers; an Arabic epitome of it (that published by Badawī) had been used by Falaquera in Spain, half a century before. The origin of this text is unclear: was it an authentic work by Themistius? In any case, if we accept its existence, we should suppose that it was compiled on the basis of a close comparison to pseudo-Biṭrīq.

The fourth conclusion is that Aristotle's *De motu animalium* left a trace in the Hebrew medieval tradition, although not directly but through an Arabic compendium. This compendium might be identical to the relevant section of Nicolaus Damascenus' *Compendium of Aristotle's Philosophy*, which is – at the best of my knowledge – the only work including a summary of *Mot. An.* ever translated into Arabic during the Middle Ages.

If these conclusions prove to be right, the study of the Hebrew tradition of the *Corpus Aristotelicum* will show to be once more an useful and sometimes essential tool for clarifying some obscure points of the history of the Greek and Arabic Aristotelian traditions.

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APPENDIX 1

The sources of Falaquera, *De'ot* 5.1.1[47]

De'ot 5.1, MS parmense 3156	Badawī, *Commentaires* ("Themistius" epitome)	*Hist. An.*, I, 1-17	Pseudo-Bitrīq, ed. Badawī
137v,11-15	= 193,6-9	~ 487a15-22	~ 9,7-14
137v,15-19	= 193,10-13	~ 487a26-32	~ 10,4-9
137v,19-21	= 193,14-15	~ 487a34-487b3	~ 10,10-11,2
137v,21-22	= 193,15-16	~ 487b14-15	~ 11,13-15
137v,22-23	= 194,6-7	~ 487b29-30	~ 12,8-9
137v,23-24	~ 194,10	~ 488a2-3	~ 13,6-7
137v,24-25	no correspondence	= 488a7	= 13,12
137v,25-26	= 194,11-12	~ 488a5-6	~ 13,9-11
137v,26-138r,1	= 194,14-16	= 488a10-13	= 13,16-14,2
137r,2-3	= 194,22-195,1	~ 488a15-16; 18-19	= 14,7-9
137r,3-5	= 195,6-7	= 488a25; 28-29	= 14,16-17; 15,1-2
138r,5-6	no correspondence	~ 488a30-31	= 15,3-4
138r,6-8	no correspondence	= 488b3-6	= 15,10-12
138r,8	no correspondence	no correspondence	no correspondence
138r,8-9	= 195,13	= 488b16-17	= 16,10
138r,9	no correspondence	no correspondence	no correspondence
138r,9-13	= 195,13-17	~ 488b13-24	~ 16,11-14
138r,13-14	= 195,18	~ 488b24-26	~ 16,15-17,1
138r,14-16	no correspondence	= 488b24-26	~ 16,15-17,1
138r,16-17	= 196,6-7	~ 489a11-12	= 18,3-4
138r,17-22	= 196,11-15	= 489a17-22	= 18,9-15
138r,22	no correspondence	~ 489a23	~ 19,1-2
138r,22-23	= 196,18-19	~ 489b2-4	~ 20,3-4
138r,23-26	= 196,22-197,2	~ 489b10-11	= 20,9-12
138r,26	= 197,9	= 489b22-23	= 21,8
138r,26-27	= 197,14-15	~ 490a9-11	= 23,2-3; 4-5
138r,27-138v,1	= 198,7-8	~ 490a34-490b1	~ 24,9-10
138v,1-2	= 198,8	no correspondence	no correspondence
138v,2-3	= 198,10-11	= 490b17-19	= 25,14-15
138v,3-4	= 198,17-18	= 490b24-25	= 26,3-4
138v,4-6	= 199,5-6	= 491b1-3	= 28,16-18
138v,6-8	no correspondence	= 491b3-6	= 29,1-3
138v,9-12	= 199,8-10	= 491b12-15	~ 29,9-15
138v,12	no correspondence	no correspondence	no correspondence
138v,12-14	= 199,10-11	= 491b15-18	~ 29,16-30,1
138v,14-18	= 199,14-18	= 491b24-32	= 30,6-14
138v,18-19	no correspondence	~ 491b33-34	= 30,15-16
138v,19-25	= 199,18-25	~ 492a6 + 7-12	~ 31,9-32,4

47. The first number indicates the folio or the page, while the number or numbers after the comma indicate the lines; the sign 'equal' (=) indicates a literal correspondence, while the little wave (~) indicates a more vague correspondence in contents. The passages which are probably the direct source of Falaquera are underlined.

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138v,26-139r,1	no correspondence	no correspondence	no correspondence
139r,1-3	= 200,3-6	= 492a19-20 + 32-492b3	= 33,3 + 8-9
139r,3-4	= 200,8-9	= 492b6-7	= 33,20-34,1
139r,4-5	= 200,9-10	no correspondence	= 34,4-5
139r,5-7	no correspondence	no correspondence	no correspondence
139r,7-9	= 200,11-13	no correspondence	no correspondence
139r,9-10	= 200,15	= 492b22-23	= 34,13-14
139r,10-11	= 200,17-18	= 492b27-28	= 35,2-3
139r,11-12	no correspondence	~ 492b30-31	= 35,5-7
139r,12-14	= 200,21-23	~ 493a2-4	~ 35,11-14
139r,14-15	= 201,16	= 493b14	= 38,8-9
139r,15	no correspondence	= 493b15-16	no correspondence
139r,16-17	= 201,18-19	= 493b24-25	= 39,2-4
139r,17-18	= 201,21	= 493b32	= 39,6-7
139r,18-19	= 201,23-202,2	~ 493b33-494a1	= 39,11-13
139r,19-20	= 202,7-8	no correspondence	no correspondence
139r,21	no correspondence	= 494a16-18	= 39,20-40,1
139r,22-26	= 202,11-15	~ 494a26-33	~ 40,5 + 40,11-41,2
139r,26-139v,2	= 202,16-19	~ 494b11-17	~ 41,8-14
139v,3	= 203,2	~ 494b27-29	~ 42,6-7
139v,3-5	~ 203,2-3	= 494b29-31	= 42,7-9
139v,5-6	= 203,4	~ 494b31-33	~ 42,16-17
139v,6-9	= 203,16-19	~ 495a32-495b5	~ 44,6-13
139v,9-11	= 204,5-6	~ 495b24 + 27	~ 45,15 + 16-17 + alia
139v,11-12	= 204,9-10	= 496a14-15	= 47,1-2
139v,12-15	= 204,13-16	= 496a35-496b2; 4-6; 8-9	= 47,18-48,1; 3-5; 7
139v,15-18	= 204,19-23	= 496b16-24	= 48,12-17
139v,18-19	= 205,12	~ 497a23-24	~ 50,12-13

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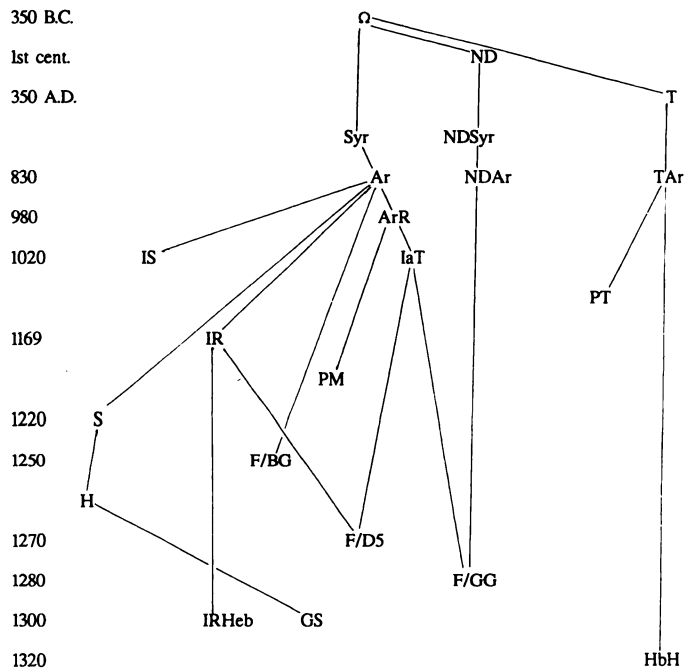
APPENDIX 2

A tentative stemma of the Hebrew medieval tradition of Aristotle's zoological writings[48]



48. Sigla: Ω = Greek original text; ND = Nicolaus Damascenus' *Compendium of Aristotle's Philosophy*; T = 'paraphrase' of Ω ascribed to Themistius; NDSyr = Syriac translation of ND; Syr = (suppositive) Syriac translation of Ω; NDAr = Arabic translation of ND; Ar = pseudo-Biṭrīq; TAr = Arabic translation / text of T; ArR = 'revision' of Ar, possibly by Ibn Zur'a; IaT = Ibn al-Ṭayyib's *Commentary* of ArR; IS = Avicenna's *The Book of the Cure*, section on zoology; IR = Averroes' *Compendium* of *Part. An.* and *Gen. An.*; PT = Arabic epitome of T, ascribed to Themistius; PM = pseudo-Maimonides' epitome; S = Michael Scot's Arabic-Latin translation; H = anonymous Hebrew-Latin translation; F/BG = quotation of Aristotle's zoology in Falaquera's *The Book of Grades*; F/D5 = Falaquera, *De'ot* 5; F/GG = quotations of Aristotle's zoology in Falaquera's *The Guide to the Guide*; IRHeb = Hebrew translation of IR by Ya'aqob ben Makhir; GS = Gershom ben Shelomoh's *The Gate of Heavens*; HbH = quotation of Themistius in Hizqiyyah bar Halafta's *Commentary* on Peter of Spain's *Tractatus*.

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PIETER BEULLENS

A 13TH-CENTURY FLORILEGIUM FROM ARISTOTLE'S BOOKS ON ANIMALS: *AUCTORITATES EXTRACTE DE LIBRO ARISTOTILIS DE NATURIS ANIMALIUM*

Introduction

The use of summaries and anthologies is not of recent date. Some works were seldom read in their full form from Antiquity onwards, as e.g. the mimes of Publilius Syrus (first century BC), which have almost exclusively been preserved in collections of moralizing quotations or *sententiae*. Similarly the content of 107 of the original 142 books of Livy's *Ab Urbe condita libri* (first century AD) is only known through abstracts or *periochae*. Apart from these two most famous ancient examples, Aristotle's books on animals were summarized as well. An *epitome* was made by Aristophanes of Byzantium in the third century BC, which ironically has itself not come down to us except for some substantial fragments in a florilegium by the Byzantine emperor Constantine VII Porphyrogenitus (905-959 AD).[1]

Soon after the Aristotelian zoological works had entered the Latin world in the early thirteenth century through the translation of Michael Scotus, shortened forms were produced. Due to the length of the work, which on its own or combined with Scotus' translation of the *Abbreviatio Avicenne* often fills an entire volume of considerable size, the cost of reproduction was so high that not every student could afford a personal copy and many had to rely on condensed versions of the text, i.e. compendia and anthologies. Wingate described three of those summaries and suggested that "it was perhaps as much through the media of these abridgements as in the complete form that Michael's version was diffused among the Latins".[2]

Besides these summaries several collections of quotations were available. In general, florilegia can be divided into three types depending on the method adopted by their compilers in arranging the material,

1. Edited by S.P. LAMBROS, *Excerptorum Constantini de natura animalium libri duo. Aristophanis historiae animalium epitome* (Berolini, 1885).

2. S.D. WINGATE, *The Mediaeval Latin Versions of the Aristotelian Scientific Corpus, with Special Reference to the Biological Works* (London, 1931), pp. 79 and 105, n. 130.

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and in each category examples of compilations that drew their information from Aristotle's zoological works exist. Anthologists often simply retain the order of the sentences in the original work, as in the case of the section on *De animalibus* in the so-called *Parvi Flores*,[3] a comprehensive collection from the works of Aristotle and other philosophers. Others follow the order of the alphabet: such *tabulae* taken from *De animalibus* can be found in at least three manuscripts that also contain alphabetically arranged quotations from Aristotle's *libri naturales* and ethical works.[4] Finally, the compiler may try to group the quotations according to the subject treated. The collection entitled *Auctoritates extracte de libro Aristotilis de naturis animalium* in some manuscripts, on which this paper focuses, belongs to this third type of anthology.

1. Manuscripts and their composition

Without claiming exhaustiveness, I have established a list of ten manuscripts containing the florilegium. The data are based on descriptions in catalogues and other publications. The manuscripts are:

- Cambridge, St. John's College, 79 (D.IV), s. XIV, fols. 22v-30v (= *C*).[5]
- Dresden, Sächsische Landesbibliothek, A 191, s. XIII, fols. 134r-154r (= *D*).[6]
- London, British Library, Cotton, Vespasianus E.X, fols. 59v-85r (= *L*).[7]

3. Edited by J. HAMESSE, *Les Auctoritates Aristotelis. Un florilège médiéval. Étude historique et édition critique* (Louvain/Paris, 1974), pp. 209-229. For the most recent list of manuscripts containing the *Parvi Flores*, see EAD., "Les manuscrits des 'Parvi Flores'. Une nouvelle liste de témoins", *Scriptorium*, 48 (1994), 299-332.

4. Viz. the MSS Pisa, Biblioteca del seminario, 124 (fols. 58r-86v); Würzburg, Universitätsbibliothek, Mp. Th. f. 153 (fols. 233r-252r); Brugge, Stadsbibliotheek, 517 (fols. 124va-139ra). See M. GRABMANN, *Methoden und Hilfsmittel des Aristotelesstudiums im Mittelalter*, Sitzungsberichte der bayerischen Akademie der Wissenschaften. Philosophisch-historische Abteilung. Jahrgang 1939, Heft 5 (München, 1939), pp. 126-139; A. DE POORTER, *Catalogue des manuscrits de la bibliothèque publique de la ville de Bruges* (Gembloux/Paris, 1934), pp. 605-607.

5. L. THORNDIKE, P. KIBRE, *A Catalogue of Incipits of Mediaeval Scientific Writings in Latin*, rev. and augm. ed. (London, 1963), col. 1598.

6. M. GRABMANN, *Methoden und Hilfsmittel*, pp. 172-173.

7. L. THORNDIKE, P. KIBRE, *A Catalogue of Incipits*, col. 534.

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- Metz, Bibliothèque municipale, 296, a.D. 1464.[8]
- Olomouc, Statni Archiv (olim Kapitolni Knihovna), 536, s. XIII-XIV, fols. 2r-9v.
- Paris, Bibliothèque nationale, lat. 8817, s. XIV, fols. 34r-47v (= *P*).[9]
- Pistoia, Biblioteca Forteguerriana, D 280, s. XV, fols. 130v-131r.[10]
- Reims, Bibliothèque municipale, 867, s. XIVin., fols. 81r-92v (= *R*).[11]
- Vaticano, Biblioteca apostolica, Regin., lat. 786, s. XV, fols. 63v-91r (= *S*).
- Vaticano, Biblioteca apostolica, Vat., lat. 4263, s. XIII-XIV, fols. 71v-81v (= *V*).[12]

There is every reason to believe that this list is not yet complete, since the manuscript catalogues have often been far from accurate in describing these works and little improvement is to be expected as long as no reliable "Repertorium commentariorum medii aevi in Aristotelem Latinorum" is available. The following instances, separated in time by almost two and a half centuries, clearly illustrate the evolution: the 18th century catalogue of the Parisian Royal Library[13] cites our collection as "Nonnulla ad historiam naturalem pertinentia", and only as recently as 1992 Kristeller[14] identified the passage in the Reginensis as "Aristotle, de animalibus, tr. anon., excerpts". Admittedly the task was not made easy for codicologists, as the heading of the anthology often varies. It is entitled *Auctoritates extracte de libro Aristotilis de naturis animalium sub certis titulis* or the like in some manuscripts, but others

8. *Catalogue général des manuscrits des bibliothèques publiques des départements*, tome V (Paris, 1879), pp. 127-128. Burned during the Second World War, cf. *Catalogue général des manuscrits des bibliothèques publiques de France*, tome LIII (Paris, 1962), pp. 6-7, 12. See also C. LOHR, "Aristotelica Gallica: Bibliothecae M-Z", *Theologie und Philosophie*, 63 (1988), 84.

9. Signalled by Prof. J. Hamesse in a private letter dated November 27th, 1996.

10. S. ZAMPONI, "Commenti ad Aristotele nella Biblioteca Forteguerriana di Pistoia", *Atti e Memorie dell' Accademia Toscana di Scienze e Lettere "La Colombaria"*, 42 (1977), 34-38.

11. M. GRABMANN, *Methoden und Hilfsmittel*, p. 184. See also C. Lohr, "Aristotelica Gallica", p. 93.

12. J. HAMESSE, "Les manuscrits des 'Parvi Flores'", p. 299.

13. *Catalogus codicum manuscriptorum bibliothecae regiae.* Pars tertia. Tomus quartus (Parisiis, 1744), p. 496.

14. P.O. KRISTELLER, *Iter Italicum*, VI (London/Leiden/New York, 1992), pp. 371b-372a.

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call it *compilatio* or *tractatus*, which makes the identification still more arduous.[15]

Although judging from the surviving copies the collection must have been in use for a fairly long time, it has hardly been studied before. It is indicative of the lack of real interest that Grabmann described both the Reims and the Dresden MSS in the same publication without noticing that they are almost identical. Likewise, Thorndike and Kibre cite both English MSS under a different incipit without cross-reference. These four descriptions were for the first time combined by Tamara Goldstein, who in the printed abstract of her thesis drew the attention to the fact that they all refer to one single collection.[16]

The quotations in the anthology are drawn from Scotus' translation. A first glance at the manuscripts that contain the florilegium[17] shows that its form and content is not strictly fixed, which is a common feature of anthologies. Scribes tend either to restrict their copy to the part that is of particular interest to them, omitting the rest, or, on the contrary, to complete the text with passages that in their view are missing. The fifteenth century Pistoia MS, which only contains the first chapter of the anthology, i.e. *Sententie generales methafisice seu phisice*, is a clear example of this practice.

Since the quotations are thematically arranged and put under the appropriate headings, it must have been inviting to make the collection more user-friendly by adding a table of contents. This table is found in *LPRSV*, but is lacking elsewhere. Strangely enough, its convenience is somewhat diminished by the fact that the references do not entirely match the headings in the text itself: some sections are inversed in order or simply left out, while others are added in the table.

As an additional help for the users, in most manuscripts references to the book of *De animalibus* from which the quotations are drawn are added in the form of Roman numerals, although they lack in *L*. This

15. See apparatus ad loc. in Appendix II.

16. T. GOLDSTEIN, "Gérard du Breuil et la zoologie aristotélicienne au XIIIe siècle", *Positions des thèses soutenues par les élèves de la promotion de 1969 pour obtenir le diplôme d'Archiviste-Paléographe* (Paris, 1969), 62.

17. This paper is based on catalogue descriptions of all manuscripts, on microfilm or paper copies of *CDLR*, on an autopsy of *P* and on collations of *SV* made by my colleague Pieter DE LEEMANS, whom I owe much gratitude. I also wish to thank M. and Mme Raymond for their kind hospitality during my stay in Paris in October 1997.

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feature suggests that the excerpts initially may have been destined to be used as citations of authorities in the framework of other texts, e.g. commentaries or sermons.

2. Author and date

The identification of the collection's compiler may be an important step in search of its original purpose. Unfortunately, in almost all witnesses the text is handed down anonymously. MS *C* forms the only exception: it bears the heading *Incipit compilatio libri Ar(istotilis) de animalibus a magistro Alexandro de Hales edita*. The mention of the English university professor († 1245), who in 1236 abandoned his worldly possessions, embraced the monastic life under the rule of Saint Francis and thus became the first lecturer from a mendicant order, does not seem to be very trustworthy. Although the attribution cannot be discarded on chronological grounds, it is hardly conceivable that Alexander spent his time excerpting one of the philosophically or theologically less important works of Aristotle.

The mention of the most famous Franciscan teacher however may point to another, though slightly inconclusive clue for tracing the milieu in which the compilation came into being, viz. the composition of the manuscripts in which the anthology figures. It really is striking that the collection in general does not occur in philosophical, but in miscellaneous and theological manuscripts, and that the share of works written by monastic authors seems to be rather high in them. The mendicant orders are particularly well represented, the Dominicans by Robert Holkot (*Moralitates* in the now lost Metz MS) and Hugo of Saint-Cher (work on the sacraments in *P*), the Franciscans by Bonaventure (*D*, fols. 1-133), John Pecham (treatise on perspective in *P*) and Alexander of Hales himself (*V*, fols. 44-54, two *quaestiones*). Bearing in mind the important role played by these two orders in the spread of anthologies,[18] one might venture that the collection was first used in those circles as well. The argument however has to be used with the utmost circumspection, as it is impossible to decide by means of microfilms, paper copies or the information from catalogues

18. See J. HAMESSE, "Le rôle joué par divers ordres religieux dans la composition des florilèges d'Aristote", in *Aristotelica et Lulliana magistro doctissimo Charles H. Lohr ... dedicata*, ed. F. DOMÍNGUEZ, R. IMBACH, T. PINDL, P. WALTER (Steenbrugis, 1995), pp. 289-310.

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whether the composition of the manuscripts is original or just fortuitous as separate leaves or quires may have ended up in one single volume.[19]

As for the date of the work, the manuscripts do not contain any explicit information. The *terminus post quem* is formed by the date of the translation of *De animalibus* by Michael Scotus, which he must have completed before or around 1220. The *terminus ante quem* is the date of the oldest manuscripts of the collection, i.e. late thirteenth century.[20]

3. Arrangement[21]

The anthology opens with some chapters that bear no direct relation to animals. The first is entitled *Sententie generales methafisice seu phisice* and contains general methodological statements on causes and accidents, teleology and the role of the divine. Obviously most of them are drawn from books XI-XIX, which are devoted to a causal approach of the animal world. The first general section is followed by three others, viz. *De effectibus solis et lune in corpora inferiora*, *De elementis et qualitatibus elementariis primis* and *De qualitatibus temporum et locorum et diversitate animalium secundum hec*. The first segment is closed by a chapter called *Sermo generalis de animalibus et animalium membris*, which also forms a transition to the remainder of the text. It fittingly opens with the definition of an animal, found in book XII: *Diffinitur animal quod sensum habet et prius primum sensum scilicet tactum.*[22] The next portion of the text under the heading *Sermo particularis de membris per singula membra et primo de simplicibus* deals with the non-composite parts or homoeomerae and treats in this order

19. Yet the treatises contained in *P*, the only MS I was able to examine physically, though written by different scribes, were obviously destined to form an entity. This can be inferred from the unusually small dimensions of the quires of which this volume is composed.

20. I will return to the question of location and date in chapter 5.

21. See also the table of contents in Appendix I.

22. 653b23-24: ...animal esse illud quod habet sensum et prius primum sensum scilicet sensum tactus (sensum tactus : tactum *MS Cambridge, Gonv. & Caius, 109/178*).

References to the Scotus translation are given by the approximate numbering in the Greek edition by Bekker and the text of the editions by A.M.I. VAN OPPENRAAIJ (books XV-XIX and XI-XIV) or the typescript transcription of the MS Vaticano, Chigi E.VIII.251, by the team of Prof. B.K. VOLLMANN.

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flesh, skin, bones, teeth, beak, horns, nails, hair and feathers. It ends with the item *De mutatione colorum*.

Then the composite organs are treated, beginning with the interior ones. The section starts with the heart, which is the most important organ, as the first quote taken from book XIII shows: *Principium vite et omnis sensus a corde est*.[23] Subsequently information on the brain, the liver, the lungs, the spleen, the gall-bladder, the stomach and the kidneys is brought together. The chapter on the exterior organs is divided in parts concerning head, face, eyebrows, eyes, ears, nose, lips, jaws, mouth, tongue, neck, hands, wings, breast and nipples, haunch, buttocks, tail and feet. The fifth item of the collection contains quotations on liquids, viz. on blood, marrow, fat, sperm, menstruation, eggs, milk, coagulant, honey and excretions or *superflue humiditates*.

The previous divisions reflect in a more or less evident way the structure of books XI-XIV, i.e. of *De partibus animalium*. The arrangement of the sixth part *De operationibus animalium et primo de operationibus nutrimenti, crementi et generationis* however may have some parallels with items treated in *De generatione animalium*, but in general seems to result from the synthetic activity of the compiler. It contains interesting sections as *De cibo medicinali animalium*, *De differentia sexus*, *De continentia animalium*, *De causa masculinitatis et femininitatis*, *De gemellis* and *De diligentia et negligentia animalium circa custodiam filiorum*. Finally the collection comprises chapters on individual animals beginning with man, since according to the first relevant quote *Nobilissimum et altissimum animalium et apud nos notius et magis fixum est homo*.[24] Then several quadrupeds, birds, fishes and insects are treated. Oddly the collection closes with two chapters, *De naturali pietate animalium et amicitia* and *De cura mortuorum*, that apparently should have been included in the part on animal behaviour. Moreover, the last chapter only consists of four quotations that correspond to the description of the heading, while the subject of the five others seems to be the instinctive animosity between certain species.

It is a surprising feature of the collection that the compiler meticulously supplied cross-references to relevant quotations in previous or subsequent chapters, using expressions such as *Amplius habes de sanguine supra titulo de corde et cerebro et infra titulo de menstruo*, *De*

23. 665a12-13: ...principium vite est et omnis motus et omnis sensus est in eo.

24. 491a22-23: ...ipse est nobilissimus et altissimus omnium animalium et est apud nos notior et magis fixus.

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menstruo repete supra titulo de spermate et infra titulo de lacte, *De generatione autem plus habes supra titulo de spermate et de ovis et infra titulo de sexu* or *Cetera de sensibus require titulo de organis eorum, id est de membris faciei*. They become more frequent in the sections on individual animals, since they then refer to quotations used as examples in the systematic chapters. The compiler clearly had enough common sense to look further back and ahead than the section he was working on at that particular moment, and he even signals internal contradictions between quotes, as in the case of the sense of touch. On this topic he quotes, with some interval between them, two passages from book XII, viz. *Primum instrumentum sensus tactus caro est* and *Non est primum instrumentum tactus caro, sed quod intra carnem est*.[25] To this second citation he observantly adds the words *Contrarium paulo prius similiter*. His critical sense however has its limits: in the chapter on bones he quotes from book II *In corde equi et vacce sunt ossa, in cordibus aliorum non* and then comments *instantia in cervo*, but when he repeats the same quotation, referring to books II and XIII in the chapter *De corde*, he mentions the deer as a further example of the peculiarity of having a bone in the heart: *In corde vacce et equi sunt ossa; est etiam in corde cervi*.[26]

4. Use of other sources

Apart from the comparisons the anthologist draws between various opinions in *De animalibus*, he also cites the *vetus*-translation of the *De anima* by James of Venice, the second book of the *Analytica posteriora* by the same translator, and the *Topica*. There are three allusions to the Holy Scripture, one to *Genesis* without explicit reference, the two others to *Leviticus*. Furthermore Plato's *Timaeus* is mentioned, as well as "Hali commentator Galieni".

Although we alluded to the anthologist's cautious criticism of Aristotle by showing the contradictions between some of the quotations, in general the authority of the philosopher seems to be beyond questioning. A feature of his respect for the genuine text is that he often signals to the reader that he summarizes the philosopher's text, using phrases

25. 653b24: ...et instrumentum sensus tactus est hoc membrum, scilicet caro...; 656b35-36: ...caro non est primum instrumentum sensus, ...sed est intra carnem.

26. 506a9-10: ...Et in corde vacce et equi sunt ossa; et alia corda animalium non habent ossa; 666b18-19: ...et non est in aliquo corde os secundum quod vidimus preterquam in equo et in uno genere vaccarum.

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as *Sententia est et non textus*, *Sententia ista in libro dispersa est et non est textus verborum*, *Non extraxi textum, sed ut mihi visum est sententiam per capitulum late dispersam pro sententia Aristotilis* and *Sicut mihi visum est a brevitate collegi*. His esteem also surfaces when a citation from book XVI, where Aristotle puts that the heat in a living being is not fire, is contrasted to a seemingly opposite position in *De anima*, that fire is not *simpliciter* the cause of growth; the compiler finds a solution in book XII of *De animalibus*, where it is said that the soul conveys the action of the fire in the same way as a saw does for the carpenter: *Calor qui est in animali non est ignis. Contrarium in libro de anima; dicit enim natura ignis in plantis et animalibus alimenti et augmenti quodam modo causa est, non tamen simpliciter, sed anima magis; ergo in animalibus aliquis calor est ignis; idem ipse in hoc libro dicit.*[27]

Just as Aristotle's authority is used to reconcile seeming contradictions between his own reports, his statements sometimes are found to be striking corroborations of verses from the Bible. Thus the quotation *Natura in coitu ex mare et femina facit unum; ideo fit animal unum* almost automatically brings into the anthologist's mind the words taken from *Genesis*: *Unum erunt duo in carne una.*[28] A less obvious parallel with the book *Leviticus* is found in the quotation *Turtur coit post tres menses; pregnans est diebus xiiii, totidem cubat; post totidem avolant pulli de nido.* In the compiler's opinion the short stay in the nest of the young of the turtledove may be the reason why the Bible text states that one should offer dove chicks, whereas a similar restriction is missing for the offering of turtledoves; their young are probably too rare: *Ideo forte dicitur in Levitico: non offerre pullum turturis sicut dicitur pullum columbarum, quoniam non ita facile inveniuntur.*[29]

Other sources however get a rather rough treatment, and strikingly the translator finds himself at the receiving end. The quotation from

27. 737a6: ...calor qui est in animali non est ignis...; *De anima*, II, 4 (416a9-13) ...Videtur autem quibusdam ignis natura simpliciter causa alimenti et augmenti esse ... Unde et in plantis et in animalibus accipiet aliquis hoc esse quod operatur...; 652b13-14: ...Et tantum valet dicere quod anima est ignis quantum dicere quod serra sit faber.

28. 731a12-14: ...facit illa duo in coitu unum, et propter hoc erit ex mare et femina unum animal...; Gen. 2.24: ...erunt ... duo in carne una (cf. 1Cor. 6.16).

29. 562b30-563a1: ...turtures et feita coeunt post tres menses, et tempus inpregnationis in eis est quatuordecim dies et cubant quatuordecim dies, et post quatuordecim dies habent alas completas in tantum, quod difficile venantur ipsas; Lev. 5.11: Quod si non quiverit manus eius offerre duos turtures vel duos pullos columbarum ...

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book I stating that *Omne animal movet mandibulam inferiorem preter fethea quod movet superiorem*, elicits the following harsh comments from the anthologist's pen: *Nescio quod animal sit nec credo eum scivisse qui transtulit librum quia ambitum male novit; et ideo nullus usque hodie transtulit peius ipso; de cocodrillo audivi quod sit huiusmodi.*[30] His criticism may be a little harsh: not only is there a marginal note by a later hand in the famous MS Vaticano, Chigi E.VIII.251 reading *corcodillus*, but the Arabic translation apparently also contains some misinterpretations of its model text concerning the crocodile. The correction of the error must have been easy, as a number of ancient and medieval writers have the correct information.[31]

According to the anthologist, "Hali commentator Galieni" is tarred with the same brush. He finds no mercy for the thesis that the divine intellect enters the foetus through the sperm: *et est sermo gravis et obscurus, immo potius notabilis error et horror.* It is countered by quotations from Aristotle: *dicit enim ut supra quod anima cibativa est in concepto et semine potentia, actu autem non; et paulo post: et anima sensibilis similiter in potentia; et paulo post: impossibile enim est ut intrent ab extrinseco; et paulo post: sequitur ergo dicere quod solus intellectus intret ab extrinseco et ipse solus est divinus, quoniam ipse non communicat cum operatione corporali.*[32] In the end the compiler seems to be satisfied: *aliquo modo iste sermo sanior est.*

30. The anthologist's criticism on Scotus bears a close resemblance to the one phrased by Albertus Magnus in his commentary on Aristotle's *Meteorologica* re the authorship of the so-called "Questiones Nicolai peripatetici": "Consuevi dicere quod Nicolaus non fecit librum illum sed Michael Scotus, qui in rei veritate nescivit naturas nec bene intellexit libros Aristotilis". See *B. Alberti ... Opera omnia*, ed. A. BORGNET, vol. 4 (Paris, 1890), p. 697; cited by C.H. HASKINS, *Studies in the History of Mediaeval Science* (New York, 1927), republ. 1960), p. 279, n. 45.

31. 492a22-23: ...et omnia animalia movent mandibulam inferiorem preter temsah qui movet superiorem.
For the misinterpretation by the Arabic translator, see A.M.I. VAN OPPENRAAY, "Michael Scot's Arabic-Latin Translation of Aristotle's *Books of Animals*. Some Remarks concerning the Relation between the Translation and its Arabic and Greek Sources" in this volume, p. 33. Cf. Plinius, *Naturalis historia*, XI, 159: "Maxillas crocodilus tantum superiores movet"; Isidorus Hispalensis, *Etymologiae*, XII, 6, 20: "Solus ex animalibus superiorem maxillam movere dicitur"; Papias, *Elementarium*, s.v. crocodilus (ed. Venetiis, per Theodorum de Regazonibus de Asula, 1491; fol. 41rb): "Hoc solum ex animalibus superiorem maxillam movere dicitur".

32. Cf. 736b8-10; 13-15; 24-25; 27-29: Nos ergo dicimus quod anima cibativa est in semine et concepto animalis quod est diversum ex eis. Et manifestum est quod

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5. Comments

Except for the rare criticism on some of his sources, the compiler in general contents himself with rendering Aristotle's words and only occasionally ventures causal explanations that are not suggested in the text itself, e.g. next to the quotation *Vacce diligunt bibere aquam claram, equi turbidam* he adds the conjecture *ideo Egyptus forte habundat equis, quoniam Nilus turbidus est.*[33]

A similar explanatory surmise is given to identify a kind of fish, of which is said *Est piscis de genere ostree, id est dure teste, qui natat cauda et repit.* The anthologist adds *Puto quod sit piscis quod dicimus cancrum fluvialem, gallice escreveice.* His guess offers a further clue for the location and the date of his work: the French word *escreveice* ("crayfish") is attested for the first time in the middle of the thirteenth century, which may be almost contemporary with our compilation.[34] And this is not the only instance where a French vocabulary is used by the compiler. Under the heading *De diversis accidentibus que in coitu accidunt* he comments on the quotation *Fingitur de perdice quod in coitu facit odorem fetidum* with the words *unde proverbialiter dicitur: cist flaire la pertris*, "he smells like a partridge", which must refer to the proverbial sexual insatiability of the bird.[35] If we accept the hypothesis that the anthologist was either French-speaking or writing for a French-speaking public, a corroboration can be found in his comments. When in the section *De monstris* he quotes Aristotle that *Monstruosum animal erit unum vel duo continuata, et habebit unum cor et alia membra multa contra naturam; sic est unum animal vel duo corda*

illa anima est in eis in potentia, in actu autem non. (...) Et sequitur dicere de dispositione anime sensibilis, quoniam necessarium est ut sint iste anime prius in potentia. (...) Est ergo impossibile ut intrent in corpus ex extrinseco. (...) Et sequitur dicere quod intellectus tantum intrat ex extrinseco et quod ipse solus est divinus, quoniam operatio eius non habet communicationem cum operatione corporali aliquo modo.

33. 595b29-30: Vacce autem diligunt bibere aquam claram, et equs diligit turbidam bibere sicut camelus.

34. "Li paagiers ... li commanda qu'il s'acuitast des *escreveices* qu'il portoit." Cited by J. FINOT, *Étude historique sur les relations commerciales entre la France et la Flandre au Moyen Age* (Paris, 1894), p. 182.

35. 560b15: Et fingitur quod perdix cum coit facit odorem fetidum (misunderstanding of the original text, which states that the partridge has a good sense of smell). On the popular belief surrounding this bird in Antiquity and Middle Ages, see X.R. MARIÑO FERRO, *Symboles animaux* (Paris, 1996), pp. 318 ff.

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erunt in duobus continuatis; sic sunt duo animalia,[36] he draws the comparison with a contemporary event: *huiusmodi autem animalia dicunt apud Arelatem temporibus nostris fuisse*.[37] It is obvious that copyists have messed up the apparently geographic name: of the extant manuscript readings only "Arelas" is attested as a variant name for the city of Arles. The mention of the name in combination with the use of French vocabulary confirms that the compiler was well acquainted with the language and geography.

Epilogue

In the present paper I have shown that Wingate's thesis on the diffusion of Scotus' *De animalibus* through abrigdements applies to the anthology entitled *Auctoritates extracte de libro Aristotilis de naturis animalium*. It is highly probable that the collection originated in a French-speaking circle in the course of the thirteenth century. It enjoyed a long-lasting interest as it was copied several times in the spread of at least two centuries. It may well have been destined for the use in a monastic milieu.

It is clear that the tradition of florilegia did not end in the fifteenth century. A new anthology was printed in the following century under the title *Aristotelis sparsae de animalibus sententiae in continuatam seriem ad propria capita revocatae nominaque secundum literarum ordinem disposita*. The work was published in 1563 by Alessandro Benaccio in Bologna and was compiled by Cesare Odone (Caesar Odonus), who had presented a similar collection based on Theophrastus' *De plantis* three years earlier.[38] Apart from the use of the more recent translation by Theodore Gaza, which is shown through the use of references to the text's partition into books and chapters introduced in the early editions of Gaza's version,[39] the purpose of the new anthol-

36. 773a8-12: Et erit animal unum monstruosum et duo continuata, et habebunt unum cor et alia membra erunt multa contra naturam, et forte erunt duo corda in duobus continuatis, et hoc accidit eis propter continuationem duorum corporum.

37. Variants: Arelatem *P* : Arclarem *R* : Arelare *D* : *sententiam non habent CL*

38. Cited by F.E. CRANZ, *A Bibliography of Aristotle Editions. 1501-1600*. Second edition by C.B. SCHMITT (Baden-Baden, 1984), p. 78. I owe my information to Pieter DE LEEMANS, who collated the copy of the Biblioteca Nazionale Centrale "Vittorio Emanuele II" in Rome (signature 55-11-B-11).

39. See the abstract of A. GOTTHELF's paper in the conference report of the International Workshop 'The Tradition of Aristotle's *De historia animalium*' in *Bulletin de Philosophie Médiévale*, 38 (1996), 175.

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ogy had not changed, as appears from the dedication by Odonus: *Tibi igitur Aristotelis libellum de historia animalium prius quidem adeo dispersum ac divulsum ut unius animalis historia vix unquam integre percipi posset, nunc opera nostra in continuationem ac seriem quandam redactum dico* (fol. 2v).

If anthologies were copied and made until well into the sixteenth century, they must have answered to a need. It would be interesting to find out who the users of these florilegia were. This question however was not dealt with in this paper. We may conclude that much work regarding the history and use of philosophical anthologies in general, and those based on *De animalibus* in particular, remains to be done.

Postscript

In a private letter dated May 26th, 1998 Prof. B. van den Abeele (whom I owe my sincere gratitude) signalled to me the existence of another copy of the florilegium in MS Paris, Bibliothèque nationale, lat. 14726, s. XIII, fols. 2-17v. It also contains anthologies from the works of Solinus and Isidorus. The MS's provenance from the collection of monastery of Saint Victor and the moral glosses (e.g. *De lupis. contra advocatos*) in the margins of the Solinus text seem to confirm the hypothesis that similar collections were used in monastic circles for the preparation of sermons and commentaries.

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APPENDIX I:
Transcription of the table of contents based on the variants in *R* and the concords between *L* and *V*[40]

LRV

Tituli auctoritatum extractarum de libro Aristotilis de natura animalium.[41]

I. 1. Primus titulus sententiarum generalium methaphisicarum seu phisicarum.
2. De effectibus solis et lune in corpora inferiora.[42]
3. De elementis et qualitatibus elementaribus primis.
4. De qualitatibus temporum et locorum et diversitate animalium secundum hec.
5. Sermo generalis de animalibus et animalium membris.

II. Sermo particularis de membris[43] per singula membra et primum de membris simplicibus.
1. De carne.
2. De ossibus.
3. De dentibus.
4. De rostro.
5. De cornibus.
6. De unguibus.[44]
7. De pilis.
8. De plumis.[45]
9. De corio.
10. De diversitate et mutatione colorum.

III. Sequitur de membris compositis et primum[46] de interioribus.
1. De corde.
2. De cerebro.

40. All variants except purely orthographical ones are included from *R*, as well as concords between *L* and *V*.

41. Quidam tractatus de naturis animalium *L*: Incipiunt sententie generales metaphisice seu phisice et autoritates extracte a libro Aristotelis de natura animalium sub certis titulis *V*

42. inferiora *om. LV*

43. membris + et *R*

44. ungulis *LV*

45. *Titulos II.7 et II.8 transp. L*

46. primum] primo LV

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3. De epate.
4. De pulmone.
5. De splene.
6. De felle.
7. De ventre.
8. De renibus.

IV. Sequitur de membris exterioribus.[47]
1. De capite.
2. De facie et membris faciei.
3. De superciliis.
4. De oculis et palpebris.[48]
5. De auribus.
6. De naso.
7. De labiis.
8. De mandibula.
9. De ore.
10. De lingua.
11. De collo.
12. De pectore et mamilla.[49]
13. De manibus.
14. De alis.
15. De coxis, natibus et cauda.[50]
16. De pedibus.[51]

V. Sequitur de humoribus et humiditatibus animalium.
1. De sanguine.
2. De medulla.
3. De pinguedine.[52]
4. De spermate.
5. De menstruo.
6. De lacte.
7. De ovo.[53]

47. *exterioribus membris transp. LV*
48. De oculis. De palpebris *LV*
49. De pectore. De mamillis *LV*
50. De coxis (coris *V*). De natibus (naribus *L*). De cauda. *LV*
51. Non nominantur omnia membra *add. R*
52. De zirbo sive sepo et pinguedine *R*
53. *Titulos V.6 et V.7 transp. V*

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8. De melle.
9. De superfluo humido.

VI. Sequitur de operationibus animalium et primo de operationibus nutrimenti, crementi et generationis.
1. De cibo et cibi desiderio naturali et effectu eius.
2. De cremento.
3. De cibo medicinali animalium.[54]
4. De coitu et desiderio coitus et generatione per coitum.[55]
5. De differentia sexus.
6. Quando incipiunt animalia primo desiderare coitum et quando desinunt.[56]
7. De luxuria et castitate animalium.
8. De spatiis et terminis[57] impregnationis.
9. De qualitate concepti et de partu.[58]
10. De causa[59] masculinitatis et femininitatis.
11. De causa similitudinis et[60] dissimilitudinis filiorum.
12. De causa multitudinis filiorum.[61]
13. De gemellis.[62]
14. De partibus[63] corpore vitiatis.
15. De monstris.
16. De educatione filiorum et diligentia animalium circa hec.[64]
17. De sensibus[65] animalium.
18. De motibus membrorum.

54. *Titulos VI.2 et VI.3 transp. R*
55. De cohitu et desiderio cohitus (choitus *V*). De (et *V*) generatione per coitum (choitum *V*) *LV*
56. Quando primo recipiunt animalia desiderare cohitum (choitum et *V*). Quando coeunt (choeunt *V*) *LV*
57. terminis] causis *R*
58. De qualitate conceptum partu *LV*
59. causis *R*
60. et] vel *R*
61. *om. L*
62. geminis *LV*
63. partubus *L*
64. *om. LV*
65. sensu *LV*

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VII. De intellectu et ingenio animalium et eorum moribus et hec per singula animalia.[66]
1. De homine.
2. De ove.[67]
3. De capra.
4. De bobus.[68]
5. De cane.
6. De porco.
7. De apro.
8. De cervo.
9. De caprea.
10. De equo.
11. De asino.
12. De mulo.
13. De camelo.
14. De elephante.
15. De leone.[69]
16. De urso.
17. De lupo.
18. De pardo et leopardo, panthera, cameleonte, vulpe, lepore.[70]
19. De simia.
20. De serpentibus.
21. De ceteris reptilibus.
22. De mure, lacertulo et scorpione.[71]

VIII.
1. Sequitur sermo[72] generalis de avibus et postea de singulis.
2. De gallina.
3. De ansere.
4. De columbis.
5. De palumbis.

66. De intellectu et ingenio animalium et eorum moribus per singula animalia et primum *R*
67. + et ariete *LV*
68. *om. R*
69. *Inter titulos VII.1 et VII.2 pos. R*
70. De pardo (spardo *V*). De leopardo. De pantera (panteri *V*). De cameleonta. De vulpe. De lepore *LV*
71. De lacertis. De scorpione *L* : De mure. De lacertulo. De scorpione *V*
72. Sermo sequitur *transp. LV*

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6. De turture.
7. De passere.
8. De hyrundine.
9. De pavone.
10. De perdice.
11. De grue.
12. De cubet.[73]
13. De kike.[74]
14. De corvo.
15. De bubone.[75]
16. De vulture.
17. De aquila.
18. De accipitre.
19. De milvo.[76]
20. De struttione.[77]

IX.
1. Sermo generalis de piscibus.
2. De delfine.[78]
3. De navem tenente.[79]
4. De nathera.[80]
5. De rana.

X.
1. De animalibus anulosis.
2. De apibus.[81]
3. De vespa.[82]
4. De aranea.
5. De formicis.

XI. De naturali pietate et amicitia animalium et de contrario.

XII. De cura mortuorum.[83]

73. cubeth *R*
74. De luche *L* : De kiche (?) *V*
75. pubone *R*
76. millo *R*
77. *Titulos VIII.19 et VIII.20 coniung. LV*
78. delphine *L* : delfinis *V*
79. navetenente *LV* : De magnete *add. L*
80. De narculi *LV*
81. + et earum melle *LV*
82. vespra *R* : vespibus (!) *LV*
83. *om. LV*

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APPENDIX II:
Edition of the first four chapters of the anthology

Conspectus codicum florilegium continentium

D Dresden, Sächsische Landesbibliothek, A 191, s. XIII, fols. 134r-154r
L London, British Library, Cotton, Vespasianus E.X, fols. 59v-85r
P Paris, Bibliothèque nationale, lat. 8817, s. XIV, fols. 34r-47v
R Reims, Bibliothèque municipale, 867, s. XIV$^{in.}$, fols. 81r-92v
V Vaticano, Biblioteca apostolica, Vat., lat. 4263, s. XIII-XIV, fols. 71v-81v

C Cambridge, St. John's College, 79 (D.IV), s. XIV, fols. 22v-30v
S Vaticano, Biblioteca apostolica, Regin., lat. 786, s. XV, fols. 63v-91r

Conspectus codicum translationem Scoti continentium

Sc. Consensus codicum ab editore adhibitorum
Sc. A Vaticano, Chigi E.VIII.251
Sc. B Brugge, Bibliotheek van het Groot Seminarie 99/112
Sc. C Cambridge, Gonville and Caius College Library 109/178
Sc. D Göteborg, Stadsbibliotek 8
Sc. E Pisa, Biblioteca del Seminario e Collegio Arcivescovile Santa Caterina 11
Sc. H Berlin, Staatsbibliothek Preussischer Kulturbesitz, Hdschr. 194
Sc. K Kues, Bibliothek des Hospitals 182
Sc. P Paris, Bibliothèque nationale, lat. 17843
Sc. W Wien, Nationalbibliothek 97

Principia editionis

In the apparatus fontium reference is made to the approximate page and line numbers in the Greek edition by Bekker. Literal quotations only bear the reference, while free citations are preceded by the abbreviation "cf.". Commentary and information added by the anthologist are italicized.

In the critical apparatus the abbreviation *Sc.* refers to all MSS used in the editions by Aafke van Oppenraay (*Gen. an., Part. an.*) or to Vollmann's transcription of the MS Vaticano, Chigi E.VIII.251 (*Hist. an.*). Comparisons with individual MSS of the Scotus translation are added

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if they contain striking similarities with variants in the anthology's MSS. Purely orthographical variants have not been included.
In the choice of variant readings the text that renders Scotus' version with the most accuracy was most often preferred. In case variants were shared with different readings of the Scotus MSS, the number of witnesses was taken into account.

Incipiunt auctoritates extracte de libro Aristotilis de naturis animalium sub certis titulis.

I. 1. Sententie generales methafisice seu phisice.

1. Ex operatione docti auditoris est iudicare super sermones dicentis. *xi*
2. Omne habens easdem causas habet etiam eadem accidentia. *x*
3. Causa propter quam est quod melius est in operationibus nature et artificii. *xi*
4. Necessitas dicitur simpliciter in rebus eternis et transsumptive in aliis.
5. Nature cognitio nobilior est per formam quam que per materiam.
6. Dicitur in proverbiis quod animalia in lapides mutabantur. *Proverbia fabulose vocat.*
7. Amator quando aliquid amat, angustiatur in comprehendendo modicum rei amate et hoc est propium amatoris.

DLPRV(CS)
Incipit compilatio libri Ar(istotilis) de animalibus a magistro Alex(andr)o de Hales edita *C* : Incipiunt auctoritates extracte de libro Ar(istotilis) de naturis animalium *D* : De naturis animalium *L* : Incipiunt auctoritates extracte de libro Ar(istoti)lis de libro animalium sub certis titulis *R* : Incipiunt auctoritates extractae de libro animalium Aristotelis sub certis titulis methaphisice et phisice *S* : *om. PV*

I.1. *om. CDLPSV*
1.1. operatione] comparatione *P* auditoris] auctoris *LV* (*Sc. CE*) super] secundum *R* sermones] sermonem *R* dicentis] docentis *P*
1.2. *om. C* omne] omnes *L* etiam] et *P* : *om. DLV* eadem] eandem *P*
1.3. causa + est *R* quam] quod *R* : qua res *L*
1.4. dicitur + dupliciter dicitur enim *D* et *om. LD* transsumptive] dicitur modo transsumptivo *Sc.* aliis] omnibus rebus attributis *Sc.*
1.5. *om. LV* nature cognitio] natura cognita *Sc.* que + est *R*
1.6. *om. C* dicitur + et *V* mutabantur] mutantur *D* (*Sc. CEW*) : vertebantur *P* proverbia] commentator proverbia *D* vocat] vocata *R* proverbia - vocat *om. P*
1.7. comprehendendo] comprehendere *D* rei amate] rei amore *P* : amati *Sc.*

1.1. 639a4-5
1.2. 637a37
1.3. 639b19-20
1.4. 639b24
1.5. 640b28-29
1.6. 641a20-21
1.7. 644b34

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8. Omnia naturaliter appetunt delectationem. *vii*
9. Debemus considerare formas et delectari in artifice qui fecit eas. *xi*
10. In omnibus rebus naturalibus, etiam vilibus, est mirabile. *xi*
11. Natura dat unicuique sibi conveniens. *viii*
12. Omne quod fuit et quod erit, non fuit neque erit nisi propter aliquid. *xi*
13. Natura cuiuslibet est conveniens rei ad quam est preparata. *xi*
14. Natura nichil facit ociose. *xii*
15. Parvum est in magno, non autem magnum est in parvo. *xii*
16. Ubi possibile est unam esse radicem, melius est principium unum quam multa. *xiii*
17. Principium debet esse unum et in medio.
18. Natura non facit nisi quod melius est ex rebus possibilibus. *xiiii*
19. Natura dat instrumentum secundum operationem qua indigetur, et non operationem secundum instrumentum.
20. Cause note in rebus sunt: finis, verbum, materia, movens. *xv*
21. Infinitum natura respuit.
22. Omnes operationes indigent instrumento conveniente.
23. Natura facit omne quod facit, aut quia necessarium est aut propter melius. *xvi*
24. Res divina est causa meliorationis in rebus ad utrumlibet et hoc per sui naturam.

1.8. naturaliter] naturalia *V* appetunt] querunt *Sc.* vii *scr.* : xi *DP* : vi *R* : v *V* : *om. L*
1.9. considerare] considerari *L* artifice] artificem *R*
1.10. etiam vilibus *om. P* etiam] et *R*
1.11. sibi] sui *LV*
1.12. et] aut *R* (*Sc. E*) quod erit *om. P*
1.13.
1.14. xii *loco* xvi *habent CDPRV, om. L ut semper*
1.15. est[1] *om. R* est[2] *om. DLV* xii] xi *V*
1.16. radicem] indicem *D* principium unum quam multa] ita quam facere multa principia *Sc.* est[2] est esse *P* : esse *V* unum principium *tr. R*
1.17. *om. C*
1.18. ex] de *R*
1.19. operationem secundum instrumentum] secundum operationem *R* : operatur secundum instrumentum *LV*
1.20. sunt + scilicet *LV*
1.21.
1.22.
1.23. omne quod facit *om. LV* aut[2] + quod *L*
1.24. meliorationis] melior cognitionis *P* hoc] hec *V* : + est *R* per (*Sc. PW*)] propter *L, Sc.* naturam sui *tr. Sc.*

1.8. 589a8-9
1.9. 645a11-12
1.10. 645a16-17
1.11. 615a25
1.12. 645a25
1.13. 645b20
1.14. 744a36
1.15. 660a28-29
1.16. 665b14-15
1.17. 666a14
1.18. 687a16
1.19. 694b13-14
1.20. 715a4-7
1.21. 715b15
1.22. 716a24
1.23. 717a15-16
1.24. 731b26

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25. Anima nobilior est corpore et animatum inanimato, vivens mortuo, ens non ente.
26. Generabile numero non potest esse eternum, *sed est eo modo quo potest forma una in multis salvata generatione continua successiva.*
27. Natura quanto diminuit in multitudine, tanto augmentat in magnitudine. *xvii*
28. Ars eicit superfluum a suo opere, similiter et natura. *xvii*
29. Natura dat instrumentum et virtutem simul quoniam non potest esse videns sine oculis neque oculus est aliquid sine visu. *xviii*
30. Natura non dat simul multos modos iuvamenti.
31. Non facit virtus plus aut minus re determinata.
32. Omnia minora et debiliora citius perveniunt ad complementum suum.
33. Materia est principiorum non determinatorum.
34. Unusquisque reputat quod aliquid dicat. *xi*
35. Omnes res indigent sibi contrario ut temperentur. *xii*
36. Omne quod facit natura est secundum ordinem. *xvii*
37. Non potest esse res semper que non est secundum naturam. *xviii*
38. Omnia naturalia et artificialia non sunt nisi per terminum et temperantiam determinatam. *xviii*
39. Proprium quod est in quolibet, magis vincens est. *xviii*

1.26. quo + modo *R* successiva] successura *V*
1.27. diminuit] dimittit *D* multitudine] multitudinem *L*
1.28. ars] dominus *D* suo] sui *R* et *om. D* et similiter *tr. P, Sc.*
1.29. quoniam] quis *V* sine visu aliquid *tr. D* aliquid *om. P* xviii] viii *R*
1.30. non *om. D* simul + minime *D*
1.31. aut] vel *RD*
1.32. omnia] communia *D* perveniunt ad complementum suum] ad complementum perveniunt suum *D* : ad complementum suum veniunt *LV* : ad complementum perveniunt *P*
1.33. principiorum] principium *D*
1.34. quod] quando *L*
1.35. sibi (*Sc. DH*)] cibi *Sc. A* : *om. L* (*Sc. CEW*)
1.36.
1.37. res esse *tr. R* (*Sc. W*)
1.38. sunt] sint *D* terminum] finitum vel terminum *L* : termitium *P* xviii] xvii *CPR*
1.39. proprium *om. LP* vincens] evidens *D* xviii] xvii *CPR*

1.25. 731b29-30
1.26. 731b35 (vide etiam 715b10)
1.27. 755a35
1.28. 762a17-18
1.29. 766a5; 8
1.30. 663a17
1.31. 772a11
1.32. 775a20
1.33. 778a6
1.34. 648b1
1.35. 652b16-17
1.36. 760a31
1.37. 770b11-12
1.38. 767a16-17
1.39. 767b33

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40. Causa destructionis motuum est quoniam illud quod operatur patitur etiam, et ideo hebetatur. *xviii*
41. Universaliter omne movens movetur et aliquando operans magis patitur quam operetur.

2. De effectibus solis et lune in corpora inferiora.

1. Sol facit estatem et hyemem omni anno, luna facit hoc omni mense. *xviii*
2. Spatia impregnationis et vite omnium animalium sunt secundum revolutiones lune. *xviii*
3. Luna non habet omnino principium *subauditur agendi in inferiora* nisi propter communicationem et receptionem luminis a sole et sic efficitur quasi alius sol. *xviii*
4. Noctes plenilunii calidiores sunt. *xiii*
5. In diminutione lune dies sunt frigidiores. *xvii*

3. De elementis et qualitatibus elementariis primis.

1. Principia naturalium elementorum sunt calidum frigidum siccum humidum *xii*
2. Calidum, frigidum, humidum et siccum sunt cause vite et mortis, sompni et vigilie, iuventutis et senectutis, sanitatis et egritudinis. *xii*

1.40. *om. C* est *om. LPSV* quoniam] quando *LV* illud] id *DL* etiam *om. DLSV*
1.41. omne *om. L* operetur] operatur *D* (*Sc. K*)

I.2. *om. CP* inferiora *om. V*
2.1. luna + etiam *LV* hoc] hec *LV* omni mense hoc *tr. R*
2.2.
2.3. subauditur ... inferiora *post* sol *tr. L* : subaudit in inferiora *P* : subagendi *V* propter] per *V* communicationem] communcanciam *R* : continuacionem *LV* : + quam habet *R* (*Sc. BW*) et receptionem] in receptione *R* (*Sc. P*) a sole] ab eo *DP* : ex eo *Sc.* et sic *om. P*
2.4. noctes] subauditur noctes *V* xiii] xviii *D*
2.5. in] inferiora in *V* sunt frigidiores] frigidiores sunt *R* : frigidiores *DV*

I.3. *om. C* qualitatibus elementariis primis] primis qualitatibus *LV* : qualitatibus elementalibus *P* : qualitatibus elementaribus primis *R*
3.1. frigidum *om. P* siccum humidum] humidum et siccum *D* : humidum siccum *V*
3.2. et[1] *om. DP* cause sunt *tr. DLPV* sompni] sumpni *R* : sompnum *L*

1.40. 768b15-17
1.41. 768b18-21

2.1. 767a5-7
2.2. 777b17-18
2.3. 777b24-26
2.4. 680a34
2.5. 767a3-4

3.1. 648b9-10
3.2. 648b3-6

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3. Si in natura calidi et frigidi dubitant physici, quid in aliis facient? Nam calidum et frigidum magis apparentia sunt in omnibus que sensu cognoscuntur. *xii*
4. Calidum est quod calefacit id quod tangit secundum approximationem.
5. Magis calidum multis modis quod est maius. Iste modus alienissimus est quod approximans. Amplius calefacit quod amplius sentitur, quod citius calefit, quod tardius infrigidatur. *xii*
6. Ignis infrigidari non potest. *xii*
7. In rebus viventibus frigidum non est natura, sed privatio. *xii*
8. Corpora dura quando calefiunt, magis calefiunt quam humida. *xii*
9. Calor naturalis regit corpus sicut princeps regionem. *xiii*
10. Calor naturalis rectificat corpora animalium et propter hoc homo tantum erecti corporis est. *xiii*
11. Natura humidi convenientior est creationi quam terra. *Ideo forte multiplicantur pisces et aves plus gressibilibus.* *xvii*

4. De qualitatibus temporum et locorum et diversitate animalium secundum hec.

1. Ignis multus comburit et paucus digerere non potest. *xviii*

3.3. si] sed *L* in[1]] de *P* : *om. R* dubitant] dubitent *R* physici] phisici *PR* : ph'i *LV* : ph'yci *D* facient] fatent *L* in[3] *om. LPV* sensu] sensum *D*
3.4.
3.5. *om. C* modis *om. R* quod[1] *om. LV* maius] + et *R* : magis *LV* approximans] approximat *V* iste ... est *post 3.3. pos. LV* quod[2] *om. L* amplius[1]] magis *D* calefit] calefacit *V*
3.6.
3.7.
3.8. calefiunt[2] *om. D*
3.9.
3.10. rectificat] retificat *V* et *om. DLP* homo tantum] homo est tantum est *V* est erecti corporis *tr. L* est] supple est humido obediente *P* : *om. D*
3.11. humidi] homini *R* : eius *L* convenientior] convenienter *P* creationi est *tr. R* creationi + id est multiplicationi *P* ideo forte multiplicatur (*!*) *ante* natura *pos. L* : *post* corporis *(3.10.) pos. V* et aves *om. D* plus *ante* pisces *pos. LV*
3.11.b. xviii Et ideo ignis medium suum modum ramentum tenens conservat rem in rerum natura medium enim est res conservans *add. D, locum apud Aristotelem non inveni*

I.4. *om. CD* temporum] operum *L* diversitate animalium secundum hec] diversitate animalium per hec *L* : diversitatibus animalium *P*
4.1. multus] multum *R* et *om. D* non potest digerere *tr. Sc.*

3.3. 648a33-35
3.4. 648b13
3.5. Cf. 648b14-21
3.6. 648b30
3.7. 649a18-19
3.8. 650b35
3.9. 670a26
3.10. 669b4-6
3.11. 761a34
4.1. 767a21

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2. Ova que gallina cubat in estate in xviii diebus finduntur, in hyeme vero in xxv. *vi*
3. Perdix si fuerit prope marem et ventus percusserit, impregnatur.
4. Omne quadrupes magis desiderat coitum in vere.
5. Ovis et capra si impregnantur contra impetum venti septentrionalis pariunt mares, si contra meridionalem pariunt feminas.
6. Turtures non apparent nisi in estate quoniam in hyeme manent in nido. Similiter milvus et hyrundo vel latent in cavernis arborum vel transferunt se ad loca calida. Ursus similiter latet per xl dies absque cibo vel transfert se. *vii*
7. Apes, lacertuli, serpentes et omne animal anulosum latet in hyeme in cavernis.
8. Tempora pluviosa nocent avibus et siccitas piscibus et pisces in pluviosis temporibus impinguantur.
9. Pisces venantur ante ascensionem solis quoniam tunc non bene vident.
10. Turtures in estate mutantur ad loca frigida. *viii*
11. Quod venantur aves in estate diversum est ab eo quod venantur in hyeme.
12. Lehe avis in estate manet in locis oppositis austro et in umbra, in hyeme vero manet ubi sol habundat.
13. In hyeme a profundo ad superficiem maris pisces ascendunt, in vere revertuntur ad profundum.

4.2. *om. C* in[1] *om. DP* finduntur] scinduntur *D* : finditur *P* : sinduntur *V* xxv] xx vel v *P*
4.3. marem] mare *DL* et *om. D*
4.4. *om. C*
4.5. *om. C*
4.6. vel transfert se] aliquo *LV* similiter[2] + semper *D*
4.7. *om. C* apes + vel apes *P* lacertuli] lacerte *LV* in[1] *om. P* latet] latent *DLV*
4.8. pluviosa tempora *tr. D* siccitas] sicca *L* : sicca tempora *V* et[2] *om. LV* temporibus pluviosis *tr. R* impinguantur *post* pisces *pos. D*
4.9.
4.10.
4.11. *om. C* quod] qui *LRV* venantur[1]] venatur *L* ab eo] ob *L* venantur[2]] venatur *LV*
4.12. *om. C* in[1]] que *P* oppositis austro] appositis vento *Sc.* vero *om. D*
4.13. *om. C* in hyeme] hyeme vero *D* : yeme *P* a profundo *om. LV* maris] aque *L* pisces ascendunt *ante* in hyeme *pos. LV*

4.2. 559b30-560a2
4.3. 560b13-14
4.4. 573a27-28
4.5. 573b34-574a2
4.6. 593a17-18; cf. 600a16-17; cf. 600a29-b3
4.7. 599a20-21
4.8. 601a26-29; b9-10
4.9. 602a6; 9-10
4.10. 613b3
4.11. 615a8-9
4.12. 616b12-14
4.13. Cf. 624b12-15

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14. Apes vere et autumpno mellificant, sed mel vernale melius; item instante hyeme vel pluvia non exeunt ab alveariis ad volandum. *viii*
15. Avium quarundam colores et voces diversantur hyeme et estate.
16. Pulli cito complentur in diebus calidis quoniam tempus calidum adiuvat ad digestionem.
17. Ova corrumpuntur in tempore calido, sicut vino accidit quod turbatur.
18. In annis fertilibus multiplicatur mel, in pluvialibus vero multiplicantur apes.
19. Calor temporis et aeris facit in arboribus sicut facit calor animalis in cibo.
20. Omnis modus habet tempus conveniens sue fertilitati et bonitati sue dispositionis.
21. Cum ventus fuerit septentrionalis, generantur mares et cum meridionalis, femine.
22. Ova in sterquilinio complentur vel in calida terra quasi gallina super ea cubante; et similiter in sinu vel sub pulvinari.
23. Koki in terra et in mari manet, sed plus in mari et ideo dicitur marinum; dormit tamen et parit super terram prope mare; spirat enim graviter; nec interficitur nisi cum vulnere in maxillis, quoniam corpus eius est durum carnosum, *sicut est videre in anguilla ob eandem causam.*

4.14. *om. C* vere] in vere *R* et] in *L* melius + est *LV* item] in *LV* hyeme instante *tr. LV*
4.15. quarundam] quorundam *P* diversantur] diversificantur *RC* hyeme] in hyeme *LV* estate] etate *D*
4.16. calidis] caliditatis *LV*
4.17. corrumpuntur] corrumpunt *R* tempore] die *LV* sicut] si *R* accidit vino *tr. LV* quod] quando *LV* (*Sc.*) turbatur] perturbatur *R*
4.18. *om. LRC* fertilibus] sterilibus *D*
4.19. *om. C* calor animalis facit *tr. R*
4.20. *om. C* modus] motus *DR* fertilitati] sterilitati *DLV* (*Sc. B*)
4.21. cum[1]] dum *D* fuerit] fiunt *P* generantur mares] erit natus mas *Sc.*
4.22. *om. C* in[1]] etiam *D* vel[1] *om. L* terra calida *tr. LV* vel[2]] et *R*
4.23. *om. CLV* koki] kike *R* : robe *P* nec interficitur] et non interficitur *R* : interficiendum *P* quoniam] quia *R* durum + et *R* carnosum] scamosum *P* ob eandem causam] ab eadem causa *P*

4.14. Cf. 626b29-30; cf. 627b10-11
4.15. Cf. 632b14-15
4.16. 753a17-18
4.17. 753a21-23
4.18. 760b3-4
4.19. 762b14
4.20. 763b13
4.21. 766b34
4.22. Cf. 559b1-4
4.23. 566b27-29; 567a10-12

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24. Pullificatio piscium magis est in mari quieto a ventis et calido et ubi multas aquas dulces recipit.
25. Grues transferunt se ad loca, sed prius volando ascendunt ascensione multa ut considerent qualitatem aeris ad quem transferre se volunt.

4.24. *om. CLV* est magis *tr. R*
4.25. *om. CLV* loca + remota *Sc.* prius *om. D* ascensione multa] ascensionem *P* multa] magna *Sc.* ut considerent qualitatem aeris ad quem transferre se volunt] ut videant illa loca remota *Sc.* qualitatem] qualitates *P*

4.24. Cf. 567b16-18 4.25. 614b18-21

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REMKE KRUK

ON ANIMALS: EXCERPTS OF ARISTOTLE AND IBN SÎNÂ IN MARWAZÎ'S *ṬABÂ'I' AL-ḤAYAWÂN*[1]

Traces of the Aristotelian zoological tradition can be found in a wide variety of Arabic texts. The *Libri De Animalibus* were translated into Arabic in the ninth century, and numerous references and quotations bear witness to the widespread influence of this text on medieval Arabic scholarship.[2]

Encyclopaedical texts in particular are a rich source of Aristotelian material. Some caution, however, is needed: not everything that is ascribed to Aristotle in these texts can be traced back to his works, because the influence of pseudo-epigraphica is widespread. On the other hand, his works are frequently quoted anonymously, and many of these references have remained unnoticed. They may be quite substantial, which makes them especially valuable for purposes of textual criticism. They may also throw light on the problems about the history of the translation, such as the question whether the "corrected version" (*iṣlâḥ*) of the translation by Ḥunayn ibn Isḥâq actually existed, and if so, what it consisted of (see also the contribution of Zonta to this volume). They may even yield some of the missing parts of the translation, such as *Hist. An.* 550a9-558b4 (also missing in Scot's Latin version), although this is not very likely.

Encyclopaedical texts often contain information that goes back to Aristotle's zoological works, and some source analysis to this effect has been done. Yet one feels that in this field the surface has barely been scratched, and the case of Marwazî's *Book on the Natures of Animals* strongly confirms this.

1. References will be to the following basic texts: Marwazî's *Ṭabâ'i' al-ḥayawân*: MS UCLA Ar. 52 (catalogue Iskandar 1984: 75-6; microfilm Leiden Or. 999); general references to Aristotle: Bekker 1831-70; Aristotle, *Historia Animalium* (English translation): PECK and BALME 1965-91; Arabic translation: Badawî 1977 (this edition is unsatisfactory, but the new edition prepared by DEN HEYER and FILIUS, to appear with Brill's, Leiden, is not yet available); Aristotle, *De Partibus Animalium* (Arabic translation): KRUK 1979; Aristotle, *De Generatione Animalium* (Arabic translation): BRUGMAN and DROSSAART LULOFS, 1971; Ibn Sînâ, *Ḥayawân*: Ibn Sînâ 1970.

2. For examples see, for instance, BRUGMAN and DROSSAART LULOFS 1971: 38-53; KRUK 1979: 15-17; id. 1985a, 1985b, 1996; AN-NAJIM 1985.

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In this paper I will try to give an impression of the copious amount of Aristotelian zoological material to be found in Marwazî's book, material that is either taken directly from Aristotle or from Ibn Sînâ's commentary. Since the material is much too vast for a full overview, I have restricted myself to giving a general impression of the work as a whole, including some (occasionally extensive) examples, while adding a full and detailed survey of the Aristotelian/Avicennian references in Marwazî's last chapter, the chapter on water animals. In the course of this I have also included information about other sources used by Marwazî, without attempting to trace all the references.

Marwazî's *Kitâb Ṭabâ'i' al-Ḥayawân*, *Book on the Natures of Animals*, was written in the 12th century (year *post quem*: 1124/25). The work is still for the larger part unedited. Sections published so far are: a) a part of the section on anthropology (handwritten Arabic text, with English translation and commentary). The edition was done on the basis of one, fairly incomplete, MS (Minorsky 1942). The other MS known at the time did not contain this section. b) Two fragments of Galen's *Peri êthôn* quoted by Marwazî, MS UCLA fols. 16b12-17a11 and fols. 146b17-148a11 (Stern 1956).

Since then, Iskandar (1981) has discovered another MS of the text, more complete than the other two (MS UCLA, Ar. 52), although this, just like the other two, appears to be unfinished. Iskandar has devoted an article to the text (1981) that concentrates on the zoological parts of the text, and includes translations of some samples. It adds as an appendix some Arabic passages preserved exclusively in the UCLA manuscript and not in the two others. His texts and translations are to be used with some caution, because apparently he did not have the opportunity to check the Aristotelian references in the text with their parallels in the Arabic version of *De Animalibus*, which would have suggested some plausible emendations. Eisenstein (1991: 127-31), who also made substantial use of Marwazî, checked his quotations with the Arabic *Historia Animalium*.

1. Author

Minorsky's edition already gave the background information on Marwazî. Sharaf al-Zamân Ṭâhir al-Marwazî, as his book makes clear, worked as a doctor. He lived at the court of the Seljûq sultan Malikshâh, who reigned from 465/1072 till 485/1092. It is not known when he died, but the events of which he gives an eyewitness account range

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from 448/1056-7 to 518/1124-5. No further works are known from his hand.

In his *Ṭabâ'i' al-ḥayawân* his Persian cultural background often transpires, not only in the Persian equivalents for many animal names but also, for instance, in references to the legends of Firdawsî's *Shâh-nâme*, the Persian national epic. In the entry on the horse, he speaks about the hero Rustam and his famous horse Rakhsh.

2. *The* Ṭabâ'i' al-Ḥayawân*: some general characteristics*

The subject of Marwazî's book are the *ḥayawân*, the creatures that possess an animal soul, namely animals and man. The book apparently originated in the same intellectual sphere as, for instance, Ibn abî l-Ḥawâfir's *Badâ'i' al-akwân* (also unedited; see Ullmann 1972: 33-4), namely the sphere of physicians whose professional interest in the medical uses of animals branched off into a wider interest in animal lore. Unlike Ibn abî l-Ḥawâfir's, Marwazî's book does not present the material in alphabetical order. Its arrangement has more in common with the zoological section of, for instance, Qazwînî's *'Ajâ'ib al-makhlûqât* (13th century), that also starts with an extensive anthropological part, although of a different nature.

A noteworthy aspect of the book are the many references not only to Greek (including Byzantine) and Persian, but also to Syriac equivalents of animal names.

Marwazî's anthropological section is very similar (although far more extensive) to that in another unedited *Book on Animals*, also written by a medical doctor, namely Ibn abî l-Ash'ath, who lived in Mosul in the tenth century (Ullmann 1972: 25; Kruk 1986). Marwazî does not refer to this work, and there is no indication that he was familiar with its contents. Their zoological sections (i.e., the parts dealing with animals proper), are quite different. This suggests that the pattern followed by both was a more generally accepted one, a matter that needs investigating.

The occasional personal observations which Marwazî includes, in connection with some remarkable zoological statements (e.g. about the life cycle of the frog, fol. 259b7) may easily create the impression that his work is basically different from many other zoological works in the encyclopaedical, or *adab*, genre, in the sense that it contains substantial amounts of new and/or original information. On the whole, however, this material contitutes a very minor part of the work. For the

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remaining part, Marwazî bases himself on older sources. This may possibly create an impression of greater originality than the work in fact possesses.

As Minorsky (Introduction and notes) and Iskandar (267, note) have already pointed out, Marwazî's book is important for its use of sources otherwise lost or rarely used. Greek source material is exceptionally well represented: see the list of authors cited given by Iskandar (1981: 273-4). Very often the source of a particular bit of information is not mentioned explicitly.

This makes the work of the prospective editor of the text all the harder. Edition of it is much to be desired, because the text is not only a rich source of source material, but also attractive and of considerable historical and cultural interest.

Tracing the sources is absolutely essential, for a substantial amount of emendation can be done with their help. One of the difficulties in tracing the material lies in the corrupted transcriptions of Greek names. Once found, the Greek word is usually easy to connect to the Arabic *rasm*, but this does not work the other way round. Greek *pugargos*, for instance, turns up as *ywfqfs*, and *plangos* as *bylwnws*; these Arabic transcriptions leave room for a large number of interpretations, but once the Greek word is discovered on the basis of the information provided by the contents, they can easily be reconstructed as *bûqarqos* and *blanqûs*.

The UCLA MS, which is the best in terms of completeness and which is beautifully written, is absolutely riddled with faulty readings that can easily be emended with the help of the sources. The example given below (under *Section I*), *à propos* of the *bûnâsûs* and its dung, illustrates this. Another of the many examples is 249b10-11, where squids are discussed on the basis of *Historia Animalium* 524a13-19. The Arabic version uses the verb *zara'a*, "to sow" for the squirting of ink (*Hist. An.* 524a13). Marwazî (or the intermediary source he may have used, or the copyist) did not understand this, and adds to *zara'a*: *fî l-anâth*, "in the females".

To demonstrate the poor quality of the text of the UCLA MS I give just two examples of the many, often comical, mis-punctuations that can immediately be emended by consulting the sources: (fol. 245b2) in the course of the spawning process, the male fish –according to the MS– clings its back "and speaks to" (*yanṭuqu* instead of *bi-baṭni*, "to the belly of") the female; (fol. 177b11) *bayḍ az-zanj*, "Negro eggs", instead of *bayḍ ar-rîḥ*, wind eggs.

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The process also works the other way: Marwazî's *Ṭabâ'i'* has, for instance, valuable material to offer for the text constitution of the Arabic translation of *De Animalibus* as well as of Ibn Sînâ's text.

Of the many sources quoted in the text, all of which would merit further scrutiny, the fragments of Timotheus of Gaza's book on animals are especially interesting. Stern (1956) already pointed this out. Iskandar (1981: 267, note) gives a list of references to Timotheus, that can easily be extended. I intend to publish the Timotheus-material in the near future.

Some of the Greek material has so far remained undetected: there are several pages with information about birds (partly of a fabulous nature) taken from a Greek source that I have not yet been able to trace. This will be discussed further on.

As is to be expected, Aristotle's zoological works are among Marwazî's major sources. Iskandar's article already briefly discussed this. What so far has remained unnoticed, is that a substantial part of the Aristotelian material in Marwazî does not come directly from Aristotle but from Ibn Sînâ's commentary on *De Animalibus*, which forms part of the *Kitâb ash-Shifâ'*. Minorsky (1942: 2) already remarked that Sharaf az-Zamân's great admiration for the Greeks might suggest his scientific affiliation to Ibn Sînâ, but he did not yet realize the extent of this affiliation, which is particularly prominent in the part that he did not edit and translate.

As said above, the main purpose of this paper will be to outline the nature and scope of Marwazî's indebtedness to Aristotle's zoological works as well as to Ibn Sînâ's commentary. But first we will give some more general information about the contents of the *Ṭabâ'i' al-ḥayawân*.

3. Anthropology - Hippocrates - Ibn Sînâ

The anthropological section which forms the first *maqâla* of the book is quite extensive. The author first describes human beings of exceptional spiritual standing: prophets, kings, leading scholars and Sufis. Following the pattern of older works in this genre (such as Ibn abî l-Ash'ath's, see above), he then continues with various foreign peoples and their cultures (this is the part edited and translated by Minorsky) and then goes on to treat various physiological and biological aspects of man, bringing in the usual Hippocratic, Galenic and Aristotelian angles. Minorsky (1942: 3) gives a table of contents of this part. The

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topics discussed also offer the author a good opportunity to vent his opinions on matters of a philosophical and theological nature.

In addition to the remarks already made by earlier scholars the following points may briefly be noted.

It may easily be overlooked that Minorsky, who restricted himself on purpose to the strictly ethnological parts, did in this process skip the chapter about life conditions in equatorial regions. This was a point of discussion among Arabic scholars: see the introductory lines of Ibn Ṭufayl's Ḥayy ibn Yaqẓân, where the possibility of life in these regions is discussed. Marwazî's chapter about this topic (fol. 51a paen.-52a) is put between the chapters on the Abessynians and the "people in faraway regions." Its full title is *Fî khaṭṭ mu'addil an-nahâr wa-l-istiwâ'*, "about the equator". Reference is made to Hippocrates and Galen, who deny that life is possible under the conditions prevalent in those regions, and to Ibn Sînâ, who holds opposite views (obviously taken over by Ibn Ṭufayl). According to Marwazî, Ibn Sînâ laid down these views in a special treatise. This treatise, otherwise unknown, is mentioned by Ibn abî Uṣaybi'a (II, 19) under the title *Maqâla fî khawaṣṣ khaṭṭ al-istiwâ'*. See also Sezgin, *GAS* VI: 280.

The preoccupation with the effects of natural circumstances on living beings, which is the subject of this particular chapter, is a prominent focus of attention throughout the work, in connection with other questions concerning the generation and development of various life forms. This material, too, is well worth analyzing, in continuation of Stern's (1956) work on Galen's *Peri èthôn*. Material that throws light on the textual transmission of Hippocrates *Peri aèrôn* is very likely to turn up here. Marwazî gives, for instance, a substantial quotation (fols. 51b-52a) from what is evidently Galen's commentary on this work. The Hippocratic passage concerned roughly agrees with the text in Lyons and Mattock (1969: 120-2).

4. Zoological part - Aristotelian material

The second *maqâla*, which contains four sections, is about animals. As is to be expected, Aristotelian material figures prominently in many of the entries, and will have to be traced in full by the prospective editor of the text.

Section I (fols. 76b-154b) deals with the domestic and wild animals, including beasts of prey (other works split these up into three categories, which results in the more usual number of seven categories in total).

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Personal observations are repeatedly included, such as his account (fol. 112a13) of a lion that was caught and skinned and turned out to have a number of old arrow tips embedded in its flesh, showing that this was a very brave animal indeed. There is also the description of the giraffe which he had the opportunity to observe in Isfahân in the year 474/1081-2, when the vizier Nizâm al-Mulk ordered him to study the animal that had been brought to Sultan Malikshâh, "an excellent specimen of its kind". The intricate pattern on the giraffe's skin, says Marwazî, bears no resemblance at all to that of the leopard's, which consists of spots on a light background (151a-152a).

Aristotelian material is scattered throughout the chapter. The text-critical aspect of this may be illustrated by the example of the European bison, called by its Greek name, *bûnâsûs*. The passage (fol. 154a14-b2) is a faithful rendering of *Hist. An.* 630a18-b15, including the bison's habit to squirt dung at its enemies "to a distance of four ells (*adhru'*)." The MS does write *anwâ'*, "kinds", instead of *adhru'*, which is very likely incorrect, since the Arabic translation of the *Hist. An.*, also used by Marwazî, has *adhru'*.[3]

Section II (154v-203a) deals with birds. It very appropriately makes the shift from the preceding chapter by starting with the ostrich, considered by some to be something of an intermediate between a camel and a bird. A large number of species is treated in this section. As is to be expected, birds connected with falconry receive ample attention.

Aristotelian material is well represented. As example may be given the entry on the eagle (157a5-159a18), which contains extensive quotations from Aristotle's *Hist. An.* (157a7-b9), compiled from *Hist. An.* 618b19-620a10. Discussed are the species called *pugargos*, white-rump; the *plangos*; the black, hare-killing eagle; the *gypaetos*; the sea-eagle; the "true-bred"; the *kubindis*; and the *phene*. The passage is obviously based on the "Ibn al-Bitrîq" translation. Marwazî's text can be emended in some places with the help of the translation, and it may also work the other way:

Badawî 412: 14, *yaṭîru* "flies", (in accordance with *Hist. An.* 618b21, *petetai*): Marwazî 157a9 *yaẓharu* "appears".

Badawî 416 paen. *rabbâ*, "rears" in accordance with *Hist. An.* 620a6 *ektrephei*, against Marwazî 157b7 *ramâ*, "throws out".

3. ISKANDER 1981: 306, not having consulted the Arabic version of the *Historia Animalium*, has *'alâ qadr arba'a anwâ'*, translated as "four kinds of dung".

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Marwazî has an interesting alternative reading for *Hist. An.* 619a10: *innahu* (i.e. the true-bred) *summiya al-khâliṣ li-annahu yaqtaṣiru bi-s-sifâd 'alâ anâthihi wa-ghayruhu min al-anwâ' yasfadu ba'ḍahâ <ba'ḍan>*,"it is called true-bred because it restricts its sexual intercourse to its <own> females, while other species have intercourse with each other". Cf. Badawî 413 ult.:... *li-anna sâ'ir al-ajnâs mukhtaliṭa li-ḥâl sifâd ba'ḍuha ba'ḍan*, "because the other species are mixed, because of their intercourse with each other."

200b8-202a ult. consist completely of material from the *Hist. An.*; described, with literal quotations, are (I include their Greek names, not the very corrupt Arabic transcriptions, and the passage quoted): the *anthos* (*Hist. An.* 609b15); the pelican, *pelekan* (*Hist. An.* 614b27); the woodpecker, *druokolaptès* (*Hist. An.* 614a ult. ff.); the blackbird, *kottuphès* (*Hist. An.* 614b8); the swan, *kuknos* (*Hist. An.* 615a32 ff.); the *kubindis* (*Hist. An.* 615b6-14); the jay, *kitta* (*Hist. An.* 615b19); the stork, *merops* (*Hist. An.* 615b26); the greenfinch, *chlôris* (*Hist. An.* 615b33 ff.); the cinnamon, *kinamômon* (*Hist. An.* 616a7); the halcyon, *alkuôn* (*Hist. An.* 616a13 ff.); the *phôux* (*Hist. An.* 617a8); the ibis (*Hist. An.* 617b29); the *hupolais* (*Hist. An.* 618a9); the *kupselos* (*Hist. An.* 618a33-34); the cuckoo, *kokkux* (*Hist. An.* 563b30 ff.; noteworthy is that he draws upon an earlier part of *Hist. An.* to supplete the information given in 618a8 ff., the part being excerpted here); the goatsucker, *aigothèlas* (*Hist. An.* 618b2 ff.); again the cuckoo (563b14 ff.); a bird transcribed as *atûs*, which has wing-like extensions on its ears, and which some people call an owl (not located so far in *Hist. An.*); the goat-poll, *aigokephalos* (*Hist. An.* 506a17).

The sample clearly illustrates Marwazî's method in excerpting sources, also discussed below: systematically excerpting parts, and adding relevant information from other sections.

The section on birds also includes six pages of obviously Greek material of a fabulous nature from a hitherto untraced source (198a-200b). I have, for instance, not found corresponding descriptions in D'Arcy W. Thompson's *Greek Birds* or in Pollard (1977), which explicitly deals with birds of a mythical nature. In referring to their Greek names, Marwazî uses the word *yûnânîya* (old Greek) as well as (for instance fol. 199b) *rûmîya* (Byzantine Greek). The microfilm shows open spaces at the beginning of entries that may, on inspection of the MS, turn out to contain names written in a different ink. At present I did not have the opportunity to check this in the MS itself.

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Because of the peculiar nature of the material and the fact that it very likely all comes from the same source I include a full survey of this part, that may be of interest for our knowledge of the Greek-Arabic zoological tradition. Of the Arabic transcriptions, I give just the consonantal *rasm*, since the vowels are wholly unsure.

The following birds are described:

1. (198b7-17) a bird called in Greek (*bi-l-yûnânîya*) *anqswṭws astrwsh*. The latter word should obviously be read as *anthropos*, since the Arabic translation is given as *qattâl al-aqwiyâ'*, "fighter of strong men." Marwazî also gives the Syriac equivalent of the name, as he often does (unpunctuated, *rasm* looking like *qâṭil h*blbâbâ*). Apparently this is the griffon: it is described as a huge bird, with a beak like an eagle; it has four legs because of its size; claws like a leopard; never walks on its front paws but only uses those for hunting; catches elephants and lions; when it has eaten its fill it utters a beautiful sound, that causes laughing fits in those that are sad, and makes happy people cry. It dives into the sea and rarely mates.

2. The fenix (*fwâlḥsnâ*) (198b17-199a6); description more or less along the lines of that given in the *Physiologus* tradition.

3. (199a7-10) A bird called in Greek (*yûnânîya*) *ṭyṭḥws*. Sweet voice. A variety of songs. Other birds gather around it to listen.

4. (199a10-14) A bird called in Greek (*yûnânîya*) *mrqds*. Very long neck, hard bill, sticks its bill into mud looking for worms, not withdrawing it when it has eaten enough. Pulls out with force things that it encounters, such as tree roots.

5. (199a14-18) A bird called in Greek (*yûnânîya*) *sqtwry*. That is the *zarâzîr* (plural of *zurzûr*, starling). The Arabs (Bedouins?) call it *aṣ-ṣafarmâdî*. Enemy of the locust; digs out and destroys its eggs and young, stamping on them. Eats flying locusts that it comes across. Men bless it and forbid to hunt it.

6. (199a18-b1) A bird called in Greek (*yûnânîya*) *qwms*. Big. Its eggs are hatched by the air just like those of the turtle, the snake and the locust by the earth. It soares through the air until the eggs are fully hatched, then it lays them, and they break open while falling down to earth, the chicks emerging with their feathers complete and able to fly.

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7. (199b1-8) A bird mentioned only with its Persian name, *kûrdast*, and its "Arabic" name, *al-farr* (I have not found this word in any dictionary so far; it may not be Arabic). A blind bird, that keeps itself alive by nesting in a tree and never leaving it, walking along the branches and picking, by touch, insects from the leaves. It begets two young, lives only a year, and is very rare, but is found in Ṭabaristân.

8. (199b8-10) the *alsalwy* (no language specified). Dies when it hears the sound of thunder, and for that reason hides deep in the sea when it observes thunderclouds, waiting till the clouds have dispersed. The fattest and most delicious of all birds.

9. (199b11-13) A bird called in Greek (*rûmîya*) *flsws*. It occurs in Egypt; also Syria. Like a duck, completely white, and laughs (*qahqaha*) exactly like a woman.

10. (199b13-17) (no name; space left open) nameless bird. Eats fish. Cannot swim well. Follows birds that dive for fish and takes away their catch.

11. (199b13-200a1). Bird called *marsûs* (no language specified). Big; black wings, white body, eats fish, does not dive. Is accompanied by a small bird just like it, that dives well, catches fish and offers them to its big companion. When this has eaten its fill, it gives back the offered fish, and then the small one goes on gathering its own meal; then they fly off together.

12. (200a1-5). Bird (no name; dotted line) that eats other birds, not being able to hunt itself. It very cleverly attaches itself to a tree or rock in the desert and then calls for help. When the other birds gather around it it catches them.

13. (200a5-7). Bird called *rdbâr* (no language specified). No connection of the female with a male observed. The female rears young on her own. It can learn sounds taught to it by man.

14. (200a7-10). Bird called *aldlm* (no language specified; probably Arabic). Eats acorns. Dust-coloured; black collar; also called mountain pigeon. They nest closely together; if something happens to one of them, the others feed its chicks.

15. (200a10-12). Bird (no name) that belongs to the song birds. Only in trees. No mention of eggs or gain (*kasb*) known of it.

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16. (200a12-14). Bird called in Greek *dylos* (=*deilos*). Very cowardly; all other birds hunt it; therefore it starves itself in order to be unattractive as a prey.

17. (200a14-17). Bird called *tadhrumurgh* (no language specified; Persian word). Crossbreed of chicken and pheasant, called the mule-bird. Infertile; beautifully coloured.

18. (200a17-b2). Bird called *alrâkws* (no language specified; Arabic?). Water-bird. Cannot dive; lives on fish. Sits on the water bank and waits till a small dust-colored bird with a thin bill comes and feeds it with fish. After the big one has had enough and flies off the small bird eats. Sometimes seems to be angry, continuously averting its face from the other bird, which then seems to cajole it to turn back its face.

19. (200b2-4). Bird (no name). A water-bird. Can be taught to catch fish for its master (Cormorants are trained in this manner up to the present day, for instance in Japan, but it is not sure whether this bird is meant).

20. (200b5). A bird called *alfrfwr* (Arabic?). Water-bird. (follows empty space; possibly new entry?). A very cautious bird. Unique sound. Always in pairs. Feathers beautifully patterned. Eats fish. Dives under when it hears shouting. Is hunted with birds of prey.

Section III (203a-242b) speaks about crawling things and insects. Much attention is given to worms, especially parasytic worms (241a). Various references to the author's own medical experience are included. Ample attention is given in this chapter to the ways of procreation of small creatures: whether this happens by spontaneous generation only or also by sexual procreation. The focus on this aspect is very much in accordance with the emphasis that Marwazî puts upon matters related to generation in the earlier chapters of the work.

Other instances of personal observation in this chapter are an account about terrible flies which attacked horses and grooms in a certain valley (215a), and which luckily could only live and be generated in that particular valley; the fact ("personally observed during the famine ...") that rats and mice are sometimes consumed by men (220a); and a remark about observing a kind of tarantula (*rutaylâ'*, 233b): big, black body, yellow belly, with pincers like a scorpion.

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Some animals that in this type of book are usually included among the crawling things are treated elsewhere by Marwazî, namely in the section on "wild and domestic animals": an example is the hedgehog.

Section IV (242b-264a), the final chapter, is apparently unfinished in all three MSS. It deals with water-animals. Here, again, Marwazî's direct dependance upon Greek sources is clear.

It contains large numbers of literal quotations from both the Arabic Aristotle and Ibn Sînâ's commentary. It also offers us a good example of the way in which medieval Arabic (and many other) authors dealt with their source material; the method followed here by Marwazî shows the practice usually followed in excerpting a book.

The first part of the section, 242b17-255b9, contains a substantial amount of information going back to the *Historia Animalium* (not *De Partibus* or *De Generatione Animalium*). Marwazî does not start mentioning his source before 254b6.

From 242b until approximately 248b15 the information is taken from Ibn Sînâ's commentary. This is done according to his usual method: he has brought together the material by systematically going through Ibn Sînâ's *Ḥayawân* and taking out (not exhaustively) bits about water-animals, both of a general and of a more specific nature. Again, if he mentions Ibn Sînâ's name, it is exclusively in connection with explicitly personal observations noted down in his commentary (e.g. 225a; 244b 18-9). With this material he has mingled -also without source reference- quotations straight out of Aristotle, in the Arabic translation that is still extant. These parts, again, all come from the *Hist. An.*. To this, a variety of material has been added taken from a number of different sources, including personal communications. Especially the latter part of the section is rich in anecdotal material. One of the authors cited here is Muḥ. ibn Mûsâ al-Jayhânî, whose *K. al-mamâlik* (no longer extant) was extensively used by Marwazî.

A number of medical authorities are quoted in connection with the medical uses to which various sea animals can be put. Dioskurides is especially prominent; next to him there are Galen, Ibn Mâssa, Mâsarjawayh, and Paul of Aegina.

A separate heading introduces the part on the "uses" of sea animals (260b11), but treatment of this subject is not restricted exclusively to this sub-chapter.

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To illustrate the mingling of material I add an appendix to this paper which gives a detailed overview of the Aristotle-related material found in this last section.

Concluding remarks

The examples given above as well as the material in the appendix illustrate the extent to which Marwazî made use of Aristotle's zoological works. As is usual in works of this type, the information is largely taken from the *Historia Animalium*, although at least one reference to *De Partibus* has been found.

Aristotle is rarely quoted by name. Places where he is explicitly mentioned are:

61a13 ("only males, not females, have semen");

61b5 ("*al-ḥakîm al-awwal*"; about the same matter)

62b5 ("*al-faylasûf*"; id.)

98a16 ("Aristotle says in the *Book of Animals*"; about the hippelaphus, *Hist. An.* 498b31 ff.)

136a6 ("Aristotle says...")

149b ult.-150a3 (Aristotle says..; follows a quotation from *De Partibus Animalium*, 662b 30-1 and 663a23 ff., about the rhinoceros)

152a ult. ("Aristotle says..". About the martichoras; including the ref. to Ktesias. *Hist. An.* 501a25 ff.).

248b7 ("the Philosopher..". About dolphins.)

254b6, 13 ("Aristotle says...". About crabs.)

In several of these cases the name is part of an Ibn Sînâ-quotation. In two cases I have not so far been able to trace the quotation in Aristotle. These are 254b13 (sloughing seven times a year) and 136a6, where Aristotle is quoted to the effect that the fox knows that the wolf runs away from *'unṣul*, wild onion or scylla, and that the fox cures itself with a plant that is called in Greek (*bi-l-yûnânîya*) "fyṭwn" (no dots). Apparently a pseudo-Aristotelian statement (they are very widespread in Arabic) has crept in here.

The method followed by Marwazî was already illustrated by his quoting of Aristotle in the part on birds, Section II: to follow the source text, picking out bits of information and connecting these to each other with a minimum of rephrasing. If possible, relevant information from other parts of the source text is joined to the part. We will see that he used the same method in dealing with Ibn Sînâ's text. Information from two different source texts is not amalgamated, but put next to each other.

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To put it briefly, three different ways of quoting can be be discerned: a) literal; b) summarizing without rewording; c) paraphrasing with sundry changes and additions.

Relevance for textual history

Marwazî's quotations have not so far yielded any trace of a revised version of the translation; he obviously uses the "Ibn al-Bitrîq" version. There are a number of divergencies, but they are all of the nature that is apt to turn up in different MSS of a text; no really substantial differences have been found so far, and neither have traces been found of the part that is missing in the Arabic version of the *Hist. An.*.

5. Marwazî's use of Ibn Sînâ's commentary

Marwazî's use of Ibn Sînâ's commentary is noteworthy, because references to it are comparatively rare in Arabic zoological works of a general nature: the reception of the Aristotelian zoology in philosophical context forms a strand that has largely remained separate from the more general, encyclopaedical tradition.

Ibn Sînâ's commentary, part of the *Shifâ'*, is the one that circulated in medieval Europe as *Abbreviatio Avicennae De Animalibus*. It was translated by Michael Scot, who also translated Aristotle's *De Animalibus* from Arabic. In how far Scot's translation indeed closely reflects Ibn Sînâ's text will become clear in the course of the edition project that Aafke van Oppenraaij, editor of Scot's translation of Aristotle's zoological works, has embarked upon.

Like in the case of Aristotle, Marwazî quotes extensively from Ibn Sînâ without explicit reference. Ibn Sînâ's name is mentioned explicitly only a few times, and in so far as these cases are connected to his commentary on Aristotle's zoology, they all refer to places where Ibn Sînâ adds some personal observation or opinion of his own to the Aristotelian material.

Places where his name is mentioned by Marwazî:

52a in connection with his treatise on the equator

168a2 ("I have seen..."; about birds gathering around an owl; Ibn Sînâ 112: 7)

169b6 (Ibn Sînâ's confirmation of the fact that there live indeed pygmies near the sources of the Nile; Ibn Sînâ: not located so far)

188b ult. ("I have seen in Khwarizm an egg that gave light"; Ibn Sînâ 81)

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190b paen. (long account of personal observation; Ibn Sînâ 83-84)
190b paen. (a fairly long account of a personal observation; Ibn Sînâ 83-84).

Summarized parts of Ibn Sînâ: samples
Next to the part in the section on aquatic animals (see appendix), we have a good example of the extensive use that Marwazî made of Ibn Sînâ's *Ḥayawân*, without any explicit source reference, in the part dealing with matters of generation and embryology. This forms part of the anthropological section. Here, 60b4-67b16 contains a summary of a part of Ibn Sînâ's *Ḥayawân*, corresponding with pp. 142: 9-184: 6 of the Cairo edition. The summary is also illustrative for Marwazî's method. Just like in the part on aquatic animals, he systematically goes through the relevant pages of Ibn Sînâ's text, picking out bits and pieces and stringing them together. Occasionally he slightly rephrases or makes small additions. Contrary to what he does in the part on the aquatic animals, he hardly intermingles the text with parts straight out of Aristotle, although he refers to the existing controversy between the philosophers on the matter of the female contribution to generation (61a13). A possible exception is 61a7-8, which corresponds with *Gen. An.* 583a14. On 62a18 he even leaves out a part of Ibn Sînâ in which Ibn Sînâ explicitly quotes Aristotle (between 149: 3 and 148: 15). On the other hand he takes over a substantial quotation by Ibn Sînâ of Hippocrates, including the latter's name (61b15- 62a5).

Here follows a brief survey of the correspondences:

fols. 60b4-63a10	= Ibn Sînâ 141: 14-151: 10;
fols. 63a16-ult.	= Ibn Sînâ 153: 5 ff.;
fols. 63a ult.-64a6	= Ibn Sîna 158: 8- 159: 18;
fols. 64a7-65b2	= Ibn Sînâ 165: 4-168: 15;
fols. 65b2-12	summarizes the text between 168: 15 and 172: 4;
fols. 65b12-66a9	= Ibn Sînâ 172: 4-174: 2;
fols. 66a9-66b1	= Ibn Sînâ 179: 4-180: 10;
fols. 66b1-18	excursus about astrology;
fols. 66b18-67b16	= Ibn Sînâ 180: 16-184: 6.

Marwazî's summary is also of interest for textcritical purposes; there are several interesting variants (different negation in 63a17; 64a19 *al-'ulûq*: *al-ishtimâl* Ibn Sînâ; and various other, mainly minor, variants).

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Illustrative comparison: Marwazî, Aristotle, Ibn Sînâ

To give an idea of the correspondences and differences between the texts from a textcritical point of view we compare a few passages from Chapter II:

98a16-b1: *qâla arisṭûṭâlîs fî kitâb al-ḥayawân.* Summarizes *Hist. An.* 498b31-499a9 according to the "Ibn al-Bitrîq-translation"; the text differs only on some minor points of vocabulary (*yuqâlu lahu/ yusammâ*; *ḥayawân/dâbba*) of that in Badawî 56-57. NB: Badawî 56: 13, *al-baḥrî mimmâ*, is *al-barrî mâ* in Marwazî. Ibn Sînâ's text (26: 15-7) clearly refers to this place, but does not render it in extenso.

116b7-10: *Hist. An.* 620b5-9; Badawî 418-419. Marwazî's text paraphrases freely, extending and embellishing the text. Ibn Sînâ's reference (129: 11-2) to this place is very concise, does not mention Maeotis, and its strikingly different wording is a good illustration of the way in which Ibn Sînâ deals with the stilted Arabic of the translation: *wa-fî ba'ḍ al-bilâd dhi'âb 'uwwidat iṭ'âm as-samak al-musayyad, fa-in ḥurimat mazaqat ash-shibâk al-mushammasa li-t-tajfîf.* Cf. Badawî: *wa-qad za'ama ba'ḍ an-nâs anna fî naḥiyati l-biq'a allatî tusammâ bi-l-yûnânîya mâwṭîs dhi'âb qad 'âwadat sayyâdî s-samak fa-idhâ lam talqaw min dhâlika ṣ-ṣayd tashuddu 'alâ shibâkihim wa-taqtu'uhâ wa-hiya mabsûṭa 'alâ l-arḍ li-ḥâl al-jifâf.*

128a5-10: *Hist. An.* 607a4-8, paraphrasing Badawî 366-7 in the same manner as in the previous quotation: (Marwazî) *wa-inna al-ḥayawân alladhî yuqâlu bi-l-yûnânîya ṭâghris yasfadu al-kilâb fa-yat-awalladu min baynahuma hâdhihi l-kilâb al-hindîya wa-laysa dhalika min al-wilâda al-ûlâ li-anna n-nitâj al-awwal yakhruju ṣa'ban waḥshîyan lâ yulaqqanu wa-lâ yu'allafu wa-qîla anna al-kalba tu'raḍu as-sab' ḥattâ tulqaḥa thumma tu'arraḍu li-mithlihi miraran ḥattâ yakûna jarw al-baṭn ath-thâlith qalîl aṣ-ṣu'uba yaqbalu t-talqîn wa-innahum ya'khudhûna inâth al-kilâb fa-yarbuṭûnahâ fî l-barârî allatî fîhâ as-sibâ' fa-tajî'u as-sibâ' fa-tasfaduhâ in kânat hâ'ija fa-inam takun hâ'ija akalathâ.* - Ibn Sînâ (109: 7) has a brief reference to the same place, but very differently worded.

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APPENDIX

Section IV: a general survey of its contents (without tracing of non-Aristotelian sources, except occasionally), plus detailed source references for the material taken from Aristotle and Ibn Sînâ.
IS= Ibn Sînâ 1971.
Hist. An. = Aristoteles' *Historia Animalium*, quoted according to the Bekker-edition.
Badawî= Arisṭûṭâlis. 1977.

242b17 The beginning of the section has been translated by Iskandar (1981: 290-1). It starts with the division of animals into land- and sea-animals and goes on with the breathing of fishes, who draw water in and out in order to cool their system. It follows the text of IS (3: 11 ff., summarizing). The Marwazî text can be emended with the help of IS.

Continuing with IS quotations:
243a3 *ḥalâzîn*: IS 3: 16.

243a13 *anbîdâs* (undotted): IS 4: 11-12. The source passage is *Hist. An.* 487b4 ff., a passage which has formed the subject of much discussion among various editors of the Greek, and for which accordingly the Arabic reading is particularly relevant. In this case, it supports the doubtful Greek reading, *aspides*.[4]

243a17 IS useful for emending Marwazî: *yanthuru* Marwazî-*yatabarra'a* IS.

243a19 *fâlîqî*: IS 4: 18 (*mâwâlîqî*; discussed again in IS 59: 4. (NB: IS' reading supports Badawî's (p. 10: 3) emendation of *Hist. An.* 487a25, *aqâlîfî* (Greek: *akalèphè*, sea-anemone; MS: *wâlîqî*).

4. *Cf.* D'ARCY WENTWORTH THOMPSON, *Historia Animalium*, Oxford 1910: 487b4, footnote; PECK 1965, I: 10-11, footnote. The passage describes the metamorphosis of bloodworms, *askarides*, into an *oistros*, gadfly. *Askarides* is the emendation usually accepted for the *aspides* (gnats) of the Greek MSS. Basis for the emendation forms *HA* 551b26 (missing in the unique Arabic text that we have of this part), which speaks about *empides* coming out of *askarides*. The Arabic translation of the *HA* reads, according to the unique MS T, *asdâs*, which Badawi takes to be the transcription of Greek *askaris*, and emendates into *askaris* (a more likely conjecture would be *asbidâs*; Marwazî's *anbîdâs* is easily connected to *asdâs*) which then change into *uṣṭrus*. Ibn Sînâ's reading (4: 11-12), corresponding to *aspides* and *oistros*, would support the conjecture.)

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243b1 *blbl* (no dots). Untraced. Cf. 261a18: there the *blbl* is presented as an animal that produces pearls.

243b2, *ajniḥa*: IS 5: 3. End of summary of this part of IS.

243b2 *wa-minhu*-b7 *bi-dhanabihi*: source unclear.

243b5 *wa-s-samak*: IS 54: 6. From there on continuing summary of relevant parts of IS found between 54: 6 and 9.

243b9-244a1: IS 54: 9 -55: 9, summarized, but often completely literal. Continued 244a; 244a7, *shay'*, om. IS.

244a11 *wa-lidhakarânihâ -majrayâni*; in between IS gives a whole sentence (56: 2-3) which results in a meaning opposite to that of Marwazî.

244a12 *aw'iya*: *ḥumar ta'î* add. IS

244a14 *mutanâsib*: om. IS

244a14 *ka-t-ta'rîf*: *ka-t-tafwîf* IS

244a19 *aṭ-ṭa'm*: IS 56: 9; cont. 244a19 *al-ḥayawânât*: IS 57: 16, until 244b15: IS 58: 13, *thafluhu*. Cont. 244b15= IS 61: 8. 244b16-17: IS 61: 14 *udhnuhu*: *wa-lâkin lahu thaqbun yasma'u wa-thaqbun yashummu bihi* add. Marwazî.

244b18-9: *qâla ibn Sînâ: qad ra'aytu* (IS 61: 11: *aqûlu*)

244b20 *yuqâlu*: *qâla al-mu'allim al-awwal* IS 61: 14.

245a (cont., about hearing and smell)

245a10ff. grilled octopus, placed in a pot and put in a trap lures fishes: IS 62: 7; cont. until 245a15: IS 62: 11 *yakhuṣṣuhâ*

245a15-17: IS 63: 8-10; cont.245a17: IS 63: 11; cont. until 245a19: IS 63: 13 *fî l-barr*; Marwazî add.: *wa-li-l-ḥayawân al-kbâdîḥa (sic; *al-kibâr ...) wa-ṣiyâḥ 'indamâ yuṣâdu wa-yudhbaḥu.*

244a20: IS 69: 3: *fûqî* have *nazw* (jump; sudden outburst) during sex just like all animals that urinate backwards and *yata'âẓal* (Marwazî: *yata'âṣal*)

245b1 ff. about genitals: IS 69: 4; cont. IS 69: 8.

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NB 245b2 example of mis-punctuation: Marw: fishes that cling their back to "in order to speak to" (*yanṭuqu* instead of *bi-baṭn*, "to the belly") of the female.

245b3 *wa-qad shûhida dhâlika*: *fa-qad hadatha bi-dhâlika dhawû l-khibra* IS 69: 10

245b4: IS 69: 10; cont. IS 69: 13

245b6,7 *sl'h*: *mubtali'a* IS 69: 16

245b7: IS 69: 16; cont. IS 71: 10

245b9: IS 71: 11; cont. IS 71: 14

245b10 *naw'ayn min as-samak*: IS 71: 16 gives the names in full.

245b11 fishes that only lay eggs in Pontus: IS 71: 16.

245b14: IS 72: 1.

245b17: IS 72: 3; cont. IS 72: 4

245b18 sepia, lays eggs at all seasons, in 15 days, some very hard. Cont. Marw: *wa-yusabbiḥu dâ'iman minhu zawjan*: IS 72: 4.. *yasbuḥu zawjun* Cf. Kruk 1979: 38.

245b18 octopus (*basfâyij*) mates in winter. Head of male longer than of female: IS 72: 5-6.

245b21: IS 72: 7; cont. IS 74: 13

246a2 animals come out of *ṭuhlub*, "green wool", water moss: IS 74: 15

246a6: IS 74: 19

246a13 *al-ghaṣûra* : *al-'amq* IS 75: 5

246a20 *al-ḥumar*: *al-jarr* IS 75: 12

246a21 *ma kâna*: om. IS 75: 13

246b1: IS 75: 13

246b13 *kârâbû* and its eggs; hatches 20 days; young emerge in 15 days. *Kârâbû* also come out of eggs of other animals, for they are like worms that come out of animals: IS 76: 5 ff.; rest of IS' statement lacking in Marwazî. Cf. Kruk 1985 b.

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246b16:IS 76: 8; cont. IS 86: 10 (Marwazî *yuqâlu*: *dhukira* IS)

246b20 *wâḥida*: IS 86: 15; cont. IS 87: 1

247a2 *kalb baḥrî* and *tha'lab baḥrî*: IS 87: 4

247a3 dolphin carries 10 months: IS 87: 6

247a9 *al-baqara*: IS 87: 18; cont. IS 88: 1

247a13 *marrât*:IS 88: 2; cont. IS 88: 4

247a16 *inkilâs*: IS 88: 6

247b4 *al-mâ'*: IS 88: 14; cont. IS 88: 15. IS text of this passage looks doubtful.

247b5 *wa-min al-'ajâ'ib*: IS 94: 3

247b6 octopus (*basfâyij*) hunts *qârâbû*; if they are caught in one net, the *qârâbû* dies of fear: IS 94: 14-5.

247b12 IS 95: 5; cont. IS 95: 7

248a2-9 cont. about feeding of water-animals: IS 95 ult.-96:7

248a9 *sinnîn*: 96: 7; cont. 104: 16.

248a10 sloughing of lobsters in spring: IS 104 ult.-105

248a12-13: IS 105: 7-10 (eclectically): IS' text seems corrupt, Marwazî more coherent.

248a15 *li-l-'aṭb* : IS 105: 7; cont. IS 105: 10

248a18 *habbat ash-shimal*: *kâna shimâliyyan* IS 105: 12 (less plausible)

248b1 *bi-suhûla*: IS 105: 16; cont. 105: 16-17 (wording different)

248b3: cont. IS 106:1

248b4 *an-nahrî*: IS 106: 3; cont. IS 111: 12

248b6 *jarîḥan*: IS 11: 14; cont. IS 139: 4; cont. IS 139: 9

248b7 *dhakara al-ḥakîm*: *wa-ḥukiya fî-t-ta'lîm al-awwal* (= Aristotele's book) IS 139: 9; about wounded dolphin;

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248b9 ff. big dolphins look after little ones: IS 139: 10 ff.; same information, different text on IS 32: 7 ff.

End of IS quotations

Beginning of quotations from Hist. An.
248b14-20: *Hist. An.* 505a7-19 (poor excerpt):

248b20: *Hist. An.* 505a19; cont. *Hist. An.* 505a28 (Badawi 89)

249a2 *lahâ*: *Hist. An.* 505a30; cont. *Hist. An.* 505a ult.

249a3 no hairy eyelids in fishes; fishes have blood: *Hist. An.* 505b1-2

249a5-10 the animal called *aywfyq* (no dots) is a land- and a sea animal. The sea kind takes refuge in rocky places, and *kabîr (*kathîr?) al-arjul raqîq as-sâq*, and takes refuge near land: source untraced

249a5 many more animals in the sea, not relatable to specific known species: *Hist. An. 532b18*

249a6-10 sea animal like round, black piece of wood; another like a human penis with fins instead of testicles; another like a red snake with fins: *Hist. An.* 532b20-26

249a10-14 story told to Marwazî by Maḥmûd al-Safînî (? no dots), *qâḍî* of Samarqand: somewhere in a river in the East lives an animal the sight of which takes away people's wits and makes them unconscious; intensive medical treatment needed. Animal looks like an inflated water-bag, is black, has eyes that glow like embers; is usually observed at nighttime.

249a14-19 the *fwykhrlya* (? no dots; Greek *chelônai*). Behaviour similar to that of the "great/multiple belly" (*kathîr al-jawf*; **layyin al-khazaf*, malakostraka): *Hist. An.* 590b5-12

249a19-21 two fishes, the *myṯrbws* (? no dots; Greek *kephalos*) and the *fyyâ* (? no dots; Greek *kestreus*, grey mullet) that do not eat meat: *Hist. An.* 591a19-22

249a21-b10 the kind that is called in Greek *sanânâ* (*sèpia*) and the one that is called *ṯwfks* (*teuthides*) and the one that is called *ṯrbwbw* (*teuthoi*): summarized text of *Hist. An.* 523b29-24a13 (Badawi 150-51;

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obviously not based on IS 55: 2, which has the same information but differently formulated)

249b10-11 *zara'ahâ ilâ l-inâth*: *Hist. An.* 524b13, wrong interpretation of *zara'a*, which here means "squirting ink"; *ilâ l-inâth* lacking in *Hist. An.*

249b10-15: *Hist. An.* 524a13-19

Wonder stories inserted among quotations from Hist. An.
249b15 sea animals that turn around, four feet, ..., soft legs like cat, no bones in forepaws, ...is called *zabad al-baḥr*, sea foam...bitter taste; people write with it, and the writing is very black...: source untraced

249b19 in the waters of India there is a certain animal; if a human being or another animal gets on its back (*raḥilahâ*) it turns around against him and takes hold of him... and its name with them is *kndwh* (no dots) and they (250a1) disagree about its description and some say that its body is excessively long so that it can turn around the leg of a four-footed animal; others say that it has tails of different lengths which it wraps around its prey, and that its head is like that of a bull; they also describe it with other characteristics, and there is no agreement among them: source untraced

250a4 in the sea of Zanj there is a round animal with small eyes near its mouth and with its mouth on the edge. On each side it has four long crooked legs which it uses to catch other animals for lack of claws (*zabânay*), etc.: source untraced

Continuation of Hist. An.
250a11 the sea animal called the "forty-four" (sea-scolopendra); turns its belly inside out to get rid of fishhook: *Hist. An.* 621a8-9

250a13 the animal called *yqlb* (y undotted; fox-shark) and its way of getting rid of a fishhook: *Hist. An.* 621a11-15

250a15 the animal called *amyâ* (no dots; bonito) when it sees a beast of prey heading for its young it collects a number of them in one spot and puts the smallest in the middle and surrounds them and protects them and fights for them; it has strong sharp teeth: *Hist. An.* 621a16-19 (Badawi 421; Marwazî text not correct; it is not about protecting young, but about a joint effort to protect each other)

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250a17 the animal called *ywys* (no dots; Greek *phôlis*) covers itself in mucus for protection: *Hist. An.* 621b7-8

End of Hist. An.*; will be resumed later*

Sea serpent
250a19-52a end: *tannîn baḥrî*, sea serpent. Discussions about its existence, and stories about it; source untraced; not Ramhurmuzî's *'Ajâ'ib al-Hind*, that has many stories of this type.

250b10 Antique author called Muqrâṭîs (Buqrâṭîs, Hippocrates?) in his book called *albryâ* (? Not *Peri aerôn*) about a dead sea serpent that poisoned the air. He advised the people to put salt on it and bury it.

250b18-251a5 description of the animal: huge, human head, elphant ears, several necks with snake-heads on it.

251a5 Story by "'Alî b. Zayn," on the authority of the people from Antiochia, about a huge *tannîn* that destroyed everything, including the minaret/lighthouse of the city.

251a10 people of India describe the *tannîn*: huge, bigger than anything said about it in the stories; more abouts its looks; some people catch it with charms (*ruqâ wa-'azâ'im*).

251b16-b5 elephant fighting the *tannîn*.

251b7 three marine animals described as huge: the *tannîn*, the crab (*saraṭân*), and the whale (*wâl*)

251b10-52a16 story about adventure of a sailor whose ship was drawn into a vortex and immobilized. A huge snake came every day to eat a sailor until only the storyteller was left. The snake was then killed in an underwater fight with a *tannîn*. The sailor stayed on board till the snake's body had decomposed, then stepped down along the ribs and safely reached India.

252a19 Dioskurides about curative powers of *tannîn*

252a20 the whale, *wâl*: biggest fish on earth: like a mountain; from its rib a bridge can be made.

252b2 Muḥ. b. Mûsâ (al-Jayhânî), eyewitness account of huge fish; 252b3 confirmed to Marwazî by the *'amîd* of Khurasân, Muḥammad b. Manṣûr.

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252b6-253a1 various accounts about horrible snakes

253a1 "I have read in the *Kitâb aṣ-Sîn*" about sailors catching a fish 60 cubits long; when they cut it open they found in its belly another fish 20 cubits long. Some say that this fish is called *fytâr* (no dots); its ribs are used to cover houses". More stories about this animal.

253a8 Muḥ. ibn Mûsâ al-Munajjim (al-Jayhânî) tells in his book *Fî l-masâlik wa l-mamâlik* about giant fishes (100 cubits) in the sea East of Africa; dangerous for ships; hate beating of wood on wood, can thus be chased away. In the same sea a giant fish was caught; it had another fish in its belly, this one in its turn another, and so on to a total of seven (others mention also ten)

253a14 a big fish called *fâṭûs*; more about it. Recipes.

253a ult.-53b2: river crab against *al-jaw' al-kalbî*

253b5 Iflîmûn (Polemon; MS: Iqlîmûn) and his *K. Istinbâṭ al-miyâh* (see Witkam 1989: 56: al-Karjî, *Inbâṭ al-miyâh al-khafîya*; also Brockelmann, *Geschichte der arabischen Litteratur* Suppl.I: 390.

253b10, 16, 19 Dioskurides about fishes; recipes

254a1 fish: *kûsaj*, a coarse fish, said to originate from two different species

254A4-b6 crab, *saraṭân*; comes into being both by spontaneous generation and by sexual procreation. Rather detailed anatomical description. Not traced in Aristotle.

More Hist. An. *quotations*
254b6-9 *qâla Arisṭûṭâlîs*: *Hist. An.* 525b16-23, summarized (Badawî 158: 2 ff.).

254b13 *qâla Arisṭûṭâlis*: sloughing seven times a year; story about a crab that digs its lair near the shore and makes a land- and a sea exit, each to be closed when required. *Hist. An.*?

254b18-255a1: *Hist. An.* 525a30-b5 ff.: various species of crabs, such as the *bâwâthiq* (**qârâbû*), *aṣṭâqus*, *'fwrs* (Badawî 156 *al-arbiyân*; **qarîdas*? See note in Peck, *Hist. An.* Vol. II: 16; Dittmeyer here conjectures *karidôn* for *karabôn*; see also note in Badawi 156, with testi-

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monia, *qarîdas* from Yâqût and Qazwînî). *'frws* are subdivided into the hunchback, the long and the small. The big one is called *bâ'ûdaq* (* *bâghûrû*, Greek *pagouroi*)

255a2-4 doctors; recipes of crab for eyes.

255a5 horse crabs in Syria: *Hist. An.* 525b8 (Badawî 157: 9)

255a7 crabs with hard shells: *Hist. An.* 525b11 (Badawî 157: 14)

255a9: *Hist. An.* 525b17 (Badawî 158: 1); 255a11 *al-ahdab*; 255a13 *qanjû* (no dots; Greek *krangon*): *Hist. An.* 525b22 (Badawî 158: 7); 255a16 *qârâbûs* (=Badawî); 255a17 *al-'aqudîn* (**qarîdas*): *Hist. An.* 525a30 (Badawî 159: 4); 255a18 *qarâbûs*; 255a20: *Hist. An.* 526a8-9.

255b1-4 teeth are in claws: *Hist. An.* 526a17-22 (Badawî 159 ult.-160: 3) 255b4-5 the bellies of crabs have doors that open and close: *Hist. An.* ? (Badawî 161: 2 from below, 526b29)

255b5-8 ff. right pincer bigger than left one: *Hist. An.* 527b5-12 (Badawî 164: 4-9)

255b8 eyes of *hiraqlîya* crabs: *Hist. An.* 527b11 ff.

End of Hist. An. *quotations*
255b12 Dioskurides; recipe about ash of burnt river crabs, taken with wine for three days, heals dog bite

255b20 Galen: sea crabs, burnt, used against scabies etc.

256a1 ff. continues with recipes

256a13 Bûlus (Paul of Aegina): ash of river crab against dog bite

256a15 Galen in *Tiryâq*: river crab, rubbed and put on a boil, cures

256a16 Ibn Mâssa: meat and broth of crab good for people with consumption

256b5-9 sea turtles; seven species of twenty cubits long; species with fins, uneatable, fishermen throw them back; 256b10 sea turtle, eggs buried in sand; 256b13 sea turtle mates like dog

256b15 branch of tree called *as'rjs* thrown by male turtle towards female unwilling to mate in order to subdue her. Cont.: uses of the animal

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257a7 (this part largely agrees with Timotheus of Gaza) crocodile, in Nile and in river in India called *bi-r-rûmîya* (in Byzantine Greek) *wsâs* (Hydaspes). Cont. description. Three rows of teeth.

257b cont.; 60 eggs, etc.; 257b5 teeth cleaning bird called *ṭrwsls* (*trochilos*); guards crocodile against animal in Nile called in Greek (*bi-l-yûnânîya*, i.e. old Greek) *'jtrs* (*enhudris*, otter? This would agree with the *Physiologus* tradition;

257b11 crocodile has sex just like man: turns female on her back, but sometimes forgets to put her back on her feet; then she dies.

257b20 crocodile has strong tail

258a4-12 story: crocodile catches man, takes him away to his lair, later also a woman; leaves them to their devices; woman gets pregnant; crocodile eats man; woman is rescued and returned to family; says the crocodile made her pregnant. Her son was called Ibn at-Timsâḥ, son of the crocodile.

259a13 lion fights with crocodile

259a17 ff. crocodile resembles the turtle in that its development into a land- or a sea variety depends on the environment in which they grow up. The skink is the land variety of the crocodile. Cont.: uses of crocodile

258b2-4 Dioskurides: skink is land-crocodile; they are Egyptian, but also Indian. Some, too, originate in the Red Sea, and others are found in the region Lûriyâ (Greek: Gaitoulia) of the land *wmawrwsâls* (Greek: Maurousia). (Berendes 1902: 148)

258b7 uses of crocodile and skink

258b9 hippopotamus, *faras al-mâ'*. Big animal, with thick bones. Manes and hair like horse. Leaves Nile; shows the people how far the water has come (258b15); eats snakes; 258b21 mates with its mother, sometimes kills its father (259a1); 259a2 ff. very protective of young, swallows it in case of danger and brings it up again.

259a13 ff. *khinzîr al-mâ'*. Lives in the Nile; fierce beast of prey; reddish or blackish; covered with hair from top to bottom; hard sharp horns. Cont. 259b: it protects its females and young against lions.

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259b4 ff. Frog. Fights with snakes, just like beasts of prey. Some have fins, namely the sea-frogs. Some live in trees. Cont. 259b7 ff.: generated by spontaneous generation as well as by sexual procreation. The first comes about by rain (always complete animals generated). In other cases: development via *da'âmîṣ*, larves (on this word, see Ullmann 1995): first they are just little things; then they get eyes and tails; then feet; then their tails drop off. -The matter of the tail is also mentioned by Jâḥiz, *Ḥayawân* V: 528, VI: 125.

260a cont. with facts about frogs; then about catching and eating them.

260a8 Dioskurides: frogs help against insects (*hawamm*), and broth made from frogs helps against boils. Etc. etc.; 260a15, 18 Galen; 260a19 Dioskurides. Cont. 260b1 ff. 260b7: used for depilation of armpits and ears; prevents hair growing again. 260b8 Galen denies its usefulness in this respect. 260b9-11 frog useful in suppressing human libido.

260b11 New heading: About the uses of fishes.

260b12 Dioskurides; 260b14 two fishes called *asqûryfwâ* (last four letters undotted) and *f'dfârs* (no dots)

260b15 fish called *rûbiyân*

260b16 Galen in *K. al-Aghdhiya*

260b17 Galen in *K. at-Tiryâq*: fish called "multipede" (*kathîr al-arjul*)

260b19 Masarjawayh about the *rûbiyân*

260b20 Ibn Mâssa about the *rûbiyân*

260b21 ff. electric ray (*ra"âd*). If caught in a net it causes the hand of the fisherman to tremble. This trembling may cause the hand to fall off. 261a3 Dioskurides: this fish, placed on the head, cures headache. 261a5 Ibn Zakariya ar-Râzî: says that he tried both but to no result, possibly because he tried it with dead fishes.

261a9 Bûlus (Paul of Aegina): the fat that this fish is cooked in helps against aching joints.

261a10 a fish (*ḥût*), the *qâmûrâ*, which means in Arabic: "making everything else superfluous" (*al-mughnî*). Small; loves people; follows ships and warns the ship against big fishes. Beats head on ground till it dies.

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261a14 the *asṭûs* (not the same as the *asṭûs* of *Hist. An.*). Marine creature; tied on a line, it swims and leads fishers to pearls.

261a18 the *blbl* (no dots), a small marine creature that loves sweet water; swims up to catch raindrops in its mouth; these change into pearls (This is a story usually told about the pearl oyster)

261a20 marine animal called *aqyqânws* (no dots). Two fins, and above them two more that he can spread like a peacock's wing (261b1); if he looks at people and other animals, they die. That is why he looks down, and pulls membranes over his eyes.

261b4 animal called *safâ*

261b9 the eel, *jirrî*

261b15 ff. fishes, e.g. the *smârus*; medical properties.

262a7 Ibn Zakariyâ (ar-Râzî)

New heading: shells
262a9- 264a6 various bivalves and univalves and their medical properties. Dioskurides; Galen; Ibn Zakariya; Bûlos.

264a6 end (very abrupt)

BIBLIOGRAPHY

Arisṭûṭâlîs. 1977 = 'A. BADAWÎ (ed.). *Ṭibâ' al-ḥayawân. Tarjamat Yûḥannâ ibn al-Biṭrîq* (Kuwayt, 1977).

Aristotle. 1971 = J. BRUGMAN and H.J. DROSSAART LULOFS, *Generation of Animals. The Arabic Translation commonly ascribed to Yaḥyâ ibn al-Biṭrîq. Edited with Introduction and Glossary* (Leiden, 1971).

Aristotle. 1979 = R. KRUK, *The Arabic Version of Aristotle's Parts of Animals. Book XI-XIV of the Kitâb al-Ḥyawân. A Critical Edition with Introduction and Selected Glossary* (= Verhandelingen der Koninklijke Nederlandse Akademie van Wetenschappen, afd. Letterkunde, nieuwe reeks, dl. 97) (Amsterdam and Oxford, 1979).

Aristotle. 1965-91 = *Historia Animalium*. Vol. 1 and 2, ed. and trans. A.L. PECK; vol. 3, ed. and trans. D.M. BALME and A. GOTTHELF (Cambridge, Mass., and London, 1965-91) (*Loeb Classical Library* 437-439).

D'ARCY THOMPSON = D'ARCY WENTWORTH THOMPSON, *A Glossary of Greek Birds* (Oxford, 1936).

Digitized by Google

Dioskurides = J. BERENDES, *Des Pedanios Dioskurides aus Anazarbos Arzneimittellehre in fünf Büchern, übers. und mit Erklärungen versehen von -* (Stuttgart, 1902, repr. Wiesbaden, 1970).

C.E. DUBLER and E. TERÉS, *La Materia Medica de Dioscórides*, Vol. 2 (Tetuàn and Barcelona, 1952-1957) (Arabic translation of Iṣtafan b. Basîl/ Ḥunayn b. Isḥâq).

H. EISENSTEIN, *Einführung in die arabische Zoographie. Das tierkundliche Wissen in der arabisch-islamische Literatur* (Berlin, 1990).

IBN SÎNÂ = Ibn Sînâ, *Ash-Shifâ'. Aṭ-Tabî'îyât 8: Al-Ḥayawân*, ed. 'A. MUNTAṢIR, S. ZÂYID, 'A. ISMÂ'ÎL. Preface by I. MADHKÛR (Cairo, 1970).

IBN TUFAYL = *Hayy Ben Yaqdhân, roman philosophique d'Ibn Thofail*, ed. L. GAUTHIER (Beirut, 1936).

ISKANDAR. 1981 = A.Z. ISKANDAR, "A doctor's book on zoology: al-Marwazî's Tabâ'i' al-ḥayawân (Natures of animals) re-assessed," *Oriens*, 27-28 (1981), 266-312.

ISKANDAR. 1984 = A.Z. ISKANDAR, *A Descriptive List of Arabic Manuscripts on Medicine and Science at the University of California, Los Angeles* (Leiden, 1984).

AL-JÂḤIẒ = al-Jâḥiẓ, *Kitâb al-Ḥayawân*. 7 vols. 2d ed. (Cairo, 1969).

KRUK. 1985a = R. KRUK, "Hedgehogs and their 'chicks'. A case-history of the Aristotelian reception in Arabic zoology," *Zeitschrift für Geschichte der Arabisch-Islamische Wissenschaften*, 2 (1985), 205-234.

KRUK. 1985b = R. KRUK, "Aristoteles, Avicenna, Albertus, en de *locusta maris*," in *Tussentijds. Bundel studies aangeboden aan W.P. Gerritsen ter gelegenheid van zijn vijftigste verjaardag*, ed. A. VAN BUUREN e.a. (*Utrechtse Bijdragen tot de mediëvistiek, deel 5*) (Utrecht, 1985), pp. 147-156.

KRUK. 1986 = R. KRUK, "Some late mediaeval zoological texts and their sources," in: *Actas del XII Congreso de la U.E.A.I. (Malaga, 1984)* (Madrid, 1986), pp. 423-429.

KRUK. 1996 = R. KRUK, "Ibn Bâjja's commentary on Aristotle's *De Animalibus*," in: *The Ancient Tradition in Christian and Islamic Hellenism*, ed. G. ENDRESS and R. KRUK (Leiden, 1996), pp. 165-180.

LITTRÉ = E. LITTRÉ, *Oeuvres Complètes d'Hippocrate*. Vol. I-X (Amsterdam, 1978 = photographic reprint of Paris 1840). Vol. 2, pp. 1-93: *Des Airs, des Eaux et des Lieux*.

MATTOCK and LYONS = *Kitâb Buqrâṭ fi'l-amrâḍ al-bilâdiyya; Hippocrates:* On Endemic Diseases (Airs, Waters and Places), ed. and trans. J.N. MATTOCK and M.C. LYONS (Cambridge, 1969).

MINORSKY = *Sharaf al-Zamân Ṭâhir Marvazî on China, the Turks and India. Arabic text (circa A.D. 1120) with an English translation and commentary*, ed. V. MINORSKY (London, 1942).

Digitized by Google

AL-NAJIM = Wadiah Taha AL-NAJIM, *Manqûlât al-Jâḥiẓ 'an Arisṭû fî kitâb al-ḥayawân* (Kuwayt, 1985) (English title: *Jahiz quotations from Aristotle in "Al-Hayawan" book; texts and study*).

POLLARD = J. POLLARD, *Birds in Greek Life and Myth* (London, 1977).

SEZGIN = F. SEZGIN, *Geschichte des arabischen Schrifttums*. Vol. 6: *Astronomie bis ca. 430 H.* (Leiden, 1978).

STERN = S.M. STERN, "Some fragments of Galen's 'On dispositions' (Peri êthôn) in Arabic," *Classical Quarterly* 6 (1956), 91-101.

ULLMANN. 1970 = M. ULLMANN, *Die Medizin im Islam* (Leiden, 1970).

ULLMANN. 1972 = M. ULLMANN, *Die Natur- und Geheimwissenschaften im Islam* (Leiden, 1972).

ULLMANN. 1977 = M. ULLMANN, "Galens Kommentar zu der Schrift De aere aquis locis," in *Corpus Hippocraticum*. Colloque de Mons, septembre 1975 (Mons, 1977), pp. 353-365.

ULLMANN. 1995 = M. ULLMANN, "Was bedeutet arabisch *du'mûṣ*?", *Die Welt des Orients*, 26 (1995), 145-160.

WITKAM = J.J. WITKAM, *De Egyptische arts Ibn al-Akfânî (gest. 749/1348) en zijn indeling van de wetenschappen* (Leiden, 1995).

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ISABELLE DRAELANTS

LA TRANSMISSION DU *DE ANIMALIBUS* D'ARISTOTE DANS LE *DE FLORIBUS RERUM NATURALIUM* D'ARNOLDUS SAXO

A partir du XIIIe siècle, la connaissance de la biologie animale prend un essor véritable dans l'Occident latin. La redécouverte des livres sur les animaux d'Aristote en est la cause principale; en effet, ces livres fourniront une documentation nouvelle pour la rédaction des traités zoologiques médiévaux latins. Auparavant, les références dans ce domaine se résumaient à peu de choses près aux livres VII à XI de l'*Histoire Naturelle* de Pline et aux œuvres encyclopédiques célèbres d'Isidore de Séville (les *Etymologies* – livre XII en particulier), auxquels il faut ajouter la révision de cette dernière œuvre au IXe siècle par Raban Maur et les différentes versions du *Physiologus* chrétien.[1]

Dans cet essor de la connaissance zoologique au XIIIe siècle, les "encyclopédies" latines jouent un rôle de relais considérable, où les principaux acteurs appartiennent aux ordres mendiants, propagateurs d'une nouvelle vision du monde.[2] Certaines de ces encyclopédies, curieuses de comprendre et d'exposer la "nature des choses" comportent une grande part de "science naturelle" englobée dans le concept médiéval de *philosophia naturalis.* Les traités d'Aristote, retrouvés grâce aux traductions gréco-latines et arabo-latines du XIIe siècle et du début du XIIIe siècle, se révèlent une part importante de leur documentation. C'est ce qu'on observe dans le *De proprietatibus rerum* de Barthélemy l'Anglais écrit vers 1230,[3] du *De rerum natura* de Thomas de

1. Un panorama des œuvres disponibles avant le XIIIe siècle a été dressé par B. VAN DEN ABEELE, dans *Vincent de Beauvais naturaliste: les sources des livres d'animaux du* Speculum naturale, in M. PAULMIER-FOUCART-S. LUSIGNAN (s. dir.), *Lector et compilator. Vincent de Beauvais, frère prêcheur. Un intellectuel et son milieu au XIIIe siècle* (Grâne, 1997), p. 127-151.

2. Le livre de R. FRENCH et A. CUNNINGHAM, *Before Science. The Invention of the Friars' Natural Philosophy* (Aldershot, 1996), est consacré à l'analyse de cette diffusion.

3. Bartholomaeus Anglicus, *De genuinis rerum coelestium, terrestrium et inferarum proprietatibus libri XVIII* (Frankfurt, 1601) (éd. anast., Frankfurt a.M., 1964); J. Trevisa. (trad.), *Bartholomeus Anglicus. On the Properties of Things. John Trevisa's Translation of Bartholomeus Anglicus, De proprietatibus rerum. A critical text,* vol. 1-2 (Oxford, 1975), vol. 3, (1988). Parmi les études, voir entre autres M.C. SEYMOUR, *Bartholomeus Anglicus and his encyclopedia* (Aldershot, 1992); S. LOUIS, *Le projet encyclopédique de Barthélemy l'Anglais,* in *L'Encyclopédisme: Actes du colloque de Caen,*

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Cantimpré rédigé entre 1225 et 1240,[4] ainsi que du *Speculum Naturale* de Vincent de Beauvais, que l'on situe en 1244-46 pour la version *bifaria*, entre 1256-1259 pour la *trifaria*.[5] Dans ces compilations cependant, l'histoire naturelle s'inscrit dans celle de la Création; le discours d'ordre scientifique s'intègre tant bien que mal dans un exposé théologique. De plus, les sources traditionnelles de la zoologie y gardent encore une place prépondérante: Pline, Isidore, Solin et le *Physiologus* restent des concurrents sérieux de l'autorité aristotélicienne.

12-16 janvier 1987, éd. A. BECQ (Paris, 1991), p. 147-151; H. MEYER, *Die Zielsetzung des Bartholomäus Anglicus in "De proprietatibus rerum"*, in B.K. VOLLMANN (éd.), *Geistliche Aspekte mittelalterlicher Naturlehre. Symposion 30. November - 2 Dezember 1990* (Wiesbaden, 1993) (*Wissensliteratur im Mittelalter. Schriften des Sonderforschungsbereichs 226 Würzburg/Eichstätt*, Bd. 15), p. 86-98.

4. *Liber de natura rerum, Teil I: Texte*, hrsg. v. H. BOESE (Berlin-New York, 1973). L. GARCÍA BALLESTER, éd. fac-similé du ms Grenade, B.U.C. 67 (Grenade, 1967), (avec reproduction en couleur des enluminures d'origine allemande, Grenade-Pampelune, 1975). ID., *Thomas de Cantimpré. De natura rerum: comentarios a la edición fasimil, estudio preliminar, transcripción y traducciones castellana e inglesa* (Granada, 1974). Éd. partielle: H. BLOCK FRIEDMANN, *Thomas of Cantimpré "De naturis rerum" prologue, book III and book XIX*, in *Cahiers d'études médiévales* 2, *La science de la nature: théories et pratiques* (Montréal-Paris, 1974), pp. 107-154. Éd. du "Thomas III" (version abrégée et remaniée, réalisée fin XIIIe s. et très répandue en Europe centrale), en préparation, par B.K. VOLLMANN et Ch. HÜNEMÖRDER. Parmi les études, voir entre autres: G.J.J. WALSTRA, *Thomas of Cantimpré, De naturis rerum: état de la question*, in *Vivarium* 5 (1967), p. 146-171, 6 (1968), p. 46-67; J. ENGELS, *Thomas Cantimpratensis redivivus*, in *Vivarium*, 12 (1974), p. 124-132; B. ROY, *La trente-sixième main: Vincent de Beauvais et Thomas de Cantimpré*, in *Vincent de Beauvais: Intentions et réceptions d'une œuvre encyclopédique au Moyen Age* s. dir. S. LUSIGNAN, M. PAULMIER-FOUCART, A. NADEAU, *Actes du XIVe colloque de l'Institut d'Etudes Médiévales*, Montréal, 27-30 avril 1988 (Saint-Laurent-Paris, 1990), pp. 241-251; Ch. HÜNEMÖRDER, *Probleme der Intention und Quellenerschliessung der sogenannten 3. Fassung des "Liber de natura rerum" des Thomas von Cantimpré*, in E. KÖNSGEN, *Arbor amoena comis. Festschrift zum 25j. Bestehen des Mittellatein. Seminar d. Univ. Bonn*, Stuttgart, 1990, pp. 241-249.

5. *Speculum quadruplex siue speculum maius*, 4 vol., Douai, 1624 (éd. anast. Graz, 1961/65). Sur l'évolution du *Speculum maius*, voir M PAULMIER-FOUCART et S. LUSIGNAN, *Vincent de Beauvais et l'histoire du "Speculum maius"*, in *Journal des savants*, 1990, p. 97-124, et H.B. VOORBIJ, *Het "Speculum historiale" van Vincent van Beauvais. Een studie van zijn ontstaansgeschiedenis* (Groningen, 1991). On trouvera un bon aperçu des derniers travaux dans M. PAULMIER-FOUCART, S. LUSIGNAN (s. dir.), *Lector et compilator. Vincent de Beauvais, frère prêcheur...* cité ci-dessus et dans S. LUSIGNAN, M. PAULMIER-FOUCART, A. NADEAU (s. dir.), *Vincent de Beauvais: Intentions et réceptions ...* cité ci-dessus.

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En revanche, l'encyclopédie d'Arnold de Saxe –pourtant contemporaine de celles qui viennent d'être mentionnées– se distingue à plus d'un égard en ce qui concerne ses sources. En effet, il faut fixer la composition du *De floribus rerum naturalium*, en vertu des sources utilisées, après 1220 et probablement autour des années 1230.[6] Cette compilation a pour seul propos, dans quatre des cinq parties qu'elle comporte, de fournir un exposé de philosophie naturelle (la cinquième partie, très différente, concerne la morale et a eu une destinée indépendante comme ce fut le cas de la IIIe partie, sur les pierres).[7] Même dans la première partie, sur *Le ciel et le monde,* on assiste à un énoncé métaphysique de la théorie des causes sans véritable théologie. Le corpus aristotélicien, authentique et pseudépigraphe, occupe dans l'ensemble plus d'un tiers des extraits (457)[8] et y a détrôné définitivement les autorités traditionnelles, bibliques, patristiques ou classiques qui alimentent les encyclopédies en général: Ambroise, Augustin ou Isidore ne sont même plus mentionnés. Si Sénèque et Cicéron y rivalisent encore avec Aristote en nombre de citations, ils sont relégués cependant dans la cinquième partie, sur la morale,[9] et n'ont pas droit à la parole dans le discours sur la nature.

6. A noter que depuis V. ROSE, *Aristoteles* De lapidibus *und Arnoldus Saxo*, in *Zeitschrift für deutsches Altertum* 18 (1875), pp. 321-455, l'œuvre a été dénommée erronément *De finibus rerum naturalium.* L'encyclopédie a été étudiée à la fin du siècle dernier dans la dissertation de E. STANGE, à Halle en 1885. Le même érudit allemand a fourni une édition défectueuse d'après le ms Erfurt, Wissensch. allgemeinbibl., ampl. oct. 77 (*Die Encyklopädie des Arnoldus Saxo, zum ersten Mal nach einem Erfurter Codex* (Erfurt, 1904-1906; 1907) in *Beilage z. Jahresbericht d. Gymnasium Erfurt*). Par la suite, cette encyclopédie est restée dans l'ombre, même si plus d'un chercheur en avait relevé l'intérêt, jusqu'à ce que je décide d'en faire l'objet d'une thèse de doctorat. On trouvera les données concernant les œuvres et les manuscrits dans I. DRAELANTS, *Une mise au point sur les œuvres d'Arnold de Saxe, Ie partie*, et *2e partie*, in *Bulletin de Philosophie Médiévale*, 34 (1992), pp. 164-180, et 35 (1993), pp. 130-149 et dans Id., *"Introduction à l'étude d'Arnoldus Saxo et aux sources du De floribus rerum naturalium"*, [31 p.], à paraître dans *Der Wandel der Enzyklopädie vom Hochmittelalter zur frühen Neuzeit. Internationales Kolloquium des Teilprojekts D des SFB 231 der Univ. Münster, 04.-07.12.1996*, Hrsg. von Chr. MEIER-STAUBACH, Münster, 1999 (Münstersche Mittelalter-Schriften).

7. Les manuscrits subsistants en témoignent, ainsi que les attestations de l'œuvre dans les bibliothèques médiévales ou humanistes.

8. Un tableau de la répartition des extraits d'après les sources est publié dans les actes du colloque de Münster annoncés en note 6. A la fin du présent article est fourni un tableau des sources principales en ce qui concerne les animaux, tiré du précédent.

9. Nombre respectifs de citations dans l'encyclopédie: 342 (Sénèque) et 188 (Cicéron), toutes dans le *De moralibus.*

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Les chapitres concernant les animaux, quant à eux, ignorent sans regret Pline, Solin et Isidore autant que le *Physiologus* et les autres œuvres allégoriques ou symboliques, pour puiser copieusement au *De animalibus* d'Aristote.[10] Aucune fable, pas d'extrait biblique, pas de commentaires à l'*Hexaemeron* comme celui d'Ambroise de Milan. La traduction arabo-latine toute récente de Michel Scot, élaborée probablement à Tolède en 1220,[11] est en revanche chez Arnold de Saxe une source essentielle, puisque, sur les 1604 unités de citation signalées par une référence dans le *De floribus rerum naturalium*, on dénombre 106 fois un *Aristoteles in libro de animalibus.* Aucune autre source n'y prend une telle importance, aucune n'est aussi récente: elle constituerait dès lors une sorte de *terminus post quem* pour le *De floribus rerum naturalium*. En effet, il faut noter – avec toute la prudence requise – qu'Arnold n'utilise pas l'*abbreviatio de animalibus* d'Avicenne, traduite elle aussi par Michel Scot, mais rendue disponible seulement en 1232 à partir de l'exemplaire de Frédéric II.[12] Or, le *De animalibus* et l'*abbreviatio* circulent ensemble dès une époque précoce et présentent même dans certains manuscrits un explicit commun. Il est donc probable que Arnold aurait utilisé l'*abbreviatio* s'il avait connue.[13]

Étant donné le temps court qui sépare l'élaboration de la compilation encyclopédique d'Arnold de Saxe de l'"édition" de la traduction de Michel Scot, un témoignage pareil sur la réception précoce du *De animalibus* ne peut être négligé. Cette contribution a donc pour objet d'en examiner plus en détail la méthode de compilation, le choix, la quantité et la structuration de la matière, la fidélité au texte, et d'esquisser ce qui y subsiste de la pensée du Stagirite quant à la biologie animale.

Auparavant, quelques mots d'explication aideront à situer le personnage et l'œuvre d'Arnoldus Saxo. Au stade actuel de mes recherches,

10. Ni *Aviarium* d'Hugues de Fouilloy, ni *Physiologus Theobaldi*, ni *Physiologus* chrétien (grec, Alexandrie).

11. On discute sur la localisation de la traduction à la cour de Frédéric II en Sicile, ou bien à Tolède dans les premières années du XIIIe siècle, avant son arrivée dans l'entourage de ce souverain. Certains chercheurs, comme D. Jacquart, situent la traduction vers 1210: D. JACQUART- F. MICHEAU, *La médicine arabe et l'Occident médiéval*, Paris, 1990 (Islam et Occident, 7) p. 148-160.

12. Il s'agit d'un épitomé des traités zoologiques d'Aristote, accompagné du commentaire d'Avicenne.

13. Cfr M.-Th. D'ALVERNY, *L'explicit du "De animalibus" d'Avicenne traduit par Michel Scott*, in *Bibliothèque de l'École des Chartes*, t.115, 1958, p. 32-42.

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l'encyclopédie apparaît comme le deuxième instrument de travail intellectuel fourni par ce personnage, qui se nomme lui-même "Arnoldus Luca" dans certains manuscrits[14] et "Arnoldus de Saxonia" sous la plume de Vincent de Beauvais.[15] Sa première œuvre fut probablement, d'après son propre témoignage dans le prologue à la première partie de l'encyclopédie, un florilège des livres des philosophes, qui reste à découvrir. Il l'appelle "*sermo de libris philosophorum*": *Deus unus est omnium creator misericors et iustus. Postquam in eius nomine completus est sermo de libris philosophorum, per ordinem textus sub eisdem uerbis abreviatis a me, Arnoldo Saxone, numeroque centum et nonaginta exceptis libris medicinalibus... ut facilius in componendis libris auctoritates sic paterent, nunc ergo sicut prius utilitati communi subserviens propter deum, (...), propter hoc quidem librum vobis composui (...).*[16] Ce passage devrait être traduit de la sorte: "Dieu unique est le créateur miséricordieux et juste de toute chose. Après qu'en son nom moi, Arnold de Saxe, j'ai achevé un ouvrage sur les livres des philosophes, en suivant l'ordre du texte dans les mêmes termes abrégés, et j'ai compté 190 extraits, exceptés les livres de médecine, pour qu'ainsi les autorités apparaissent plus facilement pour la rédaction des livres, maintenant donc, comme auparavant, me mettant au service de l'utilité commune à cause de Dieu, (...), dans ce but je vous ai composé ce livre (...)".[17] Les "190 extraits" ne se rapportent à aucune réalité de l'encyclopédie telle qu'elle nous est connue actuellement et doivent probablement évoquer aussi ce florilège antérieur. Il semble que ce travail préliminaire – qui n'a peut-être jamais été diffusé par l'auteur –, ait fourni un noyau d'extraits préalablement classés, qui servit à alimenter chacun des écrits postérieurs, en particulier l'encyclopédie.

Parmi les œuvres postérieures qu'il faut attribuer à Arnold à l'heure actuelle, s'insèrent un long traité pratique de médecine, un traité des

14. Dans presque tous les prologues de ses œuvres, il se nomme, soit Arnoldus Saxo, soit Arnoldus Luca. La deuxième appellation est plus courante dans les manuscrits.

15. Vincent de Beauvais, *Speculum naturale*, cap. XXIII, éd. (Douai, 1624), col. 505. Chez Albert le Grand, *De mineralibus*, il est nommé simplement Arnoldus.

16. Prologue au *De celo et mundo*, cfr éd. dans *Une mise au point*, 35 (1993), p. 131.

17. L'interprétation d' "exceptis libris medicinalibus" peut être ambivalente; la traduction présente s'inspire des suggestions du Professeur Konrad VOLLMANN, que je remercie vivement.

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vices et des vertus et une courte *consolatio.*[18] L'examen des sources respectives oblige à étendre l'activité littéraire du personnage au moins jusqu'en 1260, car on retrouve dans le traité de médecine des sources parisiennes composées a cette époque.

Arnold lui-même fut de son vivant une source importante d'extraits concernant la science naturelle pour les naturalistes contemporains. Il est difficile encore de savoir si ces derniers ont puisé au florilège préliminaire ou à l'encyclopédie en cinq parties. En particulier, Vincent de Beauvais pour la deuxième version du *Speculum naturale*[19] et Albert le Grand dans son *De mineralibus* (écrit pour l'essentiel entre 1248 et 1252) et son *De animalibus* (1258-1262) se sont servis du travail de compilation d'Arnold de Saxe; Barthélemy l'Anglais et Thomas de Cantimpré ont bénéficié des mêmes sources ou déjà échangé des informations avec lui lors de la rédaction de leurs encyclopédies respectives. Pour tous, les catalogues de pierres et les caractéristiques d'animaux précis furent précieux, mais là ne se limitent peut-être pas leurs emprunts à Arnold de Saxe.[20]

Arnold, à son tour, utilisera Albert le Grand dans son traité de médecine. Cependant, pour le *De floribus rerum naturalium,* il n'aura pas le loisir de recourir aux textes des autres naturalistes – par exemple à celui de Thomas de Cantimpré, employé par Vincent de Beauvais et Albert le Grand –, car son propre travail leur était probablement antérieur. D'après mes recherches, son activité et sa diffusion s'inscrivent dans l'histoire de la propagation des ordres mendiants dans le deuxième tiers du XIIIe siècle. En ce qui concerne sa réception plus tardive, la postérité d'Arnold fut surtout allemande, à en juger par l'origine germanique des manuscrits qui conservent son œuvre; il sem-

18. La découverte de ces œuvres est mise au jour dans l'article *Une mise au point.* Depuis lors, nous avons également retrouvé une version distincte et indépendante de la deuxième section du livre des pierres (qui forme la troisième partie de l'encyclopédie). On peut la lire, par exemple, dans les manuscrits Bamberg, Staatsbibl., Misc. 5 (anciennement Königliche Bibl., H.J. VI. 31), ca. 1464, fols. 53r-54r, où elle est insérée au milieu du *De mineralibus* d'Albert le Grand, et Erfurt, Wissensch. Allgemeinbibl., Ampl. Q 368, XIVe s., fols. 81v-83r.

19. L'introduction de la documentation d'Arnold le Saxe dans le *Speculum naturale* date de la version du *Speculum maius* en trois parties (*trifaria*), comme permet de le constater l'examen du livre V de la version *bifaria* conservée dans deux manuscrits. Il faut donc situer cet apport entre 1246 et 1256-59.

20. Ma thèse de doctorat s'intéresse notamment aux influences respectives dans les œuvres de ces personnages.

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ble qu'il ait été également une source d'inspiration pour Berthold von Moosburg, dominicain du XIVe siècle.[21]

Revenons maintenant au traitement du *De animalibus* dans l'encyclopédie. Hormis la cinquième partie "Sur la morale", composée en dernier lieu par Arnold, et la troisième, traitant des pierres exclusivement,[22] qui ont eu une destinée à part entière et dont il ne sera donc plus question ici, c'est dans la première partie, la deuxième et la quatrième, qu'intervient la zoologie d'Aristote. Dans la première, *De celo et mundo,* les trois citations[23] de l'œuvre sont marginales, car le propos n'est pas zoologique; l'une d'entre elles reste d'ailleurs non identifiée. Il n'en est pas de même pour la partie II, *De naturis animalium* et IV, *De virtute universali.* Elles sont consacrées au monde animal et végétal, et furent sans doute rédigées à peu près simultanément.[24] Le *De virtute universali* puise au *De animalibus* en l'une ou l'autre occasion, mais le *De naturis animalium* concentre quant à lui plus de 90 % des citations du *De animalibus.*[25] Il est d'ailleurs probable que son titre même soit emprunté à la traduction de Michel Scot. En effet, si l'on en

21. Bien que de nombreux points restent à élucider, il est possible qu'il faille identifier la source nommée "Arnoldus Luscus" dans l'œuvre de Berthold, avec Arnold de Saxe. Berthold von Moosburg (1318-1361) dans son traité *Expositio super elementationem theologicam Procli,* dit en effet: *Unde quidam diligens motuum astrorum inuestigator et calculator, fr. Arnoldus, dictus Luscus, ordinis predicatorum, in quodam tractatu suo, quem* De peryodis motuum et mobilium celestium *composuit...* L'œuvre dont il est question pourrait avoir été écrite par Arnold de Saxe, si l'on peut lui attribuer le contenu astrologique et astronomique du ms Bâle, Öffentliche Bibl. der Univ., O.VI.4, daté de 1429, qui présente des similitudes troublantes avec ses autres œuvres. Si cette attribution se confirme, on peut alors supposer Arnold nanti de qualifications plus précises encore en astronomie; le texte du "De peryodis..." reste cependant encore à découvrir. Edition en cours, partielle: *Bertoldo di Moosburg, Expositio super elementationem theologicam Procli, propositiones 184-211,* éd. L. STURLESE (Rome, 1974) (*Temi e Testi,* 18); *Prologus, Propositiones 1-13,* hrsg. v. M.R. PAGNONI-STURLESE, L. STURLESE (*Corpus Philosophorum Teutonicorum Medii Aevi,* VI, 1) (Hamburg, 1984); *Propositiones 14-34,* hrsg. v. L. STURLESE (14-20), M.R. PAGNONI-STURLESE (21-26), B. MOJSISCH (27-34) (*Corpus Phil. Teut. M.A.,* VI, 2) (Hamburg, 1986).

22. Elle est classée en troisième lieu dans le ms d'Erfurt et subséquemment dans l'édition de E. Stange, mais des indices montrent qu'elle était peut-être placée à l'origine en quatrième lieu.

23. Nous apellons "citation" le texte qui suit un "marqueur", c'est-à-dire une référence, dans le *De floribus rerum naturalium.*

24. En raison de ce que disent le prologue au traité de médecine et au *De iudiciis virtutum,* qui parlent des "libri de naturalibus" comme d'un tout. Sur l'ordre de rédaction, voir la contribution dans les actes du colloque de Münster.

25. Cfr le tableau de l'annexe I.

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croit le répertoire de *codices* de l'*Aristoteles latinus*,[26] le titre de *De naturis animalium* fut donné à cette traduction dans quelques-uns des 62 témoins subsistants[27] par le scribe ou le rubricateur, d'après le prologue: Paris, B.n.F. lat. 6792,[28] Firenze, Bibl. Medicea Laurenziana, S. Crucis Plut. XIII sin. 10[29], Belluno, Bibl. Lolliniana Gregoriana del Seminario 7, tous trois du XIIIe siècle[30] et dans le manuscrit de Paris, B.n.F. lat. 6791,[31] daté du tournant des XIIIe-XIVe siècles. Le manuscrit de Leipzig, Univ. Bibl. 1429, du XVe siècle, offre aussi ce titre en tête de la traduction.[32] Le plus ancien codex témoin de cette appellation fut transcrit avec beaucoup de soin en Angleterre ou en France au milieu du XIIIe siècle: Napoli, Bibl. Naz., VIII, c. 24.[33] L'enquête sur ces manuscrits pourrait peut-être mener sur la piste du modèle utilisé par Arnold de Saxe. Deux d'entre eux portent en effet l'appréciation de *"veritatis insectator, brevitatis amator"* à propos d'Aristote: Paris lat. 6792 et Naples. Leurs textes, sans notes marginales, semblent apparentés et avoir été copiés en France. Celui de Naples ne compte qu'une note, au f. 3: *commentator super secundum de anima in capitulo de tactu.* Or, cet ajout pourrait avoir été emprunté par Arnold de Saxe, et rangé après deux extraits du *De animalibus* comme citation 30 du chapitre 1 (*De natura generationis hominis*), dans la partie *De naturis ani-*

26. *Aristoteles latinus,* codices descripsit G. LACOMBE... Pars prior (Rome, 1939); Idem, ...supplementis indicibusque instruxit L. MINIO-PALUELLO (Cambridge, 1955); Idem, ... supplementa altera edidit L. MINIO-PALUELLO (Bruges-Paris, 1961) (*Corpus philosophorum medii aevi*). Nommé par la suite *AL*[1], *AL*[2], *AL*[3].

27. Je remercie vivement Mademoiselle A. VAN OPPENRAAY, qui œuvre à l'édition du *De animalibus,* pour avoir gracieusement complété ma liste de manuscrits. Elle me signale que le titre de *De naturis animalium,* choisi par certains copistes ou rubricateurs, a pu facilement être induit du prologue, où se lit un calque de l'arabe *fî ma`rifati tabâ'i` al-hayawân: Translatio tractatus primi libri quam composuit Aristoteles* in cognitione naturarum animalium *agrestium et marinorum.*

28. *AL*[1], n°604, fols. 1r-117r.

29. *AL*[2], n°1371: le codex porte le titre *Liber de natura animalium compositus ab Aristotile qui totius philosophie...,* fols. 1r-82r.

30. On croyait ce manuscrit perdu dans *AL*[2], n°1270. Il a été vu par les auteurs de *AL*[3], p. 134. Feuillets concernés: fols. 1r-107v.

31. *AL*[1], n°603, fols. 7r-110r: *Incipit liber Aristotilis De Naturis Animalium, translatus a Michaele Scoto, quem composuit veritatis insectator, brevitatis amator.*.

32. *AL*[2], n°988, fols. 3v-394r, *De animalibus,* introduit par cette note: *Quoniam divisio huius libri de naturis animalium intitulatur per XIX distinctiones.*

33. *AL*[2], n. 1471, fols. 1r-126v; fol. 1: *Liber de naturis animalium aquosorum et agrestium quem composuit Aristoteles philosophorum princeps sectator brevitatis et amator veritatis.*

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malium, sous le marqueur suivant: *In commento de anima Algazel: Primum in generatione membrorum est cor, unde vivendi principium est et spiritus vitalis, sine quo nulla erit creature permanentia.* Arnold ne donne aucune autre citation sous ce marqueur. Cette hypothèse est avancée sans réserve de vérification dans les manuscrits.

Le tableau joint en annexe I montre, en ordre de fréquence des auteurs, les sources utilisées à propos de la nature végétale ou animale dans les parties I, II et IV de l'encyclopédie.

Le constat, en ce qui concerne les sources des livres animaliers, rejoint le constat général: les sources récentes en traduction arabo-latine constituent la grande majorité de la documentation; Arnold nomme ces autorités les *moderni philosophi.*[34] Les chapitres proprement biologiques ou zoologiques puisent, surtout lorsqu'il s'agit de la génération et du développement humain,[35] à la littérature médicale transmise par les Arabes: Galien, Isaac Israëli, Constantin, Sérapion, Avicenne. En-dehors de ces autorités, les traités qui décrivent les animaux l'emportent. Les sources d'Arnold de Saxe sont en général de première main, ou peuvent être considérées comme telles; il les considère comme originales et directes (à travers les nouvelles traductions). Il ne recourt pas, contrairement par exemple à Vincent de Beauvais, à des traités didactiques déjà recomposés.

Dans le *De naturis animalium,* le *De animalibus* d'Aristote se trouve largement en tête (99 citations); il est, avec le *De animalibus* de Iorach (67 citations), la source presque exclusive de cette deuxième partie de l'encyclopédie. D'autres sources, bien qu'apparaissant sous des noms divers, ont de grandes similarités de style, de langue et de contenu avec ce traité de Iorach "sur les animaux" et furent probable-

34. Cfr prologue au *De celo et mundo,* édité dans *Une mise au point,* 35 (1993), p. 131. "(...) Cet ouvrage est divisé en cinq livres; le titre en est: *De celo et mundo,* dans lequel j'ai mis en ordre (...) les citations de tous les philosophes modernes pris chacun en particulier (...) dans la pensée que les âmes des lecteurs aient ou puissent avoir la force de s'enrichir, sous des citations abrégées, de la matière variée des philosophes, et de leurs opinions à chacun en particulier.": *Hic liber est distintus* [sic] *in quinque libros, cuius titulus est: De celo et mundo, in quo* (...) *modernorum omnium philosophorum* (...) *singulorum sententias ordinavi.* (...), *ut ex diversa philosophorum materia ac singulorum opinionibus maxime valent vel valeant animi perlegentium sub brevibus habundare.*

35. Cfr IV. *De naturis animalium,* chap. 1 et 2: *De natura generationis et operationis hominis.*

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ment transmises par le même véhicule lors de leur dernière étape de traduction, de l'arabe au latin. Je veux parler des textes transmis sous les noms d'Esculape, Pythagore, Belbetus et Zénon qui dominent la matière zoologique du *De virtute universali*.[36]

La version du *De animalibus* utilisée par Arnold de Saxe ordonnait en 19 livres les trois grands traités d'Aristote: l'*Historia animalium* en 10 livres, le *De partibus animalium* en 5 livres, et le *De generatione animalium* en 4 livres. Seuls les deux derniers sont à ce jour édités de façon critique par Mademoiselle Van Oppenraaij, c'est pourquoi je me suis basée, pour l'identification des citations des autres livres, sur la transcription du manuscrit Vatican, Chigi E.VIII. 251, effectuée par les professeurs Konrad Vollmann et Christian Hünemörder.[37] Ce manuscrit du début du XIIIe siècle est en tête d'un des trois groupes principaux de la tradition du texte et conserve le témoignage le plus proche et le plus original de la traduction livrée par Michel Scot lui-même. Cette branche de la transmission possède la caractéristique d'un texte sans sections délimitées clairement, au latin rude et à la syntaxe influencée par l'arabe, qui obligea les copistes postérieurs à des corrections.[38] La version utilisée par Arnold contient ces corrections, et s'éloigne donc de ce tout premier état. Remarquons aussi que, dans le manuscrit du Vatican comme dans beaucoup de témoins, l'ordre des livres fait passer le livre 7 après les livres 8 et 9.[39]

Chez Arnold de Saxe, la répartition des extraits empruntés dans l'ensemble des 19 livres de la traduction de Scot semble à première vue équilibrée sur l'ensemble des livres, mais un examen approfondi

36. Sur "Iorach" et les sources véhiculées probablement avec lui, voir I. DRAELANTS, "Le dossier des livres sur les animaux et les plantes de Iorach: tradition occidentale et orientale" [57 p.], à paraître dans *L'Occident et le Proche-Orient au temps des croisades : traductions et contacts scientifiques entre 1000 et 1300. Actes du Colloque de Louvain-la-Neuve, 24-25 mars 1997*, éd. I. DRAELANTS - B. VAN DEN ABEELE, Louvain-la-Neuve, 1999 (*Réminisciences*, 5).

37. Je leur suis reconnaissante de m'avoir permis de l'utiliser et les remercie de leur permission. Merci aussi à Baudouin van den Abeele qui m'a ouvert cette opportunité.

38. Voir édition A.M.I. VAN OPPENRAAIJ, *Aristotle, De animalibus: Michael Scot's Arabic-Latin translation.* 3: *Books XV-XIX: Generation of Animals* (Leiden, 1992) (*Aristoteles Semitico-Latinus*, 5.3), pp. XXI-XXII. L'édition des livres I à X est en préparation, tandis que les livres XI à XIV viennent de paraître en août 1998.

39. Dès lors, le livre 7 devient 8, 8 devient 9, et 9 devient 7. Voir la notice de P. LOUIS sur le Xe livre dans son édition, aux Belles-Lettres, de l'*Historia animalium: Aristote, Histoire des animaux.* T. III. *Livres VIII-X*, (Paris, 1969), note 2, p. 147.

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infirme quelque peu cette impression. Qu'on en juge par le tableau suivant, qui met en regard la disposition et la longueur des livres et le nombre de citations qu'Arnold leur consacre.

Livres M. Scot	Longueur (éd. acad. Berlin)	Nombre de segments de citations[40] chez Arnoldus Saxo
Historia animalium		166 (total)
lib. I	486a5-497a30	9
II	497b1-509a13	14
III	509a27-523a23	9
IV	523a31-538b15	8
V	538b29-550a1	11
VI	558b11-575b30	25
VII = 8	588a16-608a5	**34**
VIII = 9	608a12-633b3	**47** (N.B.: long livre)
IX = 7	581a9-588a10	9 (N.B.: livre très court)
X (apocryphe)	633b13-638b29	pas de citation
De partibus animalium		18 (total)
XI	639a1-646a1	1
XII	646a8-661a30	4
XIII	661a34-676a14	5
XIV	676a22-697b26	8
De generatione animalium		44 (total)
XV	715a1-731b18	7
XVI	731b19-749a6	10
XVII	749a10-763b16	7
XVIII	763b20-778a9	10
XIX	778a10-789b20	11

L'absence de tout emprunt au livre 10 frappe d'autant plus que ce livre est présent dans la traduction de Michel Scot. Cependant, il est considéré depuis longtemps comme apocryphe, tout en étant rédigé du

40. Il ne s'agit donc pas du nombre de marqueurs, mais du nombre d'extraits d'Aristote mis sous les marqueurs de citations.

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vivant d'Aristote; dans de nombreux manuscrits grecs, il n'apparaissait pas à la suite de l'*Historia animalium,* mais séparément et sous son nom réel, *De la stérilité.* En effet, il s'étend sur les causes de la stérilité, surtout chez la femme, et s'éloigne en cela du propos général de l'*Historia animalium,* qui n'était pas d'abord de traiter des causes, mais surtout de classer des observations en vertu d'une théorie. L'inauthenticité serait-elle à l'origine de l'absence de citations du livre X chez Arnold? Cela me semble peu probable. En effet, quel moyen aurait-il eu de le savoir, lui qui parmi les encyclopédistes attribue le plus large éventail d'œuvres à l'autorité d'Aristote? Une hypothèse plus simple serait de suggérer que ce livre n'existait pas dans le modèle utilisé pour la collation par Arnold. Cependant, parmi les manuscrits connus du XIIIe siècle catalogués dans les volumes de *codices* de l'*Aristoteles latinus*, un seul est mentionné comme omettant la fin du livre X et la plus grande part du livre XI,[41] et cette perte matérielle ne peut être considérée comme significative. Arnold aurait-il dès lors choisi délibérément de laisser de côté le livre X, soit qu'il différait trop du reste, soit que son propos s'éloignait de la structure qu'il s'était choisie pour répartir la matière? Il ne rechigne cependant pas à aborder le sujet de la génération de l'homme, car le premier chapitre lui est consacré dans le *De natura animalium,* sous le titre *De natura generationis hominis.* Le problème reste à résoudre par une enquête plus poussée sur les manuscrits.

Les livres du *De animalibus* les plus largement utilisés sont les huitième et neuvième (*i.e.* 7 et 8 dans la traduction de Michel Scot). Situés dans l'*Histoire des animaux,* ils sont dépourvus de théories biologiques, de termes trop techniques et de considérations de méthode; précisément, Arnold tente autant que possible d'éviter un discours théorique, excepté dans les prologues, où il mentionne très rapidement les théories générales de la génération, de l'opération et de la corruption qui régissent le monde naturel, ainsi que le principe de la complexion des éléments au sein de la substance. De même, les théories médicales sont en général évitées.[42] Le même motif de recherche du concret le

41. Ce manuscrit de la bibliothèque municipale de Tours, 682 (AL^1, n°771) est caractéristique du *corpus vetustius;* il présente en outre un texte du *De animalibus* assez corrompu, ce qui n'est pas le cas du modèle d'Arnold de Saxe, et ne porte pas le titre *De naturis animalium.*

42. Est-ce obéissance au genre, ou bien cela montrerait-il qu'Arnold n'a pas encore acquis la compétence spécifique en ce domaine qui lui permettra plus tard de rédiger un traité pratique de médecine?

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pousse sans doute à négliger aussi le livre 11, qui ne consiste qu'en un exposé de méthode. Entre parenthèses, ce livre est pourtant celui où revient quatre fois l'expression "*De naturis animalium*" à propos du discours. Sans doute en vertu du même principe, des livres 12 et 13, consacrés chez Aristote aux tissus et aux organes tels que le cœur, les poumons, le foie, l'intestin, Arnold n'a tiré que des sentences générales telles que "nul animal ne rit sinon l'homme". Les autres citations se répartissent équitablement au sein des différents livres, ce qui reflète la disparité de la documentation chez Aristote lui-même, dont témoignait déjà le fait qu'à l'origine les livres n'avaient pas reçu de titre pour individualiser leur sujet.

En somme, Arnold a conservé la documentation de fait, et négligé les spéculations et les théories. C'est ainsi que les livres 8 et 9, consacrés chez Aristote aux modes de vie et d'alimentation, aux caractères et à l'intelligence des animaux, constituaient une matière commode à transposer dans les cadres prévus pour la zoologie dans l'encyclopédie. En effet, dans son exposé sur les éléments du monde naturel, celle-ci privilégie deux axes, influencés par la physique aristotélicienne et la médecine arabe. D'une part, elle décrit les caractéristiques de l'espèce (morphologie, reproduction, comportement); cet axe est manifeste dans la deuxième partie, *De naturis animalium,* où apparaissent presque tous les extraits du *De animalibus* d'Aristote. D'autre part, elle considère les vertus (ou forces) particulières qui animent et définissent telle ou telle substance animale ou végétale; cet axe est privilégié dans la quatrième partie, *De virtute universali*, où Arnold a inclu ce qui concerne l'application médicinale de ces substances.

Le *De naturis animalium* d'Arnold décrit donc, en dix livres répartis en *generatio* et *operatio*, les mécanismes de la génération et de la transformation dans le monde animal.[43] Le règne animal y est classé selon les catégories et l'ordre "du haut vers le bas" adopté par la plupart des encyclopédistes: homme, quadrupèdes, oiseaux, poissons, reptiles. Le *De virtute universali* en dix livres examine, quant à lui, l'action des vertus issues de la force universelle au sein de la com-

43. Cfr prologue au II. *De naturis animalium:* (...) *librum De naturis animalium iam composui, cum diversitate plurima, que a virtute universali vel secundum naturam sunt singulis animalibus attributa.* Éd. dans *Une mise au point,* 35 (1993), p. 135. Bien que cette partie consacrât la moitié des chapitres à la génération, le *De generatione et corruptione* d'Aristote n'y apparaît pas (il sert de source seulement au *De celo et mundo,* Ie partie du *De floribus rerum naturalium*).

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plexion propre à chaque substance du monde animé et inanimé, –c'est-à-dire qu'il caractérise les propriétés des choses d'après leur mélange spécifique de qualités élémentaires.[44] Comme dans le *De naturis animalium,* la subdivision hiérarchique, peu détaillée, va de l'homme à la plante et aux pierres, en passant par les animaux rapaces, les animaux domestiques, les oiseaux, les poissons, les reptiles (et les insectes), pour terminer par deux chapitres consacrés aux miroirs et à la vue.[45] Les sections correspondantes adoptent généralement le même ordre chez les naturalistes contemporains comme Vincent de Beauvais et Barthélemy l'Anglais, mais elles comportent aussi des catalogues alphabétiques d'animaux, ce qui n'est pas le cas chez Arnold.

Dans cette classification sommaire, aucune influence d'Isidore ne subsiste, contrairement à ce que l'on constate dans le *Speculum naturale* de Vincent de Beauvais, qui continue à appliquer sa taxinomie, malgré un contenu en partie aristotélicien.[46] Arnold a tenté d'offrir un éventail étendu du règne animal, fidèle aux modèles du XIIIe siècle, sans chercher à systématiser une typologie aristotélicienne. D'ailleurs, chez Aristote, la taxinomie n'était pas apparente comme système, et différentes classifications pouvaient être déduites de ses traités: celle qui distingue les animaux pourvus de sang de ceux qui en sont dépourvus, et leurs huit sous-genres,[47] ou celle qui sépare les animaux domestiques des animaux des forêts, telle qu'elle est définie au livre 11, par exemple. Cette dernière distinction aurait d'ailleurs été plus familière et plus facile à appliquer pour un esprit occidental, car les animaux dépourvus de sang, comme les crustacés ou les insectes, avaient très

44. Cfr prologue au *De virtute universali*: *A sua quidem operans substantia seu a virtute universali, est illud, quod forma sue speciei operatur, quam acquisiuit post complexionem, cum eius simplicia se commiscuerunt; et ex eis generata fuit res una, sicut virtus attractiva, que est in magnete, et sicut natura cuiusque specierum vegetabilium et animalium illa, quam habent post complexionem.*

45. Le manuscrit qui ne comprend que la partie *De virtute universali* (München, Bayer. Staatsbibl., Clm 19901, fols. 89-98r, XVe s), ne conserve pas les chapitres 9, *De visu* et 10, *De speculis,* qu'Arnold pourrait avoir ajoutés dans une phase de rédaction différente.

46. Sur cette question, voir B. VAN DEN ABEELE, *Vincent de Beauvais naturaliste...* p. 133-135 (voir n. 1).

47. Animaux à sang: quadrupèdes vivipares et apparentés, quadrupèdes ovipares et serpents, oiseaux, poissons. Animaux dépourvus de sang: "animaux mous" (céphalopodes), "animaux souples" (crustacés), animaux à écailles (testacés), animaux à entailles (insectes).

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peu de place dans la tradition littéraire en Occident. Il était donc plus simple de s'en tenir à des appellations récurrentes qui semblaient délimiter de grands groupes dans le *De animalibus: quadrupedes, aves, pisces, reptilia.* Pour une même raison de familiarité, les abeilles prennent une place respectable dans le chapitre sur les oiseaux chez Arnold, car huit citations leur sont consacrées.[48] Cependant, des informations concernant d'autres animaux très familiers, mais moins nobles, comme le porc, ont subi une sélection alors que ce dernier jouissait chez Aristote d'un long développement au livre 18. La place de certains animaux dans l'encyclopédie prouve un flottement dans la classification. Ainsi, on trouve mention de la tortue, au sein du *De virtute universali,* dans les chapitres sur les animaux domestiques, sur les poissons, et sur les reptiles.[49]

Au sein de la compilation *De floribus rerum naturalium,* il existe donc un choix de contenu, qui se traduit par des sélections dans le texte emprunté. Ainsi, dans le développement anthropologique, la calvitie intéresse Arnold, mais il passe sous silence la mutation de la voix. Le développement de l'embryon mérite qu'on s'y attarde, sans mentionner pour autant les suites de la grossesse comme la lactation ou son lien en tant que corps humide et nourricier avec les menstrues, sujet cher à Aristote. Arnold de Saxe évite aussi les comparaisons trop poussées entre la génération de l'homme et celle des mammifères, entre l'ovulation et les œufs chez les oiseaux et les reptiles (livre 17 chez Aristote). Les théories sur le développement biologique n'apparaissent qu'en filigrane; on doit s'efforcer de les déduire des extraits: importance respectives du chaud et du froid, théorie des humeurs, de la forme et de la matière, du sperme, du souffle, etc.

Le *compendium* du *De animalibus* qu'Arnold fournit dans le *De floribus rerum naturalium* peut-il être dès lors considéré comme réussi? Présente-t-il un panorama complet de la biologie? En tous cas, ses extraits recomposés du *De animalibus* ne semblent pas avoir servi tels quels chez les autres naturalistes. Peut-être constituaient-ils un ensemble trop élaboré, transformé, qui nécessitait le retour à l'œuvre aristotélicienne elle-même, d'ailleurs facilement accessible par la suite si l'on en juge par le nombre de manuscrits conservés? Il semble plutôt que,

48. Cfr II. *De naturis animalium,* cap. 6, *De natura operationis auium,* cit. 17, 18, 19, 20, 22, 23, 24, 25: citations issues du *De animalibus.*

49. Cfr IV. *De virtute universali,* c. 3. *De domesticis et eorum membris,* cit. 20; c. 5. *De piscibus,* cit. 5; c. 6. *De reptilibus,* cit. 6.

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dans la mesure du possible, les auteurs d'encyclopédies naturelles s'efforcent de voir le texte original. Albert le Grand, par exemple, recourt directement au *De animalibus* traduit par Michel Scot pour sa paraphrase en trente-six livres, autour de 1260, comme le font Barthélemy l'Anglais et Vincent de Beauvais.

Cependant, l'emprunt, par ces naturalistes, d'autres sources tirées des chapitres zoologiques d'Arnold de Saxe et d'accès moins courant montre que celui-ci avait assez bien équilibré sa documentation. En effet, l'œuvre de Iorach me semble compléter adéquatement, dans le *De naturis animalium,*[50] une partie du donné aristotélicien sur les animaux qui n'avait pas été prise en compte par la version de Michel Scot: je veux parler de ce qui aurait dû se trouver à la fin du livre VI, c'est-à-dire entre 575b30 et 581a5. Aristote y traitait de la reproduction des ânes, chevaux, mulets, de la chamelle, des éléphants, sangliers, cerfs, ours, lions, hyènes, lièvres, renards, loup, chacal, etc. Or, ces animaux sont précisément ceux dont traite Iorach. La rédaction de son texte a des points communs avec celle d'Aristote, mais l'auteur se limite à de très courtes sentences, souvent d'ordre médical, qui commencent par le nom de l'animal et mettent en évidence une de ses caractéristiques propres, ou une vertu médicinale particulière. Cette compilation de botanique et de zoologie, mise sous le nom de Iorach, n'a pas été retrouvée sous forme intégrale dans les manuscrits latins jusqu'ici; sa documentation provient lointainement des œuvres de Iuba II, roi de Mauritanie, auteur de nombreux traités historiques, géographiques et ethnographiques à l'époque d'Auguste[51] et qui fut une des sources grecques de l'*Historia Naturalis* de Pline. D'un contenu similaire, elle a probablement été transmise avec les citations d'Esculape, Pythagore, Zénon et Belbetus, qui sont présentes en nombre dans le *De virtute universali* d'Arnold. Ces autorités figurent parmi les textes traitant des vertus des substances animales qui furent probablement disponibles dès le XIIe siècle à Salerne,[52] mais que Vincent de Beauvais et Albert le Grand ont sans doute trouvé commode d'emprunter à Arnold de Saxe.[53]

50. Voir l'annexe I, pour la répartition des citations.

51. "Le dossier des livres sur les animaux et les plantes de Iorach: tradition occidentale et orientale", publication renseignée p. 135, note 36 du présent article.

52. On trouve en effet des références à ces "auteurs" dans les *Questions salernitaines.* Cfr les notes infra paginales de B. LAWN, *The Salernitan Questions. An Introduction to the History of Medieval and Renaissance Problem Literature* (Oxford, 1963).

53. A l'heure actuelle, il est difficile de dire si Barthélemy l'Anglais, qui présente des similitudes de sources troublantes quant à ces textes, a eu un échange avec Arnold.

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Quant à la méthode de compilation des sources chez Arnold, trois caractéristiques la distinguent: la fidélité au texte, la concision des découpes et la simplification. Fidélité au texte de l'autorité: comme il l'annonce et le répète dans les prologues: *librum vobis composui sub eisdem verbis et eodem textu philosophorum cum demonstratione librorum, cui innitor auctoritatibus singulorum* ("avec la référence des livres, sur laquelle je m'appuie, pour chacune des autorités"). Il s'engage donc aussi à donner la référence de ses sources et à employer leurs termes-mêmes dans l'ordre du texte; nous verrons qu'il respecte cette affirmation initiale. S'il déforme néanmoins, c'est probablement que ses modèles sont parfois incertains et que les difficultés de compréhension s'aggravent dans la transmission, par sa volonté de restituer aussi les termes arabes qu'il rencontre au gré de la lecture. Ses références sont presque toujours exactes,[54] du moins si l'on prend en considération le titre et le nom d'auteur sous lequel les œuvres circulaient sous ses yeux et quoique le nombre de pseudépigraphes aristotéliciens soit très élevé dans le *De floribus rerum naturalium*.

Dans l'ensemble, Arnold use d'une technique constante dans une volonté d'abrègement: il sélectionne et intègre, sous un même "marqueur" de citation – dans notre cas, *in libro de animalibus Aristoteles* –, plusieurs brefs segments de phrases empruntés aux endroits les plus divers de l'œuvre-source, avec lesquels il forme une nouvelle sentence où les segments sont attachés par une copule, presque toujours la même: "et", qui sert en quelque sorte de ponctuation séparant chaque extrait. En voici quelques exemples:

54. Excepté en ce qui concerne la dernière partie, *De moralibus*, où les attributions à Sénèque, Cicéron et Salluste se téléscopent plus d'une fois et trouvent probablement leur origine dans un florilège autre que le *Sermo de libris philosophorum* élaboré par Arnold lui-même antérieurement.

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De naturis animalium, 4. *De natura operationis quadrupedum* (cit. 13)

ARNOLDUS SAXO/LUCA	ARISTOTE (trad. M. Scot)
In libro de animalibus Aristoteles: Et omne animal fissi pedis multe fissure non habet cornua.	XIII (662b30) Et omne animal fissi pedis multe fissure non habet cornua... II (499b15) (...)
Et nuncquam animal habens duo cornua, est non fisse ungule in quolibet pedum sicut asinus indicus.	Et numquam animal habens duo cornua non <est> fisse ungule; (animal vero unius cornu <est.> et unius ungule) in quolibet pedum, sicut asinus Indicus. XIII (663a24)
Et quando animal habet unum cornu erit in medio capitis.	Et quando animal habuerit unum cornu, erit in medio capitis.

De naturis animalium, 1. *De natura generationis hominis* (cit. 14)

In eodem Aristoteles: Impregnatio accidit mulieribus naturaliter post menstruum.	IX (582b12) Inpregnatio autem accidit mulieribus naturaliter post menstruum.
Et non emittunt sanguinem sicut ante, sed transit in nutrimentum creature.	(583a27) (...) Et (quando impregnatur mulier,) non emittit sanguinem sicut ante, set transit in nutrimentum creature;
Et post impregnatione gravantur, et efficitur super oculos earum quasi obscuritas.	(584a2) Mulieres autem post impregnationem gravantur et efficitur super oculos eorum quasi obscuritas.
Deinde adimplentur mamille lacte.	(583a27) (...) deinde mutatur et vadit ad mammillas.
Et si impregnatio fuerit masculi, apparebit in maiori parte in dextra mamilla et movetur in .XL. diebus, et si femina, apparebit in sinistra in .L. diebus, sed determinate.	(583b3) Si autem inpregnacio fuerit masculi, aparebit in maiori parte in dextra mamilla et movetur in quadraginta diebus; et si femina, aparebit in sinistra quasi in nonaginta diebus, set non determinate. (...)

Ainsi se dénombrent 106 références au *De animalibus,* ce qui représente, une fois l'identification faite, quelque 230 passages empruntés au texte.[55] Seulement 27 courtes unités de citation parmi les 106 ne

55. En annexe II figurent tous les passages cités du *De animalibus* dans le *De floribus rerum naturalium.*

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comportent qu'un seul passage extrait. Sauf exception, on ne trouve pas de reformulation de la phrase aristotélicienne, mais bien un découpage sélectif systématique de celle-ci,[56] tout en respectant les mots du texte et leur ordre. Si un mot est ajouté, il s'agit souvent du sujet, annoncé précédemment chez Aristote, et qui ne se trouvait pas dans l'extrait choisi. Cette littéralité garantit d'ailleurs une plus grande certitude dans l'identification des passages.[57] Le procédé tend à confirmer l'existence d'un travail préalable de collation des citations par Arnold dans un florilège. En conséquence, apparaît aussi que la compilation de philosophie naturelle d'Arnold n'est pas elle-même un florilège, mais une construction personnelle élaborée, bénéficiant d'une structure propre, même si il ne s'y trouve pas d'intervention de l'auteur en-dehors des prologues.

D'autres caractéristiques de l'abréviateur, correspondant à la volonté qu'il affirme dans les prologues, sont à relever par rapport à la version de Michel Scot du texte d'Aristote. Toute trace de la structure interne ou externe des traités d'Aristote a disparu: les livres et chapitres ne sont pas mentionnés, leur ordre n'est pas respecté. Le *De animalibus* est pris comme un tout. Le texte d'Arnold fonctionne dès lors en axiomes recomposés à partir de segments qui n'ont ni origine visible, ni lien subsistant du développement aristotélicien initial. Tous les termes marquant la démonstration ou sa généralisation ont disparu (*manifestum est, et universaliter, sicut frangunt experimentatores, et debemus considerare, et debemus scire,* etc.).[58] Plus naturellement, il en est de même pour ceux qui montrent la progression dans le développement (*et inferius narrabimus; de istis ergo dicemus)*. En outre, toute trace d'argumentation et d'opposition d'opinions a été gommée ("cer-

56. Voici cette exception: De virtute universali, c. 6. De reptilibus, cit. 8: *In libro de animalibus Aristoteles: Quando testudo comederit de corpore uiperarum comedit origanum montanum. Et quando mustela occurrit serpenti comedit rutam.* Cela correspond, dans le *De animalibus,* à ceci: VIII (612a26) *Et tortuca, quando comedit viperam, comedit post origanum agreste; et hoc fuit visum multotiens. Et cum tortuca ivit ad comedendum viperam, erradicaverunt radicem oragini* [sic] *agrestis*; (612a29) *Et gali, cum pugna[n]t cum serpente, comedit rutam.*

57. Dans l'annexe II, les passages éloignés du texte d'Aristote sont signalés par un #. Ces divergences peuvent être dues à la transmission du texte d'Aristote dans un manuscrit précis, mais aussi à celle du texte d'Arnold.

58. Une exception: *De nat. anim.*, c. 6. *De nat. operationis avium*: *In eodem Aristoteles: Et universaliter: masculi avium, vivunt plus quam femine et masculi passerum non vivunt nisi uno anno tantum.*

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tains disent que", "d'autres prétendent cependant", etc.), comme l'intervention de personnages qui n'ont plus guère d'actualité (*pastores dicunt, Homerus dicit*[59]). Arnold a veillé aussi à ne pas laisser subsister de répétitions, nombreuses chez Aristote, et a abandonné les incises. La fonction et le sens de la phrase ainsi reconstruite changent donc assez radicalement, mais le donné strictement informatif reste le même. D'ailleurs, il subsiste des liens implicites entre des morceaux choisis dans deux livres différents. Arnold a par exemple réuni en un passage deux opinions attribuées par Aristote aux bergers, dans le livre six et le livre huit.[60] Les explications d'un principe général, introduites chez Aristote le plus souvent par *quoniam,* ainsi que les exceptions ou les cas particuliers, ont disparu de même dans un objectif de simplification et comme de "mise à plat". Tout cela a souvent pour effet que les extraits parlant *universaliter* sont choisis plus souvent, et que des exemples particuliers passent au rang de généralités. Ainsi, au livre sept (606b25), Aristote explique que les animaux s'unissent plus volontiers lorsqu'ils sont près des cours d'eau, et s'adoucissent car ils cherchent à boire, mais qu'ils perdent l'habitude de boire en été, car il n'y a pas d'eau, c'est pourquoi les souris meurent si elles boivent. Arnold ne garde que ceci du développement: *Si mus potauerit aquam moritur.*[61]

Du point de vue de la qualité originelle du texte aristotélicien, la fiabilité du texte d'Arnold au départ était grande. Je dispose de trois manuscrits pour les parties du *De floribus rerum naturalium* qui nous occupent aujourd'hui. Cela m'a permis de dépasser certaines difficultés d'identification, malgré les graphies très diverses, particulièrement

59. Les devins, par contre, semblent encore en avoir une: *De nat. anim.*, c. 4. *De nat. operationis quadrupedum,* cit. 4: *Dicunt divinatores quod animalia cum dividuntur inter se...* (correspond à Aristote, *De animalibus*, VIII, 608b26).

60. *De naturis animalium,* c. 3, *De natura generationis quadrupedum,* cit. 6: *In eodem Aristoleles: Et quando vace impregnantur, et faciunt multos filios, est significatio, secundum quod putant homines quod in yeme erit magna pluvia. Et si acciderit tonitruus, et remanserit una ovium, et fuerit impregnata, abortiet.* Les deux passages introduits chez Aristote par *pastores dicunt* sont les suivants: VI (575b13) (...) *Et quando vacce multociens inpregnantur et faciunt multos filios, est significacio, secundum quod putant homines, quod in hyeme erit multa pluvia.* VIII (610b30) (...) *et si acciderit tonitruus et remanserit una ovium et fuerit imp<re>gnata, abortiet.*

61. *De virtute universali,* c. 3, *De domesticis et eorum membris,* cit. 9.

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en ce qui concerne les translittérations arabo-latines[62]: Oxford, Bodl. Libr., Lat. misc. e. 34; Erfurt, Wiss. Allgemeinbibl., Ampl. oct. 77 et Lüneburg, Ratsbücherei, Theol. 4°20.[63] Le premier de ces trois manuscrits est le plus fiable pour notre propos. Il contient la partie I à partir du livre 3, et les parties II et IV. Sa ponctuation même suit souvent celle du manuscrit du Vatican contenant le texte de Michel Scot, et il contient en général moins de corruptions ou d'omissions.[64] Ceci ne signifie pas qu'il faille rattacher le témoignage d'Arnold de Saxe à cette tradition manuscrite, car les différences sont assez fréquentes dans les mots d'origine arabe.[65] Le manuscrit d'Erfurt, quant à lui, fut

62. Cfr A. Van Oppenraay, éd. *De generatione animalium*, p. IX-X: "Those of us who are acquainted with the mistakes that are found in the Mss of the period, crammed as they are with compendia of every possible kind, and all of them liable to be misread of misinterpreted, will readily believe that the contemporary user was not unduly alarmed when he stumbled on a false or abstruse reading. And as to the enigmatic transliterations of names of animals, plants, persons and countries, they may not even have been recognized as corruptions, but were treated with the respect due to the incomprehensible, regarded as next of kin to the Marvellous".

63. A noter que le manuscrit München, Bayer. Staatsbibl. clm 19901 présente le *De virtute universali* uniquement. Seules deux citations du *De animalibus* s'y trouvent, car de nombreuses citations sont omises par rapport aux autres manuscrits de cette partie.

64. Comparer, par exemple, le ms Erfurt au ms Oxford pour ce passage (*De nat. anim.*, c. 6, *De nat. operationis avium*, cit. 19): (Oxford) *Apes incipiunt prius facere domos et ossa, in quibus manent apes, deinde faciunt domos, in quibus stant reges. Quando rex ipsarum nequit volare, tunc ferunt ipsum turba apum. Vel si moritur rex, morientur et ipse. Et incendunt flores diversos, nec dimittit unum florem et radit ad alium, sed colligit ex uno, quo indiget et redit ad alviarem.* (Erfurt) *Apes incipiunt prius facere domos, et ossa in quibus apes, deinde faciunt domos in quibus stant reges. Quando rex ipsarum nequit volare tunc ferunt ipsum turba apum. Vel si moritur, morientur et ipse. Et intendit flores diversos nec dimit[tit] unum florem et vadit ad alium, sed colligit ex uno quo indiget, ad alimentare.* Ou encore (*De nat. anim.*, c. 5. *De nat. generationis avium*, cit. 16): (Erfurt) *In libro de animalibus Aristoteles: Principium creationis pulli est ab ugine et cibus eius a vitello. Et quando transierunt X dies invenitur eius caput super crus eius dextrum, et supra mirat, et eius ale supra capud.* On voit qu'il arrive que le terme *creatio* soit substitué au mot *generatio* dans les extraits de ce ms. (Oxford) *In libro de animalibus Aristoteles: Principium generacionis pulli est ab albugine et cibus eius a vitello. Et quando transierunt X dies generacionis pulli complebitur pullus et quando frangitur ovum ante X dies invenitur eius caput supra crus eius dextrum, et supra mirat, et eius ale supra eius caput.*

65. Par ex., *De nat. anim.*, c. 5. *De nat. generationis avium*, cit. 7: (ms Erfurt) *Aves uncorum ungium sunt paucorum ovorum preter cachade* (*cathaude* ms. Oxford, *cachande* ms. Lüneburg) *neque multi coitus.* Ce qui correspond à ce texte dans le ms Vatican: VI (558b23) (...) *Et aves uncorum unguium sunt paucorum <ovorum> preter kaharidoz.*

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la base de l'édition de E. Stange car il était le seul qui conservait l'ensemble de l'encyclopédie – du reste les deux autres étaient encore inconnus. Il présente cependant certaines lacunes, et de très nombreuses erreurs de copie et corruptions. Sa ponctuation démontre une incompréhension du texte. Tandis que le manuscrit de Lüneburg contient les parties II, III et IV de l'encyclopédie, c'est-à-dire ce qui concerne les animaux, les pierres et les plantes, mais sous une forme plus brève: des unités de citations manquent entièrement, et à l'intérieur même d'une unité de citation, certains segments font défaut, comme s'il s'agissait d'un état précédent, ou alors abrégé, de la compilation.

Sur les 230 segments de citations, seuls 9 ont résisté à l'identification. Ils dénotent probablement une difficulté de lecture ou sont l'indice de notes marginales dans le manuscrit utilisé par le compilateur. L'exemple suivant montre un passage dont l'identification n'est pas du tout assurée; il représente une exception, tant il s'écarte des termes d'Aristote présents dans le texte de Michel Scot du manuscrit du Vatican: *De naturis animalium,* 6. *De nat. operationis avium*, cit. 8:

Ms Erfurt	**Ms Oxford**	**Ms Lüneburg**	**Traduction M. Scot**
In eodem Aristoteles: Aves, que ex rapina vivunt, quia eorum vene fellis obstruuntur inunguntur exarum extremitates nisi earum collera propellitur.	In eodem Aristoteles: Aves, que rapina vivunt, quia earum vene fellis obstruuntur, in circuitatem [?] tinguntur earum extremitates, ubi earum colla propellitur,	In eodem Aristoteles: Aves, que rapina vivunt, quia earum vene fellis obstruuntur, intyternitatem tinguntur earum extremitates, ubi earum colera propellitur,	[?] III (510b6) (...) Extremitates ergo matricum destinguntur(!) in duo,
Et albescunt egestiones	**et** albescunt egestiones.	**et** albescunt egestionis.	XIX (758a35) **et** forte albescent extremitates pilorum
et animal uncorum ungium acuti visus valde quoniam videt cibum suum a loco remoto valde	**Et** animal uncorum unguium acuti visus ualde, quoniam videt suum cibum a loco remoto valde.	**Et** animal uncorum ungium acuti visus ualde, quoniam videt suum cibum a loco remoto valde.	XII (657b24) Et propter hoc est animal uncorum unguium acuti visus valde, quoniam videt suum cibum a loco remoto

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et brevioris vite sunt in pluribus.	**Et** brevioris uite sunt in pluribus.	**Et** brevioribus vite sunt in pluribus.	II (501b14) (...) illa, que sunt multorum dentium, sunt longe vite in pluribus; illa vero, que sunt paucorum dentium separatorum, sunt brevis vite.

De même, je n'ai noté qu'une ou deux variantes significatives qui semblent être propres au texte d'Arnold lui-même.[66] Nous avons peut-être là d'autres indices de transmission textuelle.

En ce qui concerne les termes translittérés du grec ou de l'arabe, l'attitude générale d'Arnold, dans toute l'encyclopédie, est de ne pas les esquiver,[67] à une condition expresse: qu'il dispose d'un synonyme ou d'un équivalent latin qui les rende intelligibles. C'est pourquoi, quand il lui est impossible d'identifier l'animal d'après le contexte ou bien grâce à un homologue présent dans le texte, il évite le passage. En conséquence, le nombre de termes sémitiques et grecs est remarquable dans les extraits tirés de Iorach, Pythagore, Belbetus, Esculape et Zénon, car un synonyme les accompagnait presque toujours dans le texte original, du type: *adyb, id est lupus.*[68] C'est beaucoup moins souvent le cas dans le *De animalibus* d'Aristote, ce qui occasionne l'abandon d'un grand nombre d'animaux.[69] D'autre part, certaines erreurs ou

66. Par ex.: (*De nat. anim.*, c. 1, *De nat. generationis hominis*:) *In libro de animalibus Aristoteles: Canities est quidam modus putrefactionis.* Pueri *autem rufi albescunt citius quam nigri quoniam rufitas et rubedo sunt infirmitates accidentes pilis et omne quod debilitatur ex animalibus canescit cito.* Ce qui correspond, dans le texte d'Aristote, à ceci: XIX (785a25) *Et significcatio quod canities est quidam modus putrefactionis* (785a19) Pili *autem rufi albescunt citius quam nigri, quoniam rufitas et rubedo sunt quasi infirmitates accidentes pilis. Et omne quod debilitatur ex animalibus canescit cito.*

67. Ils sont cependant parfois éliminés pour la compréhension, comme dans *De nat. anim.*, c. 4. *De nat. operationis quadrupedum: In eodem Aristoteles: Lupus profert voces humanas...* pour, chez Aristote (VII, 594a32): *Zabo autem profert...*

68. On a la preuve de cette présence dans le texte original quand on compare les citations chez les différents encyclopédistes.

69. Un exemple, au livre 6, à propos de la conception des poissons: VI (569a24) *(...) Manifestum est ergo ex hoc, quod diximus, quod quidam pisces generantur per se sine ovis et sine coitu, et quidam a limo et quidam ab harena et quidam per putrefactionem, que est super aquam, sicut asroz.* La citation est reprise chez Arnold, *De nat. anim.*, c. 7, *De nat. generationis piscium,* cit. 3, mais il omet les deux derniers mots d'illustration.

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variantes dans les mots translittérés sont dues à des difficultés paléographiques: un "in" devient un "m", un "re" devient "er", "ce" ou "te", un "ri" devient un "u". Par exemple, *abereni* devient *ab aerem, kaharidoz* devient *cahaude* ou *cacharide*. Certaines transcriptions font aussi penser à un passage par l'oral, comme si le texte avait été dicté.

Arnold semble avoir agi avec Aristote comme il eût voulu qu'on agisse avec lui: il a construit un répertoire documentaire des données scientifiques propres à chaque animal, dans la pensée de fournir un instrument de travail utile à la connaissance générale du monde naturel. Morcelant le discours aristotélicien pour l'abréger, son *compendium* trahit-il pour autant la pensée du "philosophe"? On serait tenté de le croire, du moins quant aux théories biologiques et aux méthodes. En revanche, le donné concret et strictement informatif est respecté, en des termes abrégés. Il s'agit d'un travail original de compilation, qu'il faut dissocier du simple florilège et inclure davantage dans l'étude de la réception d'Aristote.

Une autre question reste ouverte: où Arnold a-t-il pu se procurer la traduction si récente de Michel Scot? On sait que ce dernier fut à Bologne et à Padoue autour de 1220 (puis à nouveau vers 1230), endroits où Albert le Grand aurait pu le rencontrer, ou bien se procurer cette version toute fraîche avant son recrutement sur place parmi les Dominicains. Il en fut peut-être de même pour Arnold de Saxe, dont l'appartenance à l'Ordre dominicain me semble probable, et la proximité avec Albert le Grand très grande.[70] L'hypothèse repose cependant encore sur des bases trop minces. Albert aurait aussi bien pu se procurer cette traduction plus tard, à savoir autour de 1240, lors de son enseignement à Paris et son passage au Couvent Saint-Jacques. La ville et son université prospère attiraient au même moment Thomas de Cantimpré (entre 1237 et 1240) et Vincent de Beauvais, amateurs des mêmes textes. Arnold aurait pu les y rencontrer et leur offrir la fraîche mouture de son *De floribus rerum naturalium* rédigé plus tôt, selon toute vraisemblance. Mais en toute hypothèse, il était alors trop tard pour y intégrer le *De animalibus* d'Aristote. Il me semble donc qu'il faut supposer comme pour Iorach, Belbetus, Pythagore, etc., une origine salernitaine de la documentation. D'ailleurs, l'intérêt pour la biologie et la méde-

70. Les comparaisons entre les œuvres des naturalistes contemporains, ainsi que les recherches sur les documents diplomatiques relatifs aux dominicains, consolider des indices dans ce sens, comme le montre ma thèse de doctorat.

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cine en général chez Arnold de Saxe iront en s'accroissant, puisqu'il rédigera plus tard sa propre *practica de causis morborum et figuris simplicibus quoque compositis medicinis*.

Malheureusement, ces suppositions ne peuvent être étayées que par les indices de la transmission manuscrite, encore trop minces dans l'attente d'une édition complète de la version de Scot du *De animalibus:* le modèle d'Arnold, qui ne se rattache pas au manuscrit Vatican Chigi, est-il français, peut-être apparenté aux manuscrits Paris, B.n.F. 6792 ou Napoli, B.Naz., VIII, c. 24? La connaissance approfondie d'autres œuvres qui au XIIIe siècle ont puisé au *De animalibus* constitue un autre outil largement souhaité, comme en témoigne ce colloque. Puissent ces premières constatations sur la postérité du *De animalibus* dans une œuvre didactique encourager une telle recherche.

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ANNEXE I

Citations dans le *De floribus rerum naturalium* d'Arnold de Saxe, IIe et IVe parties (consacrées à la nature)

Noms d'auteurs en gras suivis du nombre de citations dans *l'ensemble* de l'encyclopédie; titres en petites capitales = traductions gréco-latines. Chiffres soulignés: le nombre total de citations de l'auteur se trouve alors dans cette partie de l'encyclopédie.

	De naturis animalium 273	*De virtute uniuersali* 160
Aristote 457	113	52
L. de animalibus **106**	99	4
L. metheororum **84**	/	1
L. uegetabilium (Ps.) [Nicolas de Damas] **35**	1	1
L. de proprietatibus elementorum (Ps.) **26**	3	/
L. DE GENERATIONE ET CORRUPTIONE **22**	/	/
L. DE SOMPNO ET UIGILIA **12**	4	7
L. de lapidibus, translator Dioscorides **7**	/	7
L. de lapidibus secundum translationem Gerardi **13**	/	13
L. DE SPECULIS (Ps.) [Euclide] **13**	/	13
L. DE UISU (Ps.) [Euclide] **6**	/	6
L. DE MORTE ET UITA **4**	3	/
L. de differentia spiritus et anima (Ps.) [Qûstâ ibn Luqâ] **2**	2	/
Iorach L. de animalibus **77**	67	/
Macrobius L. Cyceronis **42**	4	/
Galienus 37	25	3
L. DE SPERMATE (Ps.) **21**	18	/

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L. de complexione **5**	3	/
L. DE TERIACA **3**	1	2
L. DE ACCIDENTE ET MORBO **3**	2	/
L. de malitia complexionis **1**	1	/
Plato L. TYMEI **33**	2	/
Constantinus 29	21	8
L. de coitu **10**	9	1
L. pantegni **6**	6	/
L. uiatici **13**	6	7
Zenon L. de naturalibus **26**	/	26
Auicenna L. medicinali **22**	10	7
Pythagoras L. romanorum **20**	/	20
Belbetus L. de sensibus **16**	/	16
Isaac 12	3	/
L. de dietis uniuersalibus **5**	1	/
L. de dietis particularibus **2**	2	/
Almansor L. curationum **10 (=Rhazès)**	/	10
Palemon L. physionomie **11**	11	/
Esculapius L. de membris **10**	/	10
Alchyldis L. de uenenis **7**	/	7
Serapion L. de simplici medicina **6**	6	/
Loxus L. physionomie **5**	5	/
Algazel 4	3	/
Comm. de anima **1**	1	/
Super de sensu et sensato **2**	2	/
Razy De complexione **1**	1	/

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ANNEXE II

De animalibus: passages cités dans le *De floribus rerum naturalium* d'Arnold de Saxe.
N.B.: Lorsque les passages empruntés n'ont pu être identifiés, on trouvera "?"; le dièse (#) signifie que le passage identifié est relativement éloigné de la citation chez Arnold de Saxe. Les (...) suivant un *locus* signifient que quelques mots commençant le passage emprunté n'ont pas été repris chez Arnold. Les incipits des citations du *De floribus* ont été établis d'après les leçons des trois manuscrits dont on dispose pour ces parties, et non d'après l'édition défectueuse de E. Stange.

Arnoldus Saxo	Aristoteles
De celo et mundo	De animalibus
lib. III, cap. 8. De alimento et aucmento plantarum cit. 7, Ex palmis sunt...	?
cap. 10. De accidentibus plantarum cit. 4, Causa caluiciei est diminutio...	XIX (783b18)
lib. IV, cap. 14. De mari cit. 7, In mari est aqua...	VII (590a23)
De naturis animalium	
cap. 1. De natura generationis hominis cit. 12, Embrio, antequam sua compleatur creatio,...	XVIII (763b20), (775b14), XVI (740b25), XV (727b6), XVI (736a1)
cit. 13, Et embrio uiuit uita...	XIX (779a1), IX (587a25), XIV (693b23), IX (586a27)
cit. 14, Impregnatio accidit mulieribus...	IX (582b12), (583a27) (...), (584a2), (583a27) (...), (583b3)
cit. 19, Cum semen maris fuerit...	XVIII (766b15), (766b17)
cit. 30, Debet esse in corde principium...	XVI (743b25), (743b29)
cit. 31, Et accidit omnibus membris mortificatio...	XVI (741b20)
cit. 45, Nulla femina animalium recipit coitum...	IX (584b37) (...), V (544b27) (...), XVIII (773b33)

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cit. 46, Uir homo desiderat coitum...	V (542a20) (...),?
cit. 51, Quedam mulieres que impregnabantur...	IX (585a22) (...), XIX (779a27), IV (536a32) (...), XIII (673a3) (...), II (497b31) (...)
cit. 52, Si aliquis castretur ante pollutionem...	III (518a23) (...), XIX (783b8), (784a 4)
cit. 53, Causa istius caluitiei est diminutio...	XIX (783b18), (787b20)
cit. 55, Canities est quidam modus putrefactionis.	XIX (785a25), (785a19)
cap. 2. De natura operationis hominis cit. 15, Quando frons fuerit lata...	I (491b9) (...)
cit. 16, Et cum fuerint supercilia...	I (491b15) (...), (491b25)
cit. 17, Et si fuerint profundi significatur...	I (492a6) (...)
cit. 18, Cum fuerint auricule eminentes...	I (492a32) (...)
cit. 38, Homo uiuit diutius...	XVIII (777b3)
cap. 3. De natura generationis quadrupedum cit.5, Quodlibet animal habet uocem propriam...	IV (536a14), VI (574a4) (...), (574a10) (...)
cit. 6, Et quando uacce impregnantur...	VI (575b13) (...), VIII (610b30) (...)
cit. 7, Et quod est quoddam flumen,...	III (519a10) (...)
cit. 8, Quod si impregnantur oues aut capre...	VI (573b31)
cit. 9, Si fuerint uene sub lingua ouis albe...	VI (574a4) (...)
cit. 10, Et quadrupedia generant animalia...	V (539a14), XVI (742a8)
cit. 15, Iena V uel VI,...	XVII (750a32), VIII (611b25)
cit. 16, Equa impregnata,...	VII (604b30), XVI (743a3), (748b7)
cit. 17, Infructuositas autem inuenitur...	XVIII (770a35), (771b2)
cit. 18, Et omne animal habens fissuras...	XVIII (774a33), XV (725a29)
cap. 4. De natura operationis quadrupedum cit. 1, Omne animal quadrupes...	XIV (691a27), VIII (632a33) (...)

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cit. 2, Et si inungantur uacce cum oleo...	VII (595b12) (...), (595b30)
cit. 3, Et si quis finderit corium tauri...	VII (595b6) (...), (596a13)
cit. 4, Dicunt diuinatores quod animalia...	VIII (608b26) (...), (609a17) (...)
cit. 11, Cerui si castrentur...	VIII (632a11), (611a23) (...)
cit. 12, Ceruus sequitur hominis cantum...	VIII (611b25) (...), II (500a1) (...)
cit. 13, Et omne animal fissi pedis...	XIII (662b30), II (499b15) (...), XIII (663a24)
cit. 14, Quoniam in Creta capre...	VIII (612a2) (...)
cit. 17, Homo tantum et equus...	XIX (780b5), II (501b14) (...)
cit. 18, Et illa que sunt multorum dentium...	II (501b14) (...),?
cit. 19, Formice semper ambulant una uia...	VIII (622b20) (...)
cit. 25, Natura posuit loco manuum...	# XII (659a20), II (498b5) (...), (500b15)
cit. 26, Omnis femina mingit ad posterius...	II (500b15) (...), IV (538b7) (...)
cit. 27, Et nullum animal habens squamas...	XIII (671a26), (675a24)
cit. 28, Et quando animalia castrantur...	VIII (632a7) (...)
cit. 29, Elefantibus autem nocet uentus...	VII (604a11), (604b26), (596b3)
cit. 30, Et omnia animalia annulosa...	VII (605b19) (...)
cit. 33, Est animal quod dicitur foca...	VIII (608b19) (...)
cit. 34, Lupus profert uoces humanas...	VII (594a32), VIII (629b19) (...), (611b32) (...)
cit. 35, Dentes solummodo inter alia ossa...	XVI (745a25), XII (653b30) (...), III (516b4) (...)
cit. 36, Lana ouis, quam comedit lupus...	VII (596b3) (...), XVI (745a20)
cit. 37, Caude serpentum et lacertarum...	II (508a34) (...), III (519 a 20) (...)
cap. 5. De natura generationis auium cit.1, Tempus omnium animalium...	V (540b21), (541a13) (...) /?
cit. 4, Quando tonitrua ueniunt...	VI (559b30) (...), XVIII (770a16)

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cit. 5, Et omnia oua auium...	XVII (749a18), (752b5), VI (559a27) (...), (559a30)
cit. 6, Quedam aues coeunt...	V (539b23) (...), VI (560b26) (...), (563a12)
cit. 7, Aues uncorum unguium sunt...	VI (558b23) (...), V (544a25)
cit. 8, Et columbe ouant decies...	VI (562b24), VI (558b23), (558b17) (...)
cit. 16, Principium generacionis pulli...	VI (561a14) (...), (561a26), (561b28)
cit. 17, Et hakalez facit suum nidum...	? / VIII (612b32) (...), (613a15), II (508a34)
cit. 18, Animal quod dicitur almachez...	VIII (620a2) /?
cit. 19, In auibus autem uncorum...	XVII (749b 4), VI (563b5) (...)
cit. 20, Et pulli lalachc...	VIII (615b25)
cap. 6. De natura operationis auium cit. 3, Uultur uenatur a meridie...	VIII (619a15), (609b8)
cit. 4, Et coruus niger est...	VIII (609b32), (617a9) (...)
cit. 5, Aues que habent uncos unges...	I (488a3) (...), VIII (619b7) (...)
cit. 6, Et aues habentes uncos unges...	VII (593b25) (...), (601a27) (...)
cit. 7, Et omnes aues uncorum unguium...	VII (597b25), XIV (692b21) (...), (695a8)
cit. 8, Aues, que ex rapina uiuunt...	# III (510b6) (...), # XIX (758a35), XII (657b24), # II (501b14) (...)
cit. 9, Et uniuersaliter masculi auium...	VIII (613a26), (613a30)
cit. 17, Apes non generantur ex coitu...	XVII (759b11), I (488a10)
cit. 18, Apes non sedent super fetidum...	IV (534b25) (...), VII (599a24), (623b16) (...)

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cit. 19, Apes incipiunt prius facere domos...	VIII (623b27) (...), (624a27) (...), (624b4)
cit. 20, Sed quod si rector fuerit uiuus...	VIII (624b12) (...), (624b16), (624b21) (...)
cit. 21, Si aggregatio residua pauca...	VIII (625b15)
cit. 22, Quedam vero apes ordinantur...	VIII (625b18), (626a15) (...), (626a21) (...)
cit. 23, Et si aliqua apis moritur in aluari...	VIII (626a21) (...), (626a25)
cit. 24, Et apes extrahunt otiosas inter eas.	VIII (627a20), (627b6), (628b25) (...)
cit. 25, Musce et apes et huius non faciunt...	IV (535b6) (...)
cap. 7. De natura generationis piscium cit. 1, Accidit de generibus quorundam piscium...	XV (730a18)
cit. 2, Ex masculo erit primus motus,...	XV (716a6-7), II (505a28) (...), VI (567a25) (...), V (543a30)
cit. 3, Quidam pisces generantur...	VI (569a24) (...)
cit. 4, Et piscis ab aerem quod parit...	VI (571a2) (...), V (543b6) (...)
cit. 5, Et cancer paruus generatur...	V (548a15), VI (566a27)
cit. 13, Nullus modus piscium habet testiculos...	III (509b4), (521b25), VI (566b16)
cit. 14, Et omnes pisces nutriunt pullos...	VI (564b14) (...), VII (591a4) (...), IV (538a22) (...)
cit. 15, Omnes modi piscium...	VII (608a5),? , (607b1) (...)
cap. 8. De natura operationis piscium cit. 9, Sepe inflat uentrem...	VII (591a26) (...), # XIV (676b22) (...), # II (506b5) (...), XII (657a23)
cit. 10, Multa autem animalia non habent uocem...	?
cit. 11, Et carabo cibatur...	VII (591a10) (...), VIII (621b3) (...), VII (591a18), VIII (632b9)

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cit. 12, Pisces autem et aues mouent...	XIV (691a27) (...), (695b2), XI (644a19)
cit. 13, Quidam pisces inpinguantur...	VII (602a23), (598a17) (...)
cit. 14, Et aqua pluuie conuenit...	VII (603a12), (602a1)
cit. 15, Piscis habens lapidem...	VII (601b24) (...), (602b12)
cap. 9. De natura generationis reptilium cit. 1, Semper sunt serpentes ad inuicem...	XV (718a17), III (511a14) (...), XVIII (770a27)
cit. 2, In ouantibus uero...	IV (538a22) (...), VIII (623a8), I (488a13) (...), XVII (763a11)
cit. 3, Et uermes qui generantur...	XVII (758b29), III (519b13) (...)
cit. 4, Omnia animalia dure teste...	V (544a15) (...),? , XIV (691b29) (...)
cit. 5, Et serpentes habent costas...	II (508a34) (...), XV (718a19), (718a23)
cap. 10. De natura operationis reptilium cit. 5, Scorpiones cum mordent porcos...	VII (607a14) (...)
cit. 23, Saliua hominis contrariatur...	VII (607a26) (...), VIII (612a7), (612a29) (...)
cit. 27, Omnia animalia morsa...	VII (604a4) (...)
IV. De uirtute uniuersali.	
cap. 3. De domesticis et eorum membris cit. 9, Si mus potauerit...	VII (606b25) (...)
cit. 10, Si homo fuerat talpam...	VII (605b32) (...)
cap. 6. De reptilibus cit. 8, Quando testudo comederit uiperam...	VIII (612a26), # (612a29)
cap. 7. De plantis cit. 31, Si quis acceperit sulphur...	IV (534b21) (...)

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HENRYK ANZULEWICZ

DIE ARISTOTELISCHE BIOLOGIE IN DEN FRÜHWERKEN DES ALBERTUS MAGNUS

I. Albertus Magnus als Ausleger der aristotelischen Biologie

Über Albertus Magnus nur als den Rezipienten aristotelischer Biologie zu sprechen, auch dann, wenn man allein seine Frühschriften[1] in den Blick nimmt, ist nicht unproblematisch. Denn aus der historischen Perspektive gesehen, die nicht auf ein Jahrzehnt von Alberts Schaffen – etwa von 1239-1249 – verkürzt werden darf, gilt er sowohl als einer der ersten lateinischen Rezipienten und Vermittler als auch einer der maßgeblichen Ausleger der aristotelischen Biologie wie fast des gesamten Corpus aristotelischer Schriften und solcher, die zu seiner Zeit und von ihm selbst für aristotelisch gehalten wurden.[2]

Die antike Biologie hatte ihren Höhepunkt in den zoologischen Schriften des Aristoteles – *Historia animalium* (10 Bücher), *De partibus animalium* (4 Bücher), *De generatione animalium* (5 Bücher), *De motu animalium* und *De incessu animalium* – sowie in *De anima* und den sogenannten *Parva naturalia*, die die gesamte Tierwelt unter Einschluß des Menschen vergleichend beschreiben, erreicht. Die Anatomie und Physiologie des Menschen hatten hingegen in der Zeit nach Aristoteles in Galen (129-199 n. Chr.) ihre Vollendung erfahren. Die beiden Autoren schufen die Grundlage der abendländischen Biologie, die dem lateinischen Westen erst im 12. und 13. Jh. im vollen Umfang zugänglich wurde. Die Assimilation dieses griechischen Erbes erfolgte teils durch die Übersetzungen aus dem Arabischen, teils aus dem Griechischen, teils durch die Vermittlung arabischer und persischer Kommentatoren. Hierbei sind im besonderen die Abbreviation von *De animalibus* und der *Canon* des Avicenna sowie die in Fragmenten erhaltenen Kompendien des Averroes zu nennen.[3]

1. Zum Begriff "Frühwerke" cf. die einleitende Vorbemerkung im 2. Teil dieses Referates.

2. Von den pseudoaristotelischen Schriften, die Albertus für echte Werke des Aristoteles hielt und sie im Rahmen seiner Aristoteles-Paraphrase kommentiert hat, sind zu nennen: *De lineis indivisibilibus*, *De plantis*, *De causis proprietatum elementorum*, *Liber de causis*.

3. Cf. H. BALSS, *Albertus Magnus als Zoologe* (München, 1928), pp. 9-11. Für die Kompendien des Averroes cf. *Aristoteles Latinus*: Codices, 1 (Roma, 1939), pp. 107-10 (n. 116-125).

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Albertus Magnus hat die aristotelische Biologie nicht nur rezipiert und erklärt, sondern sie durch Hinzuziehung von unterschiedlichsten, ihm in erstaunlicher Fülle zugänglichen Quellen,[4] durch eigene Reflexion und Versuche einer prinzipientheoretischen Grundlegung empirische Sachverhalte beschreibender Wissenschaft sowie durch Erkenntnisse aus eigenen Beobachtungen weiterentwickelt. Deshalb wird er im Urteil der Historiker dieser Disziplin als "der Prärenaissance-Zoologe" (Rudolph Zaunick) und "ein echter Biologe im heutigen Sinne des Wortes" (Heinrich Balss), als "zweifellos der herausragendste Biologe im Zeitraum von der Antike bis Konrad Gesner und Andreas Vesalius (XVI. Jh.)" (Adam Paszewski), der auch über sieben Jahrhunderte nach seinem Tod, "immer noch Interesse und höchste Anerkennung findet" (Christian Hünemörder), gewürdigt.[5] Alberts prinzipientheoretische Überlegungen zur empirischen, auf partikuläre Sachverhalte bezogenen Naturwissenschaft haben diese nachhaltig befördert und ihm die Bezeichnung eines "wichtigen Wegebereiters" der deskriptiv verfahrenden Naturwissenschaften eingebracht (Theodor W. Köhler).[6] Andererseits aber ist auch darauf hinzuweisen, daß gerade die Tierkunde des Albertus manche Kritik an seiner methodischen Unzulänglichkeit ausgelöst hat, so u. a. daß er die bei Aristoteles vorgefundene vergleichende Anatomie der Tiere in eigenen anatomischen Untersuchungen nicht angewendet hat, daß seine eigenen Beobachtungen bis-

4. Cf. B. GEYER, *Die patristische und scholastische Philosophie*, Friedrich Überwegs Grundriß der Geschichte der Philosophie, 2 (Tübingen, 1951), pp. 404-5.

5. R. ZAUNICK, "Albertus Magnus, der Prärenaissance-Zoologe," *Ostdeutscher Naturwart* 2 (1924), 124-128. BALSS, *Albertus Magnus als Zoologe*, p. 141: "So ist Albertus ein echter Biologe im heutigen Sinne des Wortes und man kann ihn mit Zaunick mit Recht als den «Praerenaissancezoologen» bezeichnen. Denn seiner Zeit war er vorausgeeilt; Nachfolger, die wie er, die Natur nicht nur von ästhetischer Seite, sondern auch um ihrer selbst willen beobachteten, erwuchsen ihm in folgenden Jahrhunderten keine mehr." A. PASZEWSKI, "Albert Wielki. III. Mysl filozoficzno-przyrodnicza," in *Encyklopedia Katolicka*, 1 (Lublin 1985) col. 304-5. Cf. idem, "Albert z Lauingen o roslinach i zwierzetach," *W drodze* 11-12 (1981), 29: "Ich glaube, daß ich in der Bewertung Alberts nicht übertreibe, wenn ich sage, daß er der herausragendste Biologe im Zeitraum von Aristoteles bis Carl Linné und vielleich sogar bis Darwin ist" (aus dem Poln. übertr. v. H. A.). C. HÜNEMÖRDER, "Die Zoologie des Albertus Magnus," in *Albertus Magnus Doctor universalis 1280/1980*, ed. G. MEYER – A. ZIMMERMANN, Walberberger Studien. Philos. Reihe 6 (Mainz, 1980), p. 235.

6. Th.W. KÖHLER, "«Processus narrativus»: Zur Entwicklung des Wissenschaftskonzepts in der Hochscholastik," *Salzburger Jahrbuch für Philosophie* 39 (1994), 127.

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weilen keinen objektiven Wert gehabt haben oder daß er das die Frau abqualifizierende Urteil des Aristoteles wie selbstverständlich übernommen hat (Paul Hoßfeld).[7]

In der Einleitung zur kritischen Textausgabe von *Quaestiones super De animalibus* des Albertus Magnus hält Ephrem Filthaut fest, daß die Tierkunde des Aristoteles die Hauptquelle und zugleich die kommentierte Textvorlage des am Kölner *Studium generale* der Dominikaner wohl um 1257/1258 disputierten und möglicherweise erst nach 1260 in der uns überlieferten Fassung redigierten Quaestionenwerkes ist. Mit der Tierkunde des Aristoteles, die Albertus insgesamt zweimal kommentiert hat – das eine Mal in Form von Quaestionen, ein anderes Mal in Form eines Wortkommentars – werden hier in erster Linie die drei aristotelischen Schriften *Hist. An.*, *Part. An.* und *Gen. An.* in der lateinischen Übersetzung aus dem Arabischen gemeint, welche Michael Scotus um 1220 angefertigt und, wie schon seine arabische Vorlage, zu einem Werk zusammengefügt hat, das unter der Überschrift *De animalibus* überliefert wurde.[8] Um den Typus der von Albertus in den *Quaestiones super De animalibus* benutzten Übersetzung der aristotelischen Vorlage aufzuzeigen, bringt der Editor für die Quaestionen 1-20 zum ersten Buch im Quellenapparat den Text von *Hist. An.* in der arabisch-lateinischen Version und anschließend denselben Textabschnitt in der lateinischen Übertragung aus dem Griechischen, die von Wilhelm von Moerbeke erstellt wurde. Weil kritische Druckausgaben der beiden Übersetzungen der Tierkunde des Stagiriten dem Herausgeber der Quaestionenschrift des *Doctor universalis* damals (vor 1955) gänzlich

7. P. HOSSFELD, "Albertus Magnus," in *Klassiker der Naturphilosophie: Von den Vorsokratikern bis zur Kopenhagener Schule*, ed. G. BÖHME (München, 1989), p. 76; idem, *Albertus Magnus als Naturphilosoph und Naturwissenschaftler* (Bonn, 1983), pp. 93-95; idem, *Albertus Magnus über die Frau* (Bad Honnef, 1982), p. 17. Cf. ferner H. STADLER, "Irrtümer des Albertus Magnus bei Benutzung des Aristoteles," *Archiv für die Geschichte der Naturwissenschaften und der Technik* 6 (1913), 387-393.

8. Albertus Magnus, *Quaestiones super De animalibus*, Alberti Magni Opera Omnia 12, ed. E. FILTHAUT (Münster, 1954), p. XLVI v. 21 sqq. Für das Datum der Fertigstellung der lateinischen Übersetzung des zoologischen *Corpus Aristotelicum* durch Michael Scotus cf. H.J. DROSSAART LULOFS, "Preface," in *Aristotle, De animalibus. Michael Scot's Arabic-Latin Translation. Part Three: Books XV-XIX: Generation of Animals*, Aristoteles Semitico-Latinus 5, ed. A.M.I. VAN OPPENRAAIJ (Leiden – New York – Köln, 1992), pp. VII-X. Zur Geschichte der Übertragung der drei zoologischen Schriften des Aristoteles ins Arabische und ihrer Zusammenfügung zu einer literarischen Einheit cf. *Aristoteles Latinus*: Codices, 1, p. 80.

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fehlten, hat er auf Handschriften zurückgreifen müssen. Für die *translatio Michaelis Scoti* wurden von ihm zwei Codices herangezogen, nämlich: *Wien, ÖNB 97* (fol.1r-108v) und *Bernkastel-Kues, Bibl. des St. Nikolaus-Hospitals 182* (fol.117r-186r). Die lateinische Übersetzung aus dem Griechischen – die *translatio Guillelmi de Moerbeke* – wurde nach dem Codex *Erfurt, Wiss. Allgemeinbibl. (Bibliotheca Amploniana) CA 2-26* (fol.1v-60v) angeführt. Filthaut konnte auf dieser Grundlage mit Hilfe philologischer Vergleiche ermitteln, was schon zuvor Fr. Pelster und B. Geyer gesehen hatten, daß zumindest für die *Hist. An.* und *Part. An.* neben der arabisch-lateinischen Übersetzung als die Hauptvorlage des Quaestionenkommentars auch die aus dem Griechischen erstellte *translatio Guillelmi* benutzt wurde. Dieser letztere, chronologisch mit den *Quaestiones super De animalibus* unvereinbare Umstand wurde jedoch nicht auf Albertus, sondern auf Conradus de Austria als den Urheber des Reportatum der Schrift zurückgeführt.[9] Allerdings bleibt noch zu prüfen, ob dieser Sachverhalt nicht anders zu erklären ist. Denn Filthaut hat nicht berücksichtigt, daß es für manche Teile des zoologischen *corpus*, so für *Part. An.* (wie auch für *Mot. An.*), eine aus dem Griechischen erstellte *translatio anonyma* gibt, die nach Ezio Franceschini noch vor der *translatio Guillelmi* zu datieren ist. Pietro Rossi hat zuletzt diese bislang in der Forschung wenig beachtete Erkenntnis von Franceschini durch eine detaillierte philologische Untersuchung bestätigt.[10]

Alberts große Paraphrase der Zoologie des Aristoteles *De animalibus* folgt, wie Hermann Stadler in seiner Textausgabe nach dem Kölner Autograph festgestellt hat, ebenso der arabisch-lateinischen Übersetzung des Michael Scotus.[11] Dieser Sachverhalt ist insofern verständ-

9. Albertus Magnus, *Quaestiones super De animalibus*, p.XLVI v. 43sqq. Cf. FILTHAUT, "Um die Quaestiones de animalibus Alberts des Großen," in *Studia Albertina. Festschrift für B. Geyer zum 70. Geburtstage*, ed. H. OSTLENDER, Beiträge zur Geschichte der Philosophie des Mittelalters, Supplementband 4 (Münster, 1952), p. 123. GEYER, "Der alte Katalog der Werke des hl. Albertus Magnus," in *Miscellanea Giovanni Mercati*, 2, Studi e Testi 122 (Città del Vaticano, 1946), pp. 406-407.

10. P. ROSSI, "La *Translatio Anonyma* e la *Translatio Guillelmi* del *De Partibus Animalium* (Analisi del libro I)," in *Guillaume de Moerbeke. Recueil d'études à l'occasion du 700e anniversaire de sa mort (1286)*, ed. J. BRAMS et W. VANHAMEL, Ancient and Medieval Philosophy, Ser. 1/VII (Leuven, 1989), pp. 221-245, und insb. 221, 245.

11. Cf. Albertus Magnus, *De animalibus libri XXVI*, ed. H. STADLER, Beiträge zur Geschichte der Philosohie des Mittelalters 15 (Münster, 1916), p. XII: "Albertus folgt der arabisch-lateinischen Übersetzung des Michael Scottus, welche die Zoologie in 19 Büchern behandelt (10 *historia animalium*, 4 *de partibus animalium*, 5 *de generatione animalium*)".

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lich, als die Entstehungszeit der Paraphrase vor der Abfassung von *Quaestiones super De animalibus* angesetzt wird.[12] Damit ist aber, wie es scheint, auch die Frage nach dem Typus der Übersetzung der zoologischen Schriften des Aristoteles in allen vor *De animalibus* verfaßten Werken Alberts beantwortet. Es kommt eigentlich nur die *translatio Arabico-Latina* des Michael Scotus in Frage, weil – sieht man von der Existenz der bereits erwähnten anonymen *translatio Graeco-Latina* für einen Teil des zoologischen *corpus* ab – die griechisch-lateinische Version von Wilhelm von Moerbeke bekanntlich erst in den Jahren 1260-1266 und zum Teil sogar später entstanden ist.[13]

Einen Sonderfall in Alberts Kommentierung der aristotelischen Tierkunde stellt die Schrift *Mot. An.* dar, welche – wie auch das Werk *Inc. An.* – in der *translatio Arabico-Latina* nicht vorlag. Während eines der Aufenthalte Alberts in Italien (*in Campania iuxta Graeciam*) – es kann sich um seinen Aufenthalt an der päpstlichen Kurie in Anagni 1256-1257 oder in Rom 1261-1262 handeln – fiel ihm, nach seinen eigenen Angaben, "das Werkchen des Aristoteles «Über die Bewegungen der Sinnenwesen»" in die Hände. Diese aristotelische Schrift wurde von ihm ebenfalls einer Kommentierung unterzogen.[14] obwohl er zuvor dieselben Fragen "aus eigener Erfindungskraft" ("*ex ingenio proprio*") in seinem Werkchen *De motibus animalium* abgehandelt hatte.[15] Die von Albertus in Campania aufgefundene und seinem Kommentar zugrunde gelegte Übersetzung ist nach den Untersuchungen von B. Geyer eine *translatio Graeco-Latina*, die von der *translatio Guillelmi* verschieden und älter ist.[16] Alberts Kommentar ist, soweit bislang

12. Zur Frage der Datierung der Paraphrase cf. Albertus Magnus, *Super Matthaeum*, Alberti Magni Opera Omnia 21/1, ed. B. SCHMIDT (Münster, 1987) pp. XV v. 5 – XVI v. 23.

13. Näheres hierzu cf. J. BRAMS, "Guillaume de Moerbeke et Aristote," in *Rencontres de cultures dans la philosophie médiévale. Traductions et traducteurs de l'antiquité tardive au XIVe siècle*, ed. J. HAMESSE et M. FATTORI (Louvain–la–Neuve – Cassino, 1990), pp. 320, 329-333.

14. Albertus Magnus, *De principiis motus processivi*, Alberti Magni Opera Omnia 12, ed. B. GEYER (Münster, 1955), pp. 47-75.

15. Albertus Magnus, *De principiis motus processivi* 1.1, p. 48 v. 66-74: "De modo ergo huius motus, licet iam in libro *De motibus animalium* hoc quod sensimus, tradiderimus, tamen quia postea in Campania iuxta Graeciam nobis agentibus pervenit ad manus nostras libellus Aristotelis de motibus animalium, etiam hic ea quae tradidit, interponere curavimus, ut sciatur, si in aliquo ea quae ex ingenio proprio diximus, deveniant a Peripateticorum principiis subtilitate".

16. Albertus Magnus, ibid., proleg., p. XXIV v. 30 sqq.

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bekannt, die einzige literarische Bezeugung der anonymen griechisch-lateinischen Übersetzung von *Mot. An.* des Aristoteles. Bisher wurden keine Handschriften des Textes der *translatio anonyma* aufgefunden.

II. Die Rezeption der aristotelischen Biologie in den Frühwerken des Albertus Magnus

Vorbemerkung zum Begriff der Frühwerke Alberts

Der Begriff der Frühwerke des Albertus Magnus wurde in der Forschungsliteratur spätestens seit den 30er Jahren unseres Jhs. inhaltlich festgelegt und etabliert. Doch durch die im Laufe der Zeit erzielten Fortschritte in der Frage der Echtheit der einzelnen Schriften Alberts und die hieraus resultierenden Korrekturen an früheren Auffassungen ist der Begriff in seiner ursprünglichen Bedeutung nicht mehr klar und auch nicht mehr anwendbar. Deshalb muß er hier entsprechend dem neuesten Forschungstand hinsichtlich der Authentizität des literarischen Werkes Alberts in seinem Bedeutungsfeld neu definiert werden.

Mit dem Begriff der Frühwerke des Albertus Magnus werden hier alle derzeit in der Albertus-Forschung als echt gewerteten Werke des *Doctor universalis* aus seiner frühesten Schaffensperiode gemeint, die mit der Erstlingsschrift *De natura boni* beginnt und mit der Kommentierung der Sentenzen des Petrus Lombardus und der Niederschrift des Sentenzenkommentars endet. Im einzelnen handelt es sich um folgende acht Titel: (1) *De natura boni*, (2) *De sacramentis*, (3) *De incarnatione*, (4) *De resurrectione*, (5) *De IV coaequaevis*, (6) *De homine*, (7) *De bono*, (8) *Super quattuor Sententiarum.*[17] Die inhaltlich mit den drei letztgenannten Werken mehr oder weniger zusammenhängenden, chronologisch aber nicht eindeutig einzuordnenden *Quaestiones* werden hier nicht berücksichtigt. Die nachfolgenden Ausführungen beschränken sich auf diese als Frühwerke definierten Schriften, die gemäß der angegebenen chronologischen Reihenfolge ihrer Abfassung

17. In der kritischen Kölner Ausgabe (*Editio Coloniensis*) liegen derzeit folgende der genannten Werken vor: *De natura boni*, Alberti Magni Opera Omnia 25/1, ed. E. FILTHAUT (Münster, 1974); *De sacramentis*, ed. A. OHLMEYER, *De incarnatione*, ed. I. BACKES, *De resurrectione*, ed. W. KÜBEL (Münster, 1958) = Alberti Magni Opera Omnia 26; *De bono*, Alberti Magni Opera Omnia 28, ed. H. KÜHLE, C. FECKES, B. GEYER, W. KÜBEL & F. HEYER (Münster, 1951). Die restlichen drei Frühwerke Alberts werden hier anhand der unkritischen, mit Hilfe von Handschriften revidierten Pariser Ausgabe von August BORGNET benutzt.

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unter dem Gesichtspunkt der Assimilation aristotelischer Biologie untersucht werden.

1. De natura boni

Eine gewisse Vertrautheit mit den zoologischen Schriften des Aristoteles besaß Albertus bereits zu Beginn seiner wissenschaftlichen Laufbahn, wie sich aus seinem als frühest bekannten Werk ermitteln läßt. Dieser Umstand deckt sich auch mit der historisch kaum verifizierbaren, von Alberts Biographen aber allgemein vertretenen Ansicht, Albertus habe sich vor seinem Eintritt in den Orden zu Studienzwekken in Padua aufgehalten, wo er die ersten Kenntnisse der naturphilosophischen Schriften des Aristoteles erwarb. Folgt man den Quellen- und Similia-Nachweisen in der kritischen Kölner Gesamtausgabe der Werke Alberts, so hat er in seiner Erstlingsschrift *De natura boni*, welche aus der deutschen Lektoratsperiode der 30er Jahre des 13. Jhs. hervorgegangen ist, seine ersten Kenntnisse der zoologischen Schriften bzw. Lehre des Aristoteles unter Beweis gestellt. Explizite, d. h. mit der Titelangabe, erwähnt er dort zwar keine Schrift des Aristoteles zur Tierkunde, aber in der kritischen Edition wird in einem Fall eine unmittelbare Abhängigkeit von *Gen. An.*, IV, 2 nachgewiesen. Anklänge oder implizite Anlehnungen an *Hist. An.* erkennt der auf diesem Gebiet durch die zuvor erstellte kritische Edition von *Quaestiones super De animalibus* bereits erfahrene Editor, Ephrem Filthaut, in neun Fällen, während er von *Gen. An.*, wie gesagt, nur eine, aber eben ausdrückliche Entlehnung nachweist.[18] Das übrige von Aristoteles inspirierte zoologische Gedankengut, das sich in *De natura boni* widerspiegelt, ist in seiner Form derart unspezifisch und allgemein, daß es kaum einen Anhaltspunkt für eventuelle philologische Überlegungen und Rückschlüsse im Hinblick auf die Gestalt der aristotelischen Vorlage bietet.

Die erste in der kritischen Ausgabe von *De natura boni* nachgewiesene Anlehnung an *Gen. An.* erfolgt im Kontext der theologisch adaptierten, aristotelischen Lehre über "die bürgerliche Tugend der Mäßigung" (*De temperantia*), näherhin in ihrer Auslegung im Rahmen des mariologischen Entwurfs (*De virginitate divina beatae virginis*). In seiner Erklärung der verschiedenen, meistens aus dem biblischen Kontext

18. Cf. die entspr. Einträge in den Indizes *Auctores ab Alberto ipso allegati* und *Auctores a nobis allegati* in Albertus Magnus, *De natura boni*, pp. 129, 132.

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abgeleiteten Namen Mariens, verweist Albertus für die Verdeutlichung der Bezeichnung "Erleuchterin" ("*illuminatrix*") auf die Parallelisierung der Schönheit der Gottesmutter mit dem Mond ("*pulchra ut luna*", *Cant.* 6.9). Bei der inhaltlichen Bestimmung der angenommenen Entsprechung nennt er u. a. die dem Mond durch die Bibel zugewiesene zeichenhafte Eigenschaft in bezug auf die Zeit und Ewigkeit: "Auch der Mond erscheint allen zu seiner Zeit, bestimmt die Zeit und ist ein Zeichen der Ewigkeit. Nach dem Mond bestimmt man die Festtage; er ist ein Licht, das abnimmt, nachdem er voll war".[19] Für die Explikation der Zeichen-Funktion des Mondes im Hinblick auf die Gezeiten und Ewigkeit verweist Albertus auf die Autorität des Aristoteles, der hier im streng theologischen, biblisch fundierten Zusammenhang wohl aus methodischen Erwägungen nicht mit seinem eigenen Namen zitiert wird, sondern unter der Bezeichnung "*sapiens*" auftritt. Der Name "*sapiens*" wird interessanterweise von Albertus gewöhnlich in philosophischen Werken für die biblischen Bücher, und zwar Jesus Sirach (*Ecclesiasticus*), Sprichwörter (*Liber Proverbiorum*) und Weisheit (*Liber Sapientiae*), gebraucht.[20] Der Mond ist nach Albertus "das Zeichen der Ewigkeit, weil das Jahr aus einer bestimmten Zahl von Monaten besteht, die Monate aber werden durch den Lauf des Mondes bestimmt. Der Mond bewirkt in jedem Monat das, was die Sonne im Zeitraum eines Jahres verursacht, wie es der Weise ("*sapiens*") sagt, nämlich den Winter und den Sommer, den Frühling und den Herbst. Deshalb wird der Mond eher als andere Sterne das Zeichen der Zeit genannt."[21]

19. Albertus Magnus, *De natura boni*, p. 49 v. 58-63: "«Et luna», inquit Eccli. XLIII (6-7), «omnibus in tempore suo ostensio est temporis et signum aevi. A luna signum diei festi, luminare, quod minuitur in consumatione»". Die deutsche Übersetzung dieses Bibelzitates folgt im wesentlichen der zweisprachigen Vulgata-Ausgabe von A. ARNDT, *Die Heilige Schrift des Alten und Neuen Testamentes. Mit dem Urtexte der Vulgata* (Regensburg – Rom, 1914).

20. Cf. beispielsweise Albertus Magnus, *De natura boni*, p. 79 v. 78 (Eccli.); *De bono*, p. 116 v. 92, p.132 v. 87, p. 189 v. 18 (Eccli.); *Super Ethica*, Alberti Magni Opera Omnia 14/2, ed. W. KÜBEL (Münster, 1987), p. 650 v. 34 (Eccli.); *De causis et processu universitatis a prima causa*, Alberti Magni Opera Omnia 17/2, ed. W. FAUSER (Münster, 1993), p. 184 v. 69 (Prov.).

21. Albertus Magnus, *De natura boni*, p. 49 v. 67-73: "Et (luna) etiam signum aevi est, quia annus numeratur per menses, menses autem per cursum lunae; quolibet mense hoc facit, quod sol in anno, ut dicit Sapiens, scilicet hiemem et aestatem, ver et autumnum, et sic etiam potius inter cetera astra signum temporis esse perhibetur". Cf. Arist., *Gen. An.*, IV, 2, 767a5-7; transl. Michaelis Scoti, ed. A.M.I. VAN OPPENRAAIJ

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Die in *De natura boni* ausgewiesenen neun Anklänge an *Hist. An.* und ein weiterer – neben der schon geschilderten Entlehnung – Widerhall der Lehre von *Gen. An.* belegen, daß Albertus aus diesen aristotelischen Werken sein biologisches Fachwissen schöpfte, jedoch seine Quelle – aus welchen Gründen auch immer – nicht bekanntgab. Im einzelnen handelt es sich hierbei um die Übernahme der von Aristoteles tradierten anatomischen und physiologischen Erkenntnisse aus dem Bereich der Vogelkunde und der Biologie des Menschen, mit deren Hilfe die biblischen Aussagen und die darin enthaltenen, aus der Tierwelt entlehnten und auf den Menschen bezogenen Vergleiche naturwissenschaftlich expliziert werden.[22] Es sei daran erinnert, daß die von Albertus in *De natura boni* benutzten biologischen Schriften sowie weitere vier von ihm zitierte *libri naturales* des Aristoteles zu dieser Zeit in Paris immer noch verboten waren.[23]

2-4. De sacramentis, De incarnatione und De resurrectione

Ein in qualitativer und quantitativer Hinsicht anderes Bild der Rezeption zoologischer Schriften des Aristoteles als das in *De natura boni* vermittelte bieten die ersten, von Albertus Anfang der 40er Jahre des 13. Jhs. in Paris verfaßten Werke *De sacramentis*, *De incarnatione* und *De resurrectione*. Anhand der kritischen Textausgabe dieser drei theologischen, literarisch und systematisch eng zusammenhängenden und nach dem Vorbild eines Kommentars zu den Sentenzenbüchern des Petrus Lombardus redigierten Schriften läßt sich feststellen, daß es hier mehrfach explizite Anlehnungen an *Hist. An.*, *Gen. An.* und *Part. An.* gibt. Die drei Einzelteile des zoologischen *corpus* laufen stets, wie zu erwarten, nach der Vorgabe der *translatio Scoti* unter dem Titel *De*

p. 174: "Sol vero facit aestatem et hiemem omni anno, luna autem facit hoc omni mense". Albertus Magnus, *De animalibus*, XVIII, §27, 1204, 8-14: "Sol enim facit aestatem et yemen in anni spatio. Luna autem variat tempora quatuor in omni mense. Nam a prima incensione usque ad quartum aspectum est calida et humida: a quarto usque ad praeventionem quando plena est, est calida et sicca: et a praeventione usque ad secundum quartum aspectum est frigida et sicca: et a secundo quarto usque ad coniunctionem est frigida et humida".

22. Cf. Albertus Magnus, *De natura boni*, p. 34 v. 37 sqq., p. 35 v. 2-6.

23. Cf. J.A. WEISHEIPL, "The Life and Works of St. Albert the Great," in *Albertus Magnus and the Sciences. Commemorative Essays*, ed. J.A. WEISHEIPL (Toronto, 1980), pp. 20, 22-3. Zum Verbot öffentlicher und privater Lektüre der naturwiss. Schriften des Aristoteles und deren Kommentare cf. L. HÖDL, "Aristotelesverbote," *Lexikon des Mittelalters* I (München – Zürich, 1980), pp. 948-9.

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animalibus, oder sie werden von Albertus mit der bloßen Nennung des Namens "*Philosophus*" als der im Hochmittelalter synonymen Bezeichnung des Aristoteles angezeigt.

Im seinem ersten Entwurf der Sakramententheologie, der im Werk *De sacramentis* vorliegt, verweist Albertus drei Mal explizite auf *De animalibus*. In allen drei Fällen nennt er die Tierkunde des Aristoteles mit dem Titel, darunter ein Mal mit der genauen Angabe des Buches ("*dicit Philosophus in XVI De animalibus*").

Die erste Entlehnung aus *De animalibus* begegnet uns im einleitenden Teil der speziellen Sakramentenlehre, die über die einzelnen Sakramente in ihrem Wesen und über ihre Vorbilder im Alten Bund handelt. Mit Hilfe der Biologie des Aristoteles (*Gen. An.*, I, 20) erklärt Albertus hier den Geltungsbereich des alttestamentlichen, seit Abraham geltenden religiösen Gebotes der Beschneidung.[24] Nur das männliche Geschlecht, nicht die Frau, war diesem Gebot unterstellt, und zwar in erster Linie deshalb, weil nach Albertus die Erbsünde, gegen die die Beschneidung ein gewisses Heilmittel gewesen ist, durch den männlichen Samen als dem aktiven Prinzip der Zeugung und der Bildung des Körpers übertragen wurde. Die aristotelische Theorie von der tätigen Funktion des männlichen Samens im Prozeß der Zeugung galt im Mittelalter, und insbesondere nach der Rezeption der *libri naturales* des Stagiriten als die gängige, naturwissenschaftlich ausgewiesene Auffassung.[25] Albertus macht sie zum wesentlichen Bestandteil seiner im Rahmen der Sakramententheologie dargelegten Erbsündenlehre. Die Zoologie des Aristoteles bietet ihm eine naturwissenschaftliche Erklärung und zugleich eine Ergänzung der theologischen Lehre von der Beschneidung: "Dies geht aus der im «Buch von den Sinnenwesen» dargelegten Lehrmeinung des Philosophen hervor, daß nämlich der männliche Samen im Menstruationsblut das bewirkt, was das Koagulat in der Milch verursacht; dieser Auffassung zufolge kommt

24. Albertus Magnus, *De sacramentis* 2.4, p. 21 v. 7-11.

25. Mit dieser vorherrschenden Auffassung scheint Wilhelm von Conches, allerdings noch vor der eigentlichen Rezeption der aristotelischen Naturphilosophie im 12. Jh., zu brechen. Cf. A. SPEER, *Die entdeckte Natur*, Studien und Texte zur Geistesgeschichte des Mittelalters 45 (Leiden – New York – Köln 1995), pp. 195-6. Über die übergeordnete Stellung des Mannes gegenüber der Frau aus dem Blickwinkel der aristotelisch geprägten Biologie bei Albertus Magnus cf. HOSSFELD, *Albertus Magnus über die Frau*, pp. 2 sqq., 10, 17.

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dem männlichen Samen die Funktion der Bildung des Körpers zu."[26]

Im Ehetraktat in der Schrift *De sacramentis* beruft sich Albertus auf die Lehre des Stagiriten über die Fortpflanzung des Menschen, um die Monogamie als die naturgemäße Voraussetzung für die Reproduktion der menschlichen Gattung mit naturwissenschaftlichen Argumenten zu begründen. Er greift hier die von Aristoteles überlieferten Erkenntnisse über die biologischen Bedingungen der Zeugung und über die Funktion des weiblichen Teils beim Entstehen eines neuen Lebewesens, über die Stufen der biologischen Entwicklung der Lebewesen, näherhin des tierischen und menschlichen Embryos, auf. Wie schon im Kontext der Lehre von der Beschneidung nimmt er auch hier im Anschluß an die biologische Anthropologie des Aristoteles an, daß die Frau im Prozeß der Zeugung von Natur aus keine aktive, sondern nur eine unterstützende Funktion erfüllt, da ihr keine Zeugungskraft wie dem Mann, sondern nur "ein rezeptiv-passives Vermögen der Fruchtbarkeit" eignet.[27] In Anknüpfung an den "*Liber de animalibus*" lehrt er, daß eine Frau dann empfangen kann, "wenn die Gebärmutter nach dem Samen verlangt; ein Zeichen dafür ist es, daß die Frau dann träumt, sie empfange den Samen. Ein öfterer Beischlaf mit mehreren Männern würde die Empfängnis verhindern."[28]

Im Rahmen seiner Eucharistielehre, die in derselben Schrift vorliegt, zitiert er die aristotelische Bestimmung des Embryos als etwas, was bereits mit dem Leben und der sinnlichen Wahrnehmung ausgestattet, aber noch kein Lebewesen in vollendeter Existenz ist, sondern das Leben im Werden.[29] Diese durch die aristotelische Naturwissenschaft gesicherte Erkenntnis parallelisiert er mit einem Sachverhalt aus der

26. Albertus Magnus, *De sacramentis*, l. c.: "Et hoc videtur ex dicto Philosophi in libro *De animalibus*, ubi dicit, quod hoc facit semen viri in sanguine menstruo, quod facit coagulum in lacte, et secundum hoc organizatio corporis pertinet ad semen viri". Cf. Arist., *Gen. An.*, I, 20, 729a9-14; transl. Mich. Scoti: *De animalibus* XV, ed. VAN OPPENRAAIJ, pp. 48-49.

27. Albertus Magnus, *De sacramentis* 9.3.2, p. 166 v. 31-32: "In muliere enim est vis fecundativa per modum receptionis et passionis".

28. Ibid. 9.3.3, p. 166 v. 34-37: "Dicitur enim in libro *De animalibus*, quod mulier apta est ad concipiendum, quando matrix appetit semen, et huius signum est, quod tunc somniat se semen recipere". Cf. Arist., *Hist. An.*, X, 3, 635a32-36.

29. Albertus Magnus, *De sacramentis* 5.2.3, p. 57 v. 39-41: "dicit Philosophus in XVI *Animalium*, quod quandoque est vivum et sensibile et tamen non est animal, sed in via ad illud ut in embryone". Cf. Arist., *Gen. An.*, II, 3, 736b1-3; transl. Mich. Scoti: *De animalibus* XVI, ed. VAN OPPENRAAIJ, p. 73.

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Pflanzenwelt, um zur Lösung einer praktischen theologischen Frage zu gelangen. Aus unreifen Trauben wird grundsätzlich kein Wein hergestellt. Sollte es dennoch einen Wein aus nicht ausgereiften Weinbeeren geben, darf dieser nicht im Meßopfer zur Konsekration verwendet werden, es sei denn, jemand würde behaupten, daß in unreifen Trauben der Wein in seiner spezifischen Art (*species vini*) auf verborgene Weise schon vorhanden bzw. im Werden ist.[30]

Im Rückblick auf die Schrift *De sacramentis* des Albertus Magnus bleibt festzuhalten, daß die Indienstnahme der aristotelischen Biologie in der systematischen Theologie, näherhin in der Sakramententheologie, offensichtlich von der Intention geleitet wird, manche Fragen der Lehre von den Sakramenten, welche kulturgeschichtlich bedingt sind und aus der Verknüpfung der sakralen Wirklichkeit der Sakramente mit der natürlichen Welt erwachsen, nicht nur als eine Offenbarungswahrheit darzustellen, sondern sie soweit wie möglich auch naturwissenschaftlich zu erklären. Durch dieses Vorgehen wird einerseits die theologische Argumentation durch die Rationalität gestützt, weil die zu klärenden Sachverhalte, die nicht den Kern des Glaubens (*articuli fidei*) ausmachen und der natürlichen Vernunft erschließbar sind, aus dem Bereich des Glaubens in den Bereich des Wissens übergeleitet werden. Dort sind sie Gegenstand naturwissenschaftlicher Erkenntnis. Andererseits wird damit zum Ausdruck gebracht, daß die Theologie eine umfassende Wissenschaft ist, die bei der Erklärung ihrer partikulären Gegenstände sich der Naturwissenschaften bedient und somit in keiner Weise mit ihnen im Widerspruch steht oder hinter ihnen zurückbleibt.[31]

In seinem ersten christologischen Abriß *De incarnatione*, den Albertus im Anschluß an *De sacramentis* geschrieben hat, bezieht er sich zumindest einmal auf *Part. An.*, II, 3 und ebenso einmal auf "*De animalibus X*". Die letztere Werkangabe erweist sich als ungenau und irreführend. Es handelt sich um eine sinngemäße Wiedergabe einer aristotelischen Aussage über die tätige, formende Kraft des männlichen Samens, welche wir nicht in *Hist. An.*, wohl aber in *Gen. An.*, IV, 1

30. Albertus Magnus, *De sacramentis* 5.2.3, p. 57 v. 35-38: "Si autem omnino crudus humor adhuc est in uva, ille humor non est vinum, et ideo non fit ibi consecratio, nisi aliquis forte dicat, quod est ibi species vini latens et in via ad speciem perfectam".

31. Cf. Albertus Magnus, *Super I Sent.* 1, 3, sol. ad 2, B. Alberti Magni Opera Omnia 25, ed. A. BORGNET (Paris, 1893), pp. 17b sq.

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verifizieren können. Im Fall der nachweisbaren Abhängigkeit von *Part. An.*, II, 3 nennt Albertus das aristotelische Werk nicht, sondern er kennzeichnet seine Quelle mit dem Namen "*Philosophus*". Eine weitere, vom Herausgeber des kritischen Textes als stillschweigende Entlehnung aus *Part. An.*, I, 1 ausgewiesene Stelle kann, muß aber in Wirklichkeit nicht auf diese Schrift des Aristoteles zurückgehen. Sie wird sinngemäß und ohne jegliche Verknüpfung mit der aristotelischen Tierkunde auch in *De resurrectione*[32] zitiert.

Weshalb nun und in welchem Zusammenhang kommt es bei Albertus zur Aufnahme der aristotelischen Biologie in die Christologie? Die Erörterung der Frage nach der biologisch-materiellen Grundlage der Empfängnis Christi ("*de quo conceptus sit Christus ut de materia*") veranlaßt Albertus, auf die von Aristoteles verbürgte Erkenntnis zu rekurrieren, daß das Blut die höchste Form der Nahrung jener Lebewesen ist, die Blut haben (Wirbeltiere, Ringelwürmer und Kopffüßer).[33] In seiner Untersuchung setzt er sich mit zwei abweichenden Positionen im Hinblick auf die Materie der Empfängnis auseinander. Vor diesem Hintergrund muß er klären, ob das Fleisch oder das Blut die biologisch-materielle Grundlage der Empfängnis ist. Er vertritt die Ansicht, daß das Blut und nicht das Fleisch die Ursprungsmaterie der Empfängnis Christi war. Diese Erkenntnis hält er für ein biologisches Gesetz von allgemeiner Gültigkeit. Er bemüht sich, es unter dem Hinweis auf die natürliche Ursächlichkeit des Naturprozesses zu erklären: das Blut ist naturgemäß (*secundum viam naturae*) bzw. nach der biologischen Gesetzmäßigkeit der Zeugung (*secundum viam generationis*) eher als das Fleisch am Anfang des biologischen Prozesses der Empfängnis anzunehmen. Aus der aristotelischen Auffassung vom Blut als der höchsten Form der Nahrung aller Lebewesen, die Blut haben, leitet Albertus ab, daß das Blut aus der Nahrung (*de cibo*) entsteht und daß ihm das Vermögen der vegetativen Seele, d. h. die Nahrungs- und Zeugungskraft, eignet.[34]

32. Albertus Magnus, *De resurrectione* 1.6.1, p. 249 v. 43-44.

33. Albertus Magnus, *De incarnatione* 2.3.2, p. 188 v. 83-84: "Sanguis, ut dicit Philosophus, est ultimum nutrimentum in habentibus sanguinem". Cf. Arist., *Part. An.*, II, 3, 650a34. Albertus Magnus, *Quaest. super De animalibus* 12.10, p. 230 v. 65 sqq. mit Anm. 78 (Quellenapp.).

34. Albertus Magnus, *De incarnatione* 2.3.2, p. 188 v. 66 sqq. Zum aristotelischen Hintergrund des Gedankens cf. H. SEIDL, "Zur Geistseele im menschlichen Embryo nach Aristoteles, Albert dem Großen und Thomas von Aquin," *Salzburger Jahrbuch für Philosophie* 31 (1986), 37-63, und insb. 44-50.

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Von der aristotelischen Biologie ist ferner die theologische Frage nach dem Grund, warum Christus die menschliche Natur im männlichen Geschlecht angenommen hat, inspiriert.[35] Die nach der streng theologischen Argumentation als komplementär hinzutretende biologische Deutung der Menschwerdung Christi geht auf die Schrift des Aristoteles *Gen. An.*, IV, 1, 766b14, nach Alberts Angaben auf "*De animalibus X*", zurück.[36] Aus der biologischen Sicht ist Christus deshalb nicht als Frau von Maria empfangen worden, weil die tätige Kraft im Empfängnisprozeß, nämlich der Heilige Geist, höchstvollkommen war. Das weibliche Geschlecht der menschlichen Natur entsteht nach Albertus – er vertritt hier die aristotelische Position – durch den Mangel an aktiver Qualität im Samen. Die tätige Kraft im männlichen Samen ist formgebend, sie bildet und formt den menschlichen Embryo. Ist die formende Kraft im männlichen Samen ungeschmälert, dann erzeugt sie immer das männliche Geschlecht. Ein Mangel an der aktiven Qualität im Samen ist hingegen die eigentliche biologische Ursache der Zeugung des weiblichen Geschlechts.[37]

Eine in der kritischen Textausgabe als stillschweigende Entlehnung aus *Part. An.*, I, 1 identifizierte Stelle hat Albertus für die Erläuterung der theologischen Konzeption der Kirche als mystischer Leib Christi verwendet. Der aristotelische Gedanke von dem äquivoken Gebrauch des Namens "Hand" und "Mensch" für ein abgestorbenes Körperglied bzw. für die Leiche eines Toten findet Anwendung bei den *mali homines*, d. h. bei Menschen, die ihre lebendige Beziehung zu Christus als dem Haupt abgebrochen haben, weshalb sie nicht mehr Glieder seines mystischen Leibes, der Kirche Christi, sondern das "Werkzeug des Satans" sind.[38]

35. Albertus Magnus, *De incarnatione*, 3.2.4, p. 198 v. 54-55: "Deinde quaeritur, quae sit ratio, quod Christus assumpsit humanam naturam in masculino sexu".

36. Albertus Magnus, ibid., p. 199 v. 26. Cf. HOSSFELD, *Albertus Magnus über die Frau*, p. 2 mit Anm. 1.

37. Albertus Magnus, l. c., p. 198 v. 82-85: "Item, sexus muliebris fit in natura humana ex defectu qualitatis activae in semine; sed in conceptione Christi fuit summe perfectus operans, scilicet spiritus sanctus; ergo non potuit esse mulier"; ibid. p. 199 v. 22-27: "dicimus, quod natura corporis non est in muliere nisi materialiter et secundum se aequalem habet ordinem ad utrumque sexum. Sed quod sit in hoc vel in illo (scil. sexu), hoc est ex virtute agentis maiori vel minori, ut dicitur in libro *De animalibus*". Vgl. M. JEAY, "Albert le Grand entre Aristote et Freud. La femme est-elle un acte manqué?," in *Le racisme*, ed. M. OLENDER (Bruxelles, 1981), pp. 129-139.

38. Ibid. 5.2.4, p. 216 v. 29-30: "Manus enim mortua non est manus, sicut nec mortuus homo homo". Cf. Arist., *Part. An.*, I, 1, 640b35–641a5.

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In Alberts Eschatologie, die in der Schrift *De resurrectione* vorliegt, kommt den Aristoteles-Werken *Hist. An.* (I u. IX) und *Gen. An.* (II, 3) die Funktion einer metaphysischen und naturwissenschaftlichen Fundierung der Lehre vom Gesichtssinn sowie vom Ursprung der vegetativen, sensitiven und vernunftbegabten Seele. Es wird dabei Bezug genommen auf die biologisch bzw. anatomisch bedingten, jeweils der Lebensweise einiger Tiere und des Menschen angepaßten Eigenschaften des Sehvermögens.[39] Gestützt auf *Gen. An.* betont Albert, daß, während die vegetative und sensitive Seele ihre immanente Ursache in der natürlichen Kraft im Samen haben,[40] die Vernunftseele dem menschlichen Embryo von außen hinzukommt. Darin stimmt er mit Aristoteles, *Gen. An.*, II, 3 überein. Er geht jedoch über diese Aussage hinaus, indem er lehrt, daß die Vernunftseele (*intellectus, anima rationalis*) jeweils von Gott in dem Augenblick geschaffen wird, in dem sie in den Embryo eintritt.[41]

Die erwähnten und hier kurz referierten Texte sowie die weiteren im Quellenapparat verzeichneten fünf Parallelen zu *Gen. An.*[42] sind zwar ein philologisch kaum verwertbares Zeugnis für die Überlieferung der lateinischen Tierkunde des Aristoteles. Sie geben dennoch Aufschluß über den wissenschaftssystematischen Ort, Inhalt und Umfang der Rezeption der aristotelischen *libri naturales* zu Beginn der 40er Jahre an der Pariser Universität, wo diese Schriften durch die Universitätsstatuten weiterhin verboten waren. Dabei sei auf den besonderen

39. (1) Albertus Magnus, *De resurrectione* 4.1.9 §3, p. 330 v. 76 – p. 331 v. 4: "Et quaedam est virtus visiva in oculo cum lumine debili non-adunato, et hoc indiget velo tenebroso ad hoc, ut non reverberetur, sicut est virtus visiva in oculo talpae, quae habet oculos sub pelle, ut dicit Philosophus, et hoc ideo, quia in maiori parte habitatio eius est sub terra". Cf. Arist., *Hist. An.*, I, 9, 491b28. (2) Albertus Magnus, ibid., p. 330 v. 66-70: "Et coadunatio et condensatio illius luminis secundum plus et minus est in diversis animalibus. In herodio enim, ut dicit Philosophus, est ut multum, et ideo aspicit solem in rota; in homine autem non sic est...". Cf. Arist., ibid. VIII, 34, 620a1-2.

40. Albertus Magnus, *De resurrectione* 1.6.5, p. 252 v. 11-13: "anima enim vegetabilis et sensibilis causantur a natura, ut dicit Philosophus in libro *De animalibus*, quae est in semine". Cf. Arist., *Gen. An.*, II, 3, 736a29 sqq.

41. Albertus Magnus, *De resurrectione* 1.3, p. 245 v. 12-15: "Intellectus enim est per creationem a deo, sicut dicitur in XVI libro *De animalibus*, quod intellectus solus ingreditur ab extrinseco"; ibid. 6.5, p. 252 v. 13-16: "forma substantialis corporis humani est anima rationalis, quae ingreditur ab extrinseco per creantem, et non est a natura, ut dicit ibidem Philosophus". Arist., *Gen. An.*, II, 3, 736b27-28. Cf. SEIDL, art. cit., 58.

42. Cf. Index *Auctores a nobis allegati*, in *Alberti Magni Opera omnia* 26, p. 371.

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Umstand hingewiesen, daß der Prozeß der Aneignung aristotelischer Zoologie bei Albertus zunächst im theologischen Bereich einsetzt und daß dieses spezielle Wissen vornehmlich einem theoretischen Interesse entspringt. Es läßt sich außerdem beobachten, daß es zum großen Teil bei der Erörterung anthropologischer Fragen angewendet wird. Einen zunehmend bedeutsamen Rang nimmt darin offensichtlich die aristotelische Lehre vom transzendenten, theologisch interpretiert göttlichen Ursprung der Vernunftseele und ihrer Unsterblichkeit ein.

5-6. De IV coaequaevis und De homine

Die bislang kritisch nicht edierten Werke *De IV coaequaevis* und *De homine*, welche unmittelbar nach *De sacramentis*, *De incarnatione* und *De resurrectione* um 1241-1242 in Paris verfaßt worden sind, enthalten zahlreiche ausdrückliche und stillschweigende Entlehnungen aus den aristotelischen *libri de animalibus*.

In der Schrift *De IV coaequaevis*, in der Albertus vier zentrale Themen der Kosmogonie und Kosmologie – erste Materie, Zeit, Himmel, Engel – aus christlicher Sicht systematisch behandelt, wurde die Tierkunde des Aristoteles in wesentlich breiterem Umfang als in den zuvor verfaßten Werken herangezogen. Das inhaltliche Spektrum der sieben expliziten, wenngleich nur sinngemäß wiedergegebenen Zitate aus dem zoologischen Schriftenverbund *De animalibus* ist hier ebenfalls deutlich reicher.

Ähnlich wie im Komplex der zuletzt untersuchten drei Schriften zur systematischen Theologie steht auch hier die aristotelische Theorie der Seele im Vordergrund. Auf diese bezieht sich Albertus zu Beginn seiner theologischen, vom Buch Genesis ausgehenden und um die philosophische Betrachtungsweise erweiterten Schöpfungslehre. Aus der Aussage des Aristoteles, daß die vegetative und die sensitive Seele im menschlichen Embryo aus dem Vermögen in den Akt durch die Wirkung der Natur ("*per operationem naturae*") überführt werden, während die Vernunftseele von außen hinzutritt ("*egreditur ex extrinseco*"), leitet er ab, daß die vernunftbegabte Seele aus dem Nichts ins Dasein jeweils durch den Schöpfungsakt Gottes gelangt. Auf die Auffassung des Aristoteles aus *Gen. An.*, II, 3 (736a29 sqq.) vom Hinzutreten der Vernunftseele zum menschlichen Embryo von außen und vom natürlichen Ursprung der vegetativen und sensitiven Seele wird hier wiederholt (drei Mal) Bezug genommen. Diese Auffassung macht Albertus sich zueigen: zuerst, wie gesagt, am Anfang seiner Schöpfungslehre bei der Erörterung der Frage nach dem göttlichen Schöpfungsakt, dann

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bei der Darlegung der Erkenntnisweise der Engel in bezug auf die kontingenten, dem freien Wahlvermögen unterliegenden Gegenstände, sowie bei der Bestimmung der Differenz zwischen der vernuftbegabten Seele und dem Engel.[43]

Der systematische Ort der übrigen Verweise auf die aristotelische Biologie ist die theologische, aber sehr stark naturphilosophisch durchsetzte Kosmologie, und zwar jener Teilbereich, der die theologisch-philosophische Himmelslehre zum Gegenstand hat und speziell die Frage nach der örtlichen Bewegung und den Prinzipien der Länge des Himmels ("*de sursum et deorsum caeli, quae sunt principia longitudinis in caelo*") behandelt.[44] Die zwei Zielrichtungen der örtlichen Bewegung des Himmels, "aufwärts" und "abwärts", werden als die Prinzipien der Länge des Himmels bestimmt. In diesem Zusammenhang stützt sich Albertus auf die aristotelische Auffassung von der Bewegung "aufwärts" und "abwärts" als die Prinzipien und Grenzen des Wachstums und der Länge der Lebewesen ("*principia et termini motus augmenti et principia et termini longitudinis*"). Er faßt die zwei Arten der Bewegung einerseits konkret als zwei biologische bzw. physikalische Phänomene, andererseits abstrakt, d. h. im abgeleiteten Sinn als die Prinzipien und die Grenzen des Wachstums und der Länge auf. Das wechselseitige Verhältnis beider Bewegungsarten bestimmt er als ambivalent – *sursum* und *deorsum* sind unter einer Rücksicht konträr und unter einer anderen komplementär. Sofern "aufwärts" und "abwärts" Prinzipien einer örtlichen geraden Bewegung sind, sind sie konträr zueinander. Als Prinzipien und Grenzen des Wachstums und

43. (1) Albertus Magnus, *De IV coaequaevis* 1.1.1, B. Alberti Magni Opera omnia 34, ed. A. BORGNET (Paris, 1895), p. 309a: "in libro XVI *De animalibus* dicit Philosophus, quod sensibilis, scilicet anima, et vegetabilis educuntur de potentia, intellectus autem egreditur ab extrinseco, et non educitur de potentia, et educitur in esse; ergo de nihilo; ergo creatio erit".
(2) Ibid. 4.24.2, p. 481a: "sicut dicit Philosophus in libro XVIII *De animalibus*, intellectus sive anima rationalis non educitur de materia, sed causatur ab extrinseco, scilicet deo, et ideo Anaxagoras omnia ponit esse mixta praeter intellectum".
(3) Ibid. 4.30.2, p. 500b sq.: "Omnis forma quae est in materia, per operationem naturae ex ipsa educitur. Sed de intellectu et anima intellectuali aperte pronuntiat Philosophus in libro XVI *De animalibus*, quod est ingrediens ab extrinseco, non eductus ex materia per operationem naturae".

44. Ibid. 3.8.3, p. 413a-414b. Zur Lehre über die Bewegung des Himmels nach dem Kommentar Alberts zu *De caelo* des Aristoteles cf. P. HOSSFELD, "Die naturwissenschaftlich/naturphilosophische Himmelslehre Alberts des Großen," *Philosophia naturalis* 11 (1969), 318-359, insb. 333 sq.

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der Ausdehnung schließen sie sich gegenseitig nicht aus, sondern sie ergänzen sich. Den komplementären Wesenszug der beiden prozessualen Phänomene und Naturprinzipien erläutert er mit Hilfe des von Aristoteles in der Tierkunde beschriebenen biologischen Entwicklungsprozesses des Menschen. Das Kindesalter ist die Phase des Wachstums, d. h. der sich innerhalb des Körpers vollziehenden Bewegung "aufwärts". Deshalb sind die oberen Körperglieder eines Kindes stets größer als die unteren, und zwar aufgrund von erhöhter Menge an Wärme, die die Nahrung im Körper nach oben treibt. Nach der ersten Wachstumsphase kommt es später zur Umkehrung dieses Prozesses.[45]

Im spezifisch theologischen, von Ps.-Dionysius Areopagita maßgeblich beeinflußten Teil seiner Kosmologie, der die Engel zum Gegenstand hat und sich u. a. mit der anthropomorphen Darstellung dieser intellektuellen Wesen befaßt, nimmt Albertus Bezug auf die von Aristoteles beschriebenen biologischen Eigenschaften des Menschen, die ihn im Vergleich mit den übrigen Sinnenwesen besonders auszeichnen und ihm eine Vorrangstellung einräumen. Hierzu gehören die hervorragende Bedeutung des Gesichtssinns, die sich aus seiner Lokalisation und seiner gewöhnlichen Ausrichtung nach oben ergibt, sowie die gerade, aufrechte Körperhaltung.[46]

Bei der Auslegung des Sechstagewerkes geht Albertus u. a. der Frage nach, weshalb im Schöpfungsbericht (Gen. 1.10) die Ansammlungen von Wasser "Meer" ("*maria*") genannt wurden, da seinem Verständnis nach der Ausdruck "*maria*" etymologisch "bitter" ("*amarum*") bedeutet. Unter dem Hinweis auf eine ihm aus *De animalibus* vertraute Beschreibung einer Fischart ("*quidam pisces dicti malachiae*"), die sich nach Aristoteles, *Hist. An.*, I, 5 (490a23 sqq.), hauptsächlich in warmen, aber tiefen Meeresgewässern vermehren, und zwar an solchen Stellen, wo Wasser "ohne spezifischen Geschmack" ("*aquae insipidae*") in großen Mengen auftritt, schließt er, daß das Wasser in gewissen Meerestiefen geschmacksneutral ist, d. h. weder bitter noch salzig. Die Pointe der aristotelischen Aussage sieht Albert im Aufweis einer zumindest partiellen Genießbarkeit des Meereswas-

45. Albertus Magnus, ibid., p. 414a: "dicit Philosophus in libro *De animalibus*, quod in pueris membra superiora maiora sunt propter abundantiam caloris impellentis alimentum sursum, postea autem fit e converso".

46. Ibid. 4.61.4, p. 655a: "In homine superior sensus est visus, in aliis animalibus auditus. Similiter in homine sursum dirigitur visus, in aliis autem animalibus ad terram. Homo etiam est recti et erecti corporis, ut dicitur in libro *De animalibus*".

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sers.[47] Alberts Interesse an diesem biologischen Phänomen ist ausschließlich theoretischer Art.

Systematisch an demselben Ort, nämlich in dem als eine theologisch-philosophische Synthese konzipierten Entwurf der Kosmogonie und Kosmologie, wird eine weitere Entlehnung aus der Tierkunde des Aristoteles eingearbeitet. Ausgehend vom Genesis-Bericht über das Schöpfungswerk des fünften Tages und der naturwissenschaftlichen, durch Aristoteles vermittelten Erkenntnis, daß es Lebewesen gibt, die auf dem Land und im Wasser leben, und solche, die gewöhnlich im Wasser leben, aber auf dem Land ihren Nachwuchs zur Welt bringen, erörtert Albertus die Frage, welchen natürlichen Raum – Land oder Wasser – sie in dem Fall zieren. Er meint in bezug auf die Lebewesen, die sowohl im Wasser als auch auf dem Land leben, daß sie zwar die Zierde (*ornatus*) der beiden Orte sind, doch hält er für sachgerechter und angemessener die Auffassung, daß amphibische Lebewesen (*animalia communia*) jenen Raum auszeichnen, in dem sie sich öfters aufhalten. Für die Begründung dieser Ansicht zitiert er die von Aristoteles in *Hist. An.*, VI, 12 (566b2 sqq.) geschilderte natürliche Lebensgewohnheit der Delphine. Diese leben zwar im Wasser, aber sie bringen ihre Jungen auf dem Festland unweit vom Ufer zur Welt. Ab dem zwölften Tag nach der Geburt begeben sich die Jungen mit den Eltern mehrfach am Tage ins Meer, damit sie sich an das Meer gewöhnen; sie können nicht laufen, weil sie sich nicht auf ihre Füße stützen können, und zwar wegen des fleischigen und weichen Körpers und der knorpelartigen Knochen.[48]

47. Ibid. 4.73.5, p. 757b: "Posset tamen dici, quod mare non est amarum nisi in loco illo ubi calor solis elevat a fundo eius vapores terrestres grossos combustibiles, sed in loco alio est insipidum. Et hoc videtur velle Philosophus in libro primo De animalibus, ubi dicit, quod quoddam animal marinum maius est animali sanguinis, cum tamen careat sanguine, hoc est raro et pauco, sicut quidam pisces dicti malachie, nam hoc genus augmentatur in locis calidis, et magis est in pelago quam prope ripas, et praecipue in locis ubi multiplicantur aquae insipidae. Ex hoc accipitur, quod aquae insipidae sunt in aliqua parte maris". Cf. Albertus Magnus, *De animalibus* I, §97, 36, 9-11.

48. Albertus Magnus, *De IV coaequaevis* 4.73.7, Paris, BN lat. 18127 fol. 111vb, pp. 759b sq.: "dicendum, quod animalia communia utrique elemento comprehenduntur sub ornatu utriusque, tamen magis dicuntur esse ornatus illius in quo frequentiorem habent motum, sicut dicit Aristoteles in VI *De animalibus* de delphinis, quod habitant in mari et pariunt in terra iuxta litus, et quando transierunt duodecim dies, foetus multoties in die vadit cum eis ad mare, et non facit hoc, nisi ut assuescat eos mari, qui nequit ambulare, eo quod non potest se sustinere pedibus suis, quia delphinus est carnosus et mollis, et eius ossa sunt cartilaginosa". Cf. Albertus Magnus, *De animalibus* VI, §70, 471, 10-14.

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Die Aufnahme des zoologischen Gedankenguts des Aristoteles in Alberts Schrift *De IV coaequaevis* geschieht nicht zufällig. Mit diesem methodischen Vorgang strebt Albert an, aus der Biologie des Stagiriten innovative Impulse für seine theologische Kosmogonie und Kosmologie sowie für die Theologie insgesamt, und dies in systematischer und wissenschaftstheoretischer Hinsicht, abzuleiten. Die tierkundlichen Lehransichten und Exempla sowie die gesamte Naturphilosophie des Stagiriten haben der traditionell an das Buch Genesis gebundenen und sich auf die Auslegung des Sechstagewerkes beschränkenden Schöpfungslehre eine neue Perspektive eröffnet und eine theoretische Grundlage für einen umfassenden Entwurf einer theologisch-philosophischen Kosmogonie und Kosmologie geschaffen. Die Indienstnahme der Zoologie des Aristoteles vermittelte einerseits ein verläßliches biologisches Wissen, das ein wesentlicher Bestandteil einer *scientia naturalis* ist. Andererseits konnte Albertus mit Hilfe der aristotelischen Tierkunde zeigen, daß der christliche Glaube und die natürliche Vernunft im Einklang stehen und sich gleichsam gegenseitig ergänzen. Mit der Einbeziehung der Tierkunde und der Naturphilosophie bei der Erörterung der originär theologisch motivierten Fragen erhob die Theologie faktisch den Anspruch einer umfassenden, sowohl spekulativen als auch deskriptiven Wissenschaft, die ihren Gegenstand – Gott und seine Schöpfung – nicht voneinander getrennt zu betrachten und zu erforschen suchte.

In *De IV coaequaevis* findet bei Albert zum ersten Mal eine wissenschaftstheoretische Reflexion auf der Grundlage der *Zweiten Analytiken*, der *Metaphysik* und der *Topik* des Aristoteles statt.[49] Albertus scheint jedoch noch keine Konsequenzen daraus für sein Verständnis der Theologie als Wissenschaft und für die Bestimmung des Verhältnisses der Theologie zu den übrigen Wissenschaften zu ziehen. Es geht ihm nicht um eine Grenzziehung und strikte Trennung zwischen der Theologie und Metaphysik auf der einen Seite und der Theologie und der Physik bzw. Naturphilosophie und den Naturwissenschaften auf der anderen Seite. Eine Differenzierung zwischen den theoretischen Wissenschaften geschieht hier vielmehr im Rahmen einer Synthese, die auf eine Einheitsperspektive abzielt, in der der Glaube und das Wissen ein und denselben Gegenstand betrachten, aber unter jeweils anderem Aspekt. Eine Begründung der Eigenständigkeit der einzelnen

49. Ibid. 4.38.1, pp. 550b – 552b.

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Wissenschaftsdisziplinen erfolgt hier beiläufig im Kontext der Engellehre. Die Naturphilosophie und die Naturwissenschaften sind im Verhältnis zur Theologie bzw. zur theoretischen Wissenschaft um ihrer selbst willen, deren Ziel die Erkenntnis, das Wißbare selbst ist, nachgeordnet.[50] Weil die Wissenschaft von der Natur die Konstitution und Gesetzmäßigkeit der Naturphänomene, welche der sinnlichen Wahrnehmung, der Vorstellungskraft und Vernunft leicht zugänglich sind,[51] erklärt und beschreibt, ist sie ein wesentlicher Bestandteil der theologisch-philosophischen Schöpfungslehre. Ferner leistet sie Verständnishilfe bei der Erörterung mancher spekulativen Fragen der Theologie. Mit seinem integralen Ansatz will Albertus offensichtlich verhindern, daß der Glaube und die Vernunft auseinandertreten und daß die Theologie etwas von ihrem Geltungsanspruch in der Frage der Gesamtdeutung der Welt einbüßt. Angesichts der bereits im 12. Jh. im Kreis der sog. Schule von Chartres unternommenen Begründungsversuche einer allein auf der Vernunft beruhenden *scientia naturalis*[52] kann das von Albertus vertretene wissenschaftstheoretische und -systematische Einheitskonzept, das in gewisser Weise an die Bemühungen der Chartrenser kritisch anknüpft, als ein Auslaufmodell gewertet werden, das von ihm in der Folgezeit aufgegeben wird.[53]

50. Ibid., p.551b: "Dicitur igitur scientia suiipsius causa, quando non quaeritur propter aliud, sed propter se, et quando est sciendi gratia, non aliquid faciendi, et praecipue cuius finis intellectus est, hoc est quando ipsum scibile est finis scientiae. Et hoc maxime convenit scientiae, quam habet deus. Unde etiam illa dea scientiarum dicitur...". Cf. hierzu auch W. SENNER, "Zur Wissenschaftstheorie der Theologie im Sentenzenkommentar Alberts des Großen," in *Albertus Magnus Doctor universalis 1280/1980*, ed. MEYER – ZIMMERMANN, pp. 323-343, und insb. pp. 325, 338 sq.

51. Albertus Magnus, ibid., p. 551a: "in naturali potest homo de facili, quia ad illa homo iuvatur a sensu et imaginatione et intellectu".

52. Zur Prinzipienreflexion und wissenschaftstheoretischen Grundlegung einer allein auf der Vernunft beruhenden Naturphilosophie und -wissenschaft cf. SPEER, *Die entdeckte Natur*, insb. pp. 295 sqq.

53. Cf. Albertus Magnus, *De generatione et corruptione* 1.1.22, Alberti Magni Opera Omnia 5/2, ed. P. HOSSFELD (Münster, 1980), p. 129 v. 15-16: "nihil ad me de dei miraculis, cum ego de naturalibus disseram"; id., *De caelo et mundo* 1.4.10, Alberti Magni Opera Omnia 5/1, ed. P. HOSSFELD (Münster, 1971), p. 103 v. 5-12: "naturalia non sunt a casu nec a voluntate, sed a causa agente et terminante ea, nec nos in naturalibus habemus inquirere, qualiter deus opifex secundum suam liberrimam voluntatem creatis ab ipso utatur ad miraculum, quo declaret potentiam suam, sed potius quid in rebus naturalibus secundum causas naturae insitas naturaliter fieri possit".

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Gerade im Hinblick auf die Rezeption der Biologie des Aristoteles kommt Alberts Werk *De homine* eine herausragende Bedeutung zu. In keinem anderen seiner Frühwerke wird eine derart extensive Einbeziehung des biologischen und psychologischen Wissens des Stagiriten beobachtet wie hier. Konnten in allen vor *De homine* abgefaßten Schriften die expliziten Entlehnungen und Zitate aus der Tierkunde des Aristoteles noch einzeln vorgestellt werden, so würde der Versuch, dieses Verfahren auch für *De homine* anzuwenden, den Rahmen dieses skizzenhaften Überblicks zu weit ausdehnen. Denn ein großer Teil dessen, was Albertus auf den Menschen bezogen und auch allgemein im Hinblick auf die Tierwelt in seinen späteren Paraphrasen der aristotelischen Schriften *De anima*, *Parva naturalia* und *De animalibus* ausführlich erörtert hat, ist bereits hier in gestraffter Form vorhanden.[54] Die Erklärung für diesen Sachverhalt liegt im Gegenstand der Reflexion, im vernunftbegabten Sinnenwesen, das vom Lebendigkeits- und Wahrnehmungsprinzip, der vegetativen und sensitiven Seele, bis zu den animalischen Beweg- und Strebekräften betrachtet dem Tierreich angehört. Aber auch das, was seine besondere Stellung in der Natur ausmacht, läßt sich im Vergleich mit der Tierwelt tiefer erkennen und deutlicher herausstellen.[55] Nachfolgend sei versucht, die inhaltlichen Schwerpunkte der Rezeption aristotelischer Biologie, wie sie über die Tierkunde des Stagiriten in der Anthropologie des *Doctor universalis* erfolgte, zu bestimmen. Auf nähere Erläuterung zum Inhalt der bisweilen umfänglichen und wortgetreuen Entlehnungen aus *De animalibus*, die auch philologisch und textgeschichtlich im Hinblick auf die Überlieferung des lateinischen Aristoteles-Textes einen nicht zu unterschätzenden Wert haben dürften, sowie auf Angaben zum ideengeschichtlichen Kontext dieser Rezeption bei Albert muß an dieser Stelle aus den genannten Gründen verzichtet werden.

Die aristotelische Biologie prägt den ersten Teil von *De homine*, in dem die Frage nach dem Wesen der menschlichen Seele und ihrer Ver-

54. Diesen Sachverhalt hat schon Arthur Schneider erkannt; er macht aber Fehler bei seiner Deutung mancher Verweise Alberts auf *De animalibus*, indem er unterstellt, Albert zitierte bereits in *De homine* seine eigene Paraphrase *De animalibus*. Cf. A. SCHNEIDER, *Die Psychologie Alberts des Großen*, Beiträge zur Geschichte der Philosophie des Mittelalters IV/5 (Münster, 1903), pp. 6-7.

55. Cf. Albertus Magnus, *De homine* 1.13.2, Ann Arbor 201 fol. 21ra, B. Alberti Magni Opera Omnia 35, ed. A. BORGNET (Paris, 1896), p. 129b; ibid. 1.28.1, fol. 39va-b, p. 258b; ibid. 1.39.4, fol. 51vb, p. 339b.

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mögen und Kräfte behandelt wird. Hingegen ist dieser Einfluß in jenen Teilen des anthropologischen Entwurfs, wo Albertus sich aus der theologischen Perspektive mit dem Leib des ersten Menschen – Adam – befaßt (*De corpore hominis quantum pertinet ad theologum*), ferner bei seiner Erörterung der Art der Verbindung von Leib und Seele (*De coniunctione animae et corporis*) sowie in den Ausführungen über die natürlichen Wohnräume des Menschen (*De habitaculo hominis*) – das Paradies und die Erde – nicht mehr spürbar.

Die wichtigsten biologisch-anthropologischen Themen, welche aus der Tierkunde des Aristoteles in das Werk *De homine* eingeflossen sind und Alberts Lehre maßgeblich beeinflußt haben, sind folgende: der Ursprung der vegetativen, sensitiven und vernunftbegabten Seele (*Gen. An.*, II, 3);[56] die substantiale Einheit der menschlichen Seele und ihrer Vermögen sowie das Verhältnis der Seele zum Leib (*Gen. An.*, II, 1),[57] die embryonale Entwicklung der Sinnenwesen (*Gen. An.*, II);[58] das Herz als das organische Prinzip der Einheit des Körpers der Tiere (*Gen. An.*, II, 1);[59] die Lehre von den Entwicklungsstufen der Natur von leblosen Naturdingen zu Lebewesen (*Hist. An.*, VII, 1);[60] die Auf-

56. Ibid. 1.7.1, fol. 15rb, p. 91a-b; ibid. 1.17.3, fol. 25va-b, pp. 159b, 160b. Arist., *Gen. An.*, II, 3, 736a29 sqq.; transl. Mich. Scoti: *De animalibus* XVI, ed. VAN OPPENRAAIJ, p. 73-74.

57. Albertus Magnus, *De homine* 1.4.5, fols. 9ra, 9rb, pp. 53a, 54a; ibid. 1.5.3, fols. 13rb sqq., pp. 78b sqq., 80a-b; ibid. 1.7.1, fol. 15ra, p. 90a, nach Arist., *Gen. An.*, II, 1, 735a6-10; transl. Mich. Scoti: *De animalibus* XVI, ed. VAN OPPENRAAIJ, p. 68.

58. Cf. Albertus Magnus, *De homine* 1.17.3, fols. 24vb sqq., p. 154a sqq.

59. Ibid. 1.4.5, fol. 9rb, p. 54a: "dicendum quod (corpus organicum) duplicem habet unitatem. Unam materiae et organis, quia 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"; cf. ibid. 1.17.3, fol. 25vb, p. 160b: "quia, sicut ipse dicit in libro *De animalibus* primo in generatione formantur membra superiora post cor, et postea inferiora...". Arist., *Gen. An.*, II, 1, 734a21 sqq., 735a23 sqq.; transl. Mich. Scoti: *De animalibus* XVI, ed. VAN OPPENRAAIJ, pp. 65, 69. Albertus Magnus, *Quaest. super De animalibus* 1.55, p. 107 v. 53 – p. 108 v. 63.

60. Albertus Magnus, *De homine* 1.6.1, fol. 14vb, p. 88b: "illa quorum salus et nutrimentum sunt in loco uno, accipiunt nutrimentum ad modum plantae digestum prima digestione, tractum a terra, et ideo non moventur nec habent organa processivi motus. Et hoc est quod dicit Philosophus in VII° *De animalibus* sic: «Natura graditur paulatim a non animato ad animatum, et propter continuationem rerum non apparent termini et medium inter ea, et primum ens, quod invenitur post inanimata, est plantarum genus, et diversificatur etiam hoc genus, quoniam in eo est magis durans et minus durans. Et hoc genus, quando confertur ad alia corpora animata, videbitur magis

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fassung von der tätigen Funktion des männlichen Samens und der sich allein auf die Unterstützung, die Bereitstellung der materiellen Grundlage der Empfängnis beschränkenden Rolle der Frau (bzw. des Weibchens in der Tierwelt) im Prozeß der Zeugung (*Gen. An.*, II, 4);[61] die Entstehung der Sinnenwesen durch das Zusammenwirken des weiblichen und männlichen Geschlechts sowie die Entstehung infolge der Verwesung und des Einflusses der Kraft der Himmelskörper;[62] Aussagen zur Anatomie des Auges;[63] die Lehre von der Wärme (*calidum*), welche durch die Kraft des Feuers, des Himmels und der Seele wirkt, und von der Feuchtigkeit (*humidum*) als den wesentlichen Voraussetzungen des Lebens und seiner Dauer (*Gen. An.*, II, 3).[64] Zu erwähnen sind ferner mehrere Digressionen zu unterschiedlichen Fragen der Tierkunde, wie beispielsweise über das Gehörvermögen der Fische[65] oder über Vielfüßler (*carabus*, *cancer*, *quadragintaquattuor*).[66]

Wie Albertus die Biologie des Aristoteles in die Anthropologie aufnimmt, sei hier an zwei Beispielen aufgezeigt.

Schon zu Beginn der Frage nach der Existenz und dem Sitz der Seele weist Albert unter dem Hinweis auf *Gen. An.*, I, 19 nach, daß die im Buch Deut. 12.23 dargelegte Auffassung, die Seele der Tiere sei das Blut bzw. im Blut, wahr ist. Denn das Blut bzw. eine dem Blut entsprechende Feuchtigkeit ist, so Albert, die materielle Grundlage der ersten Akte der Seele, und zwar deshalb, weil das Blut der aristotelischen Biologie zufolge die höchste Form der Nahrung sei.[67] Dieser aristotelische Gedanke, der zum ersten Mal bei Albert in der Schrift *De incar-*

simile animato, quoniam remotio inter ipsum et animal est continua. Et in mari sunt quaedam, de quibus est dubium, utrum sint animalia aut plantae, et sunt continua cum locis, in quibus inveniuntur, et plura ex eis corrumpentur, si mutentur ab illis locis, sicut solinez et kinana, quoniam ista non possunt vivere, si eradicentur a suis locis, et omne genus corii testei simile est plantae, cum confertur ad animal ambulans»". Arist., *Hist. An.*, VII, 1, 588b4-17; transl. Mich. Scoti: *De animalibus* VII, Wien, ÖNB 97 fol. 30vb. Cf. Albertus Magnus, *De animalibus* VII, §4-6, 497,25–498,15.

61. Cf. Albertus Magnus, *De homine* 1.17.2, fol. 23ra, p. 144a; ibid. 1.17.3, fols. 24va sqq., pp. 153b sqq., 155a sqq.

62. Ibid. 1.17.2, fol. 23va, p. 147b.

63. Ibid 1.20, fol. 27ra, p. 171a.

64. Ibid. 1.12, fol. 20rb sq., pp.125a-126a; ibid. 1.17.3, fol. 25va-b; p. 159b sq.; ibid. 1.43.4, fol. 59rb, p. 386a.

65. Ibid. 1.23, fol. 34vb sq., p. 229a sq.; ibid. 1.26, fol. 38va, p. 251a.

66. Ibid. 1.62.3, fol. 84rb, p. 537b.

67. Ibid. 1.1.2, fol. 2ra, p. 8b.

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natione Aufnahme fand, wird im anthropologischen Werk *De homine* zumindest noch ein weiteres Mal explizite zitiert.[68]

Im Anschluß an die Diskussion der antiken Vorstellungen vom naturimmanenten Ursprung und von der Materialität der Seele unterstreicht Albertus, daß die Vernunftseele weder ihrem Sein noch ihrer Ursache nach im Samen ist, sondern daß sie ihren Ursprung im schöpferischen Akt Gottes hat und von außen hinzutritt. Die Lehre vom transzendenten, göttlichen Ursprung der Vernunftseele, welche zu den Kernaussagen der christlichen Anthropologie gehört und deshalb auch von Albert wiederholt thematisiert wird – sie begegnete uns bereits in seinen Schriften *De resurrectione* und *De IV coaequaevis* –, erhält ihre rationale Begründung in Anlehnung an die aristotelische Naturphilosophie und im besonderen an die Tierkunde. In diesem Zusammenhang gilt *Gen. An.*, II, 3 als die am meisten aussagekräftige Textstelle.[69] In *De homine* wird diesem klassischen, von Aristoteles entlehnten und theologisch adaptierten Argument für den göttlichen Ursprung der Vernunftseele ein weiterer, ähnlich bedeutsamer Beleg, der aus dem Aristoteles zugeschriebenen Pseudepigraph *De causis proprietatum elementorum* entstammt, zur Seite gestellt.[70]

Die theologisch-philosophische Anthropologie Alberts, wie sie im Werk *De homine* entworfen wird, beruht im wesentlichen auf dem gleichen wissenschaftstheoretischen Modell und verwirklicht auch dasselbe systematische Einheitskonzept, das der Schrift *De IV*

68. Ibid. 1.43.3.5, fol. 58va, p. 382a.

69. Ibid. 1.1.2, fol. 2ra, p. 9a, hier ohne die Nennung der aristotelischen Quelle. Für die expliziten Zitate cf.: *De homine* 1.5.3, fol. 13va, p.80a; ibid. 1.7.1, fol. 15rb, p. 91a-b. Implizite wird diese Stelle ebenfalls zitiert, z.B.: *De homine* 1.17.3, fol. 25ra, p. 156a.

70. *De homine* 1.5.3, fol. 13va, p. 80a-b: "Nec Aristoteles umquam dixit animam humanam mori cum corpore, nec dicit eam generari in corpore. Quod enim non dicat corrumpi cum corpore, patet per haec verba sua in primo De anima: «Intellectus videtur substantia quaedam esse et non corrumpi». Item, ibidem: «Intellectus est divinum aliquid et impassibile». Similiter Avicenna et Averroes, qui sequuntur Aristotelem in omnibus, multis rationibus probant animam non corrumpi corrupto corpore, sed potius separari eam sicut perpetuum a corruptibili. Quod autem non generetur, sed creetur in corpore secundum Aristotelem, patet in XVI° *De animalibus*, ubi dicit intellectualem animam non esse ab aliquo principio efficiente, quod sit in semine. Quod autem eius principium sit deus, et quod per creationem ingrediatur in corpus, patet per haec verba sua quae sunt in primo *De causis proprietatum elementorum*: «Aqua viri quando cadit in matricem mulieris, decoquit eam matrix caliditate sua, et commiscetur aqua illa cum sanguine matricis donec fit frustum; deinde formatur et fit in eo spiritus vitae iussu dei»".

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coaequaevis zugrunde liegt. Der Theologie räumt Albert in prinzipientheoretischer Hinsicht einen übergeordneten Rang ein, indem die Theologie nach seiner Auffassung die letzte Begründung der fundamentalen Frage nach dem Ursprung und der Vollendung des Menschen als einer Leib-Seele-Einheit zu leisten hat. Albertus strebt an, die Antwort auf die Ausgangsfrage nach dem Ursprung der menschlichen Seele mit Hilfe der aristotelischen Tierkunde als eine Vernunftwahrheit darzustellen.

Die wissenschaftstheoretische Reflexion wird in *De homine* ebenfalls aufgenommen, was jedoch nicht etwa mit dem Ziel einer Grundlegung der Anthropologie als Wissenschaft, sondern bei der Erörterung der Erfassungskräfte bzw. Erkenntnisvermögen der Vernunftseele (*de viribus animae rationalis apprehensivis*), und zwar bei der Bestimmung der Begriffe *opinio*, *intellectus* und *ratio* geschieht.

7. De bono

Anders als in der Anthropologie findet die Aufnahme der aristotelischen Biologie im moraltheologischen und -philosophischen Werk *De bono*, das unmittelbar nach *De homine* geschrieben wurde, nur in geringem Umfang statt. Es lassen sich hier lediglich vier Verweise auf das tierkundliche *corpus* des Stagiriten *De animalibus* ermitteln, von denen drei auf *Hist. An.* zurückgehen[71] und nur ein mit dem Namen "Aristoteles" verknüpfter Gedanke sowohl in *Hist. An.* als auch in *An.* verifiziert werden kann.[72]

Der eingeschränkte Gebrauch biologischer Schriften im Werk *De bono* hängt in erster Linie vom Gegenstand der Schrift ab. Albertus handelt hier zum einen über das Gute unter dem metaphysisch-ontologischen Gesichtspunkt, zum anderen und primär über das sittlich Gute, das der Gegenstand der Ethik und der Moral ist. In diesem Zusammenhang – bei der Erörterung der Fragen der Sexualität und deren sittlichen Aspekte – nimmt Albertus Bezug auf die Biologie des Aristoteles.

Die drei ersten Verweise auf *De animalibus* – es handelt sich dabei, wie gesagt, um *Hist. An.* – erfolgen im Rahmen der Erörterung über die Tugend der Mäßigung (*temperantia*), näherhin im Kontext der Frage nach dem Wesen dieser Tugend, ferner bei der Begründung der Einheit des Tugendbegriffs im Hinblick auf den zweifachen materiel-

71. Albertus Magnus, *De bono* 3.1.1, ed. FECKES, p. 120 v. 37; ibid. 3.1.3, p. 126 v. 42; ibid. 3.3.10, p. 172 v. 71.

72. Ibid. 5.1.3, ed. KÜBEL - HEYER, p. 275 v. 7.

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len Gegenstand der *temperantia*, das *delectabile tactus* und das *delectabile gustus*, sowie zuletzt in der Lehre vom Witwenstand. Die vierte, nur mit dem Namen "*Philosophus*" gekennzeichnete Entlehnung aus der aristotelischen Tierkunde, begegnet im Traktat über die Gerechtigkeit, und zwar in den Ausführungen über das Naturrecht. Von Aristoteles stammt die Sentenz "die Hand ist das Werkzeug der Werkzeuge", welche uns sowohl in *An.*, III, 8 (431a1-2) als auch in *Part. An.*, IV, 10 (687a20-21) begegnet.[73] Eine implizite Anlehnung an *Hist. An.*, VIII, 7 weisen die Editoren der Schrift *De bono* im Traktat über die Gerechtigkeit bei der Erörterung der Frage nach der Einteilung der Gesetze nach. In diesem Kontext führt Albert für die Erklärung des Naturinstinktes der Tiere das Beispiel von der stets konstanten Bauweise des Nestes durch die Schwalbe an.[74]

Wie im einzelnen und mit welcher Zielintention die aristotelische Biologie hier in die moraltheologische und -philosophische Tugendlehre aufgenommen wird, sei an einem Beispiel dargestellt. Bei der Bestimmung des Gegenstands der Tugend der Mäßigung (*temperantia*), der in erster Linie das *desiderium proprium* ist, lehrt Albert, daß das eigentümliche Begehren des Menschen seiner Selbstkontrolle und seiner Lenkung unterliegt. Das eigentümliche Begehren besteht entweder in den durch die Komplexionen bedingten Neigungen oder in dem, was dem Menschen zur Gewohnheit geworden ist. Für die Verdeutlichung jener Neigungen, welche den Gegenstand der *temperantia* ausmachen, verweist Albertus auf die aristotelische Lehre vom Sexualverhalten der Frauen und Männer. Die Männer, so Albertus in Gefolge der aristotelischen Tierkunde, neigen leichter im Winter zur Promiskuität, bei Frauen hingegen zeigt sich diese Neigung eher im Sommer.[75] Die aristotelische Auffassung über die geschlechtsspezifischen Neigungen im Sexualverhalten der Menschen wird als eine wissenschaftlich gesicherte Erkenntnis mit dem Ziel übernommen, das aus der biologisch bedingten Neigung erwachsende eigentümliche Begehren des Menschen in Abgrenzung vom eigentümlichen Begehren habitueller Art zu erklären.

73. Ibid. 5.3.1, p. 293 v. 44-45: "dicit Aristoteles de manu, quod est organum organorum".

74. Ibid. 5.2.2, p. 286 v. 35-38.

75. Ibid. 3.1.3, ed. FECKES, p. 126 v. 26-45, und insb. v. 40-42: "viri facilius in hieme inclinantur ad fornicationem, mulieres autem in aestate, ut habetur in libro *De animalibus*". Cf. Arist., *Hist. An.*, V, 8, 542a32-b1.

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8. Super I-IV Sententiarum

In seinem groß angelegten Sentenzenkommentar – in der unkritischen Pariser Ausgabe von Borgnet füllt er sechs Quart-Bände mit insgesamt 4167 Textseiten – benutzt Albertus die aristotelische Tierkunde primär im Schöpfungstraktat und hier im besonderen bei der Entfaltung der Lehre vom Menschen. Auch in den übrigen Teilen des Kommentars, der alle Fachgebiete der systematischen Theologie des Mittelalters umfaßt, ist die aristotelische Biologie, sei es explizite, sei es implizite, vorhanden. Aus einer flüchtigen Durchsicht des umfangreichen Textes ergibt sich, daß Albertus die Biologie des Aristoteles u. a. für die naturphilosophische und naturwissenschaftliche Grundlegung seiner Lehre vom Ursprung der menschlichen Seele, von ihrer Wesenseinheit[76] sowie von ihrer Wirkweise im Samen und für die Erklärung der embryonalen Entwicklung heranzieht.[77] Verweise auf die Tierkunde des Aristoteles finden sich eingestreut in das ganze Werk, so beispielsweise in der Lehre von den gefallenen Engeln;[78] in der Auslegung des Sechstagewerkes, die gleichsam einen Entwurf der Kosmogonie – ähnlich wie die Schrift *De IV coaequaevis* – darstellt;[79] in der Inkarnationslehre bei der Erörterung der Frage nach der Empfängnis Christi durch Maria[80] und bei der Bestimmung der Relation Christi zu dem biologischen Ursprung der Menschen:[81] in der Frage nach der Vereinigung der göttlichen und menschlichen Natur in Christus[82] und in vielen Spezialfragen der Christologie;[83] bei der Erörterung der theologischen

76. Albertus Magnus, *Super I Sent.* 8.26, B. Alberti Magni Opera Omnia 25, ed. A. BORGNET (Paris, 1893), p. 259b; idem, *Super II Sent.* 18.8, B. Alberti Magni Opera Omnia 27, ed. A. BORGNET (Paris, 1894), pp. 324a-325b.

77. Ibid., p. 324a-b.

78. Ibid. 8.9, p. 184a: "dicit Philosophus ... in XVI *De animalibus*, quod natura dedit homini manum pro instrumento et armis".

79. Ibid. 15.4, p. 276b: "Philosophus in libro *De animalibus* dicit, quod omnium impraegnatio et partus fiunt secundum allationes stellarum"; ibid. 15.12, p. 282b: "dicit Aristoteles, quod natura non procedit de marino ad agreste nisi per medium".

80. Albertus Magnus, *Super III Sent.* 3.11, B. Alberti Magni Opera Omnia 28, ed. A. BORGNET (Paris, 1894), p. 53a-b.

81. Ibid. 3.26, p. 66a: "Utrum Christus secundum differentem modum ab aliis hominibus fuerit in lumbis Adae vel Abrahae".

82. Ibid. 5.12, p. 112a-b.

83. Cf. ibid. 15.2, pp. 267a, 268b.

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Tugenden;[84] in der Ehelehre;[85] in der Eschatologie.[86] Albertus gesteht aber auch, daß es Glaubenswahrheiten gibt, die sich mit Hilfe der aristotelischen Naturphilosophie und Biologie kaum erklären lassen, weil sie die natürliche Gesetzmäßigkeit überschreiten, wie beispielsweise die Menschwerdung Gottes. In solchen Fällen räumt er den Vorrang der Offenbarung ein:

> Sine praeiudicio propter errores hic se ingerentes oportet respondere ad argumentationes praedictas caute, ut omnino teneatur veritas fidei potius quam Aristoteles princeps philosophorum, quia non est mirum, si aliquid contra artem in se habeat incarnatio, quae etiam ingenio per gratiam suffulto investigari non poterat.[87]

Albertus stellt die Kompetenz des Aristoteles im Bereich der Naturphilosophie und Naturwissenschaft aber grundsätzlich nicht in Frage, sondern er stuft sie sogar höher als eine theologische, auf den Naturbereich bezogene Autorität ein.[88]

Mit diesen wenigen Hinweisen zur Rezeption der Biologie des Aristoteles in Alberts Sentenzenkommentar soll lediglich signalisiert werden, daß die systematische Theologie des Mittelalters ein für die Erforschung der Aneignung der aristotelischen Biologie im 13. Jh. und in der Folgezeit bedeutsames, aber bislang unter diesem Gesichtspunkt unzureichend erschlossenes Gebiet ist. Aus diesem theologischen Kommentarwerk wie auch aus den übrigen systematischen Frühwerken Alberts geht hervor – hier konnte dies nur ansatzweise gezeigt werden –, daß die Biologie des Aristoteles zum Kernbestand der scientia naturalis des Mittelalters wurde. Die Aneignung der aristotelischen Biologie im 13. Jh. hatte eine weitreichende Bedeutung für die gesamte Kultur des Abendlandes. Die biologische Lehre des Stagiriten prägte die Gestalt der mittelalterlichen Anthropologie und Theologie, ungeachtet dessen, daß die naturphilosophischen Schriften des Philosophen zu dieser Zeit in Paris, wo Albertus gelehrt und seine Früh-

84. Ibid. 29.11, p. 563a-b.

85. Cf. *Super IV Sent.* 27.13, B. Alberti Magni Opera Omnia 30, ed. A. BORGNET (Paris, 1894), pp. 151a, 152a, 153a.

86. Ibid. 44.43, p. 600a.

87. *Super III Sent.* 6.1, p. 121a.

88. *Super II Sent.* 13.2, p. 247a: "Augustino in his quae sunt de fide et moribus plus quam philosophis credendum est, si dissentiunt. Sed si de medicina loqueretur, plus ego crederem Galeno vel Hippocrati; et si de naturis rerum loquatur, credo Aristoteli plus vel alii experto in rerum naturis".

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werke mit Ausnahme von *De natura boni* geschrieben hatte, offiziell verboten waren. Eine eingehende Untersuchung des Sentenzenkommentars und auch der anthropologischen Schrift *De homine* im Hinblick auf die Frage der Rezeption aristotelischer Biologie bleibt weiterhin ein Desiderat, das im Rahmen dieses ersten Überblicks nicht erfüllt werden kann.

Bilanz

In seinen systematischen theologisch-philosophischen Frühwerken hat Albertus Magnus bereits vor 1250 die aristotelische Biologie in einem beachtlichen Umfang aufgenommen. Diese Aristotelesrezeption fand statt, als jede Art von Benutzung der aristotelischen Schriften mit Ausnahme der Logik an der Pariser Universität, an der Albert zu dem Zeitpunkt lehrte, offiziell verboten war. Aus der Tierkunde des Aristoteles übernahm er jenes biologische Wissen, das für die Erhellung theologischer bzw. originär theologisch motivierter Fragen geeignet war. Die Anwendung der Biologie in der Theologie erfolgte mit dem Ziel, die Welt der Natur soweit wie möglich auf naturwissenschaftliche Weise zu erklären. Das Leitmotiv dieser Vorgehensweise war die Überzeugung, daß die Offenbarung und die Vernunftwahrheit, die er im besonderen in den Schriften des "Philosophen" fand, komplementär sind. In der Biologie schätzte Albertus die Autorität des Aristoteles höher als die der *sancti* ein. Albertus ist nicht nur ein Rezipient der biologischen Theorien des Stagiriten. Er erklärte sie unter Einbeziehung ihm verfügbarer Literatur und mit Hilfe eigener Beobachtungen und Experimente. Da die aristotelische Biologie in den Frühwerken Alberts im Dienst der Theologie steht, wird sie von ihm in einigen Punkten theologisch gedeutet, wie beispielsweise in der Frage nach dem Ursprung der vernunftbegabten Seele.[89]

89. Ich danke Frau Anne Bartholome für die sprachliche Korrektur des Textes.

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MIGUEL DE ASÚA

MEDICINE AND PHILOSOPHY IN PETER OF SPAIN'S COMMENTARY ON *DE ANIMALIBUS*

Peter of Spain's *Questiones super libro de animalibus* is the oldest extant Latin commentary on Aristotle's books on animals. The standard view, articulated in the pioneer works of da Cruz Pontes and Goldstein is that Peter commented twice on *De animalibus*, firstly in Paris – within the context of the Arts faculty – and then in Siena, as professor of medicine.[1] According to this account, Peter's early Parisian commentary would be that in codex 1877 of the Biblioteca Nacional in Madrid,[2] while a manuscript at the Biblioteca Nazionale in Florence would be the result of Peter's activity in Siena.[3] But the attribution to Peter of the commentary in the manuscript kept at the Florence library is not devoid of problems and a number of reasons strongly suggest that Peter was not the author of that commentary.[4]

Peter wrote what in my opinion was his only commentary on *De animalibus*, during his activity as professor of medicine at the Siena *studium*, between 1246 and 1249.[5] It is currently assumed that during this period, he also commented on an expanded version of the *articella*, a collection of medical treatises that constituted the core of medical teaching since the middle of the twelfth century.[6]

1. See T. GOLDSTEIN, "Gérard du Breuil et la zoologie aristotélicienne au XIIIe siècle," in *Positions des thèses soutenues par les élèves de la promotion de 1969 pour obtenir le diplôme d'Archiviste Paléographe* (Paris, École des Chartes, 1969), pp. 61-68; J. M. DA CRUZ PONTES, *A obra filosófica de Pedro Hispano Portugalense. Novos problemas textuais* (Coimbra, 1972), pp. 99-102.

2. Madrid, Biblioteca Nacional, MS. 1877, fols. 256r-290v, hereafter cited as *M*.

3. Florence, Biblioteca Nazionale, Fondo Conventi Soppressi G. 4.853, fols. 79r-191v.

4. For example, the collation of the answers to parallel questions in both commentaries show what seem to be significant differences in the solutions to sensitive controversial points. See M. DE ASÚA, *The Organization of Discourse on Animals in the Thirteenth Century. Peter of Spain, Albert the Great and the Commentaries on De animalibus* (Ph.D. Diss., University of Notre Dame, 1991); idem, "Peter of Spain, Albert the Great and the Commentaries on *De animalibus*," *Physis* 34 (1997) nuova serie, 1-30.

5. G. PETELLA, "Sull'identità di Pietro Ispano medico in Siena e poi col filosofo dantesco," *Bulletino senese di storia patria* 5 (1899), 277-329.

6. For a list of manuscripts containing Peter's commentaries on the *articella* see appendix 1 of P.O. KRISTELLER, "Bartolomeo, Musandino, Mauro di Salerno e altri

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Recent investigations have argued that the different logical, natural philosophical and medical works attributed so far to Peter of Spain should be ascribed to various different authors. The identification of *Petrus Hispanus medicus*, the physician who taught at the university of Siena, with *Petrus Juliani* (Pope John XXI), has been called into doubt.[7] Moreover, it has been shown that the *Tractatus* (*Summulae Logicales*) was probably the work of a Dominican, not to be identified with the author of the medical works.[8] Since we will be concerned here only with the Siena commentaries on *De animalibus* and the *articella*, the name Peter of Spain will always mean the author of these works.

A superficial survey of Peter's commentary on *De animalibus* reveals that he interrogated Aristotle's books on animals not only as a natural philosopher, but also as a thirteenth-century physician. In fact, it seems that Peter's commentary on *De animalibus* was the first Latin work to discuss and organize the *controversia inter medicos et philosophos*, thus establishing the pattern for future developments. The aim of this paper is to highlight the medical side of Peter's commentary on *De animalibus*, situating it against the background of thirteenth-century medicine.[9]

We will begin by considering Peter's use of authorities, proceed then to explore the medical issues addressed and the medical theories presupposed in the commentary, analyze briefly Peter's handling of the controversy between physicians and philosophers and continue by commenting on his solutions to the problem of the epistemological relationships between medicine and philosophy.

antichi commentatori dell' 'Articella', con un elenco di testi e manoscritti," in *Studi sulla scuola medica salernitana*, ed. P.O. KRISTELLER (Naples,1986), pp. 121-129. One version of Peter's commentary on the *articella* has been preserved in the same codex as his commentary on *De animalibus*: *M*, fols. 24r-255r. The codex opens with a list of the *quaestiones* discussed by Peter in both commentaries.

7. J. F. MEIRINHOS, "Petrus Hispanus Portugalensis? Elementos para uma diferenciação de autores," *Revista Española de Filosofía Medieval* 3 (1996), 51-76.

8. A. D'ORS, "Petrus Hispanus O.P., Auctor Summularum," *Vivarium* 35 (1997), 21-71.

9. Silvia NAGEL has already devoted a paper to explore the relationships between anthropology and medicine in Peter's *Problemata*, the collection of 126/27 *quaestiones et responsiones*, which are a selection from the first 10 books of Peter's commentary on *De animalibus*. See idem, "Antropologia e medicina nei Problemata di Pietro Ispano," *Medioevo* 17 (1991), 231-248.

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1. Medical authorities used by Peter of Spain in his commentary on De animalibus

Peter's commentary is a collection of 822 questions on 17 of the 19 Aristotelian books on animals.[10] Scholastic quaestiones of different degrees of complexity alternate with questions of the genre of *quaestiones et responsiones* all along the text – the coexistence of these two kinds of *quaestiones* is characteristic of the tradition of medical commentaries and, of course, also appears in Peter's commentary on the *articella*.[11]

In his commentary on *De animalibus* Peter mentions, as philosophical authorities, Avicenna (in particular his *De anima*), Averroes (his commentaries on *De anima* and on the *Physics*) and, occasionally, Algazel, Plato, Boethius, Augustin, Porphyry, the author of *De motu cordis*, "Alfaretus commentator"[12], and "Georgius Nazerenus."[13] Avicenna is frequently mentioned also as a medical authority – "Avicenna concordat philosophum cum medico", says Peter.[14] Although he never mentions the *Canon*, a fair amount of material is taken from it and perhaps also from the *Abbreviatio de animalibus*; besides, Peter refers to Avicenna's *De venenis*.

A fair number of Galen's works are also mentioned: *De creticis diebus*, *De complexionibus* (i.e., *De temperamentis*), *De interioribus* (i.e., *De locis affectis*), *De simplici medicina*, the *Tegni* (i.e., *Microtegni*, *Ars parva, Ars medica*) – on which Peter commented –, the *Megategni* – which was Constantine's paraphrase of *De methodo medendi* –[15] and the *Passionarius*, which the Middle Ages attributed to Galen but was,

10. The marginal numeration divides the commentary in 19 books, but the questions cover only the first 17 books of *De animalibus*. For a discussion of this issue see J. M. DA CRUZ PONTES, "La division du Texte dans le MS. inédit des 'Quaestiones super libro de animalibus' de Petrus Hispanus Portugalensis," *Bulletin de la Société internationale pour l'étude de la philosophie médiévale* 4 (1962), 118-126.

11. See D. JACQUART, "La question disputée dans les Facultés de Médecine," in *Les questions disputées et les questions quodlibétiques dans les facultés de Théologie, de Droit et de Médecine*, ed. B. BAZÁN, J. WIPPEL, G. FRANSEN & D. JACQUART, Typologie des sources du Moyen-Age occidental 44-45 (Turnhout, 1985), pp. 279-315. See also N. SIRAISI, *Taddeo Alderotti and his Pupils* (Princeton, 1981), p. 240.

12. *M*, fols. 273vb-274ra.

13. *M*, fol. 265va.

14. *M*, fol. 261ra.

15. Galen's *De methodo medendi* was translated by Gerard of Cremona and Burgundio of Pisa (books 7-14) and circulated as *De ingenio (regimine) sanitatis* or *De sanitate tuenda*.

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probably, an early Salernitan composition.[16] It is evident that Peter quotes Galen from first hand.

He also invokes frequently the authority of Haly Abbas (Ali ibn al-Abbas, d. 994) and mentions explicity his *Dispositio regalis*[17] and also Haly's commentary on the *Tegni* of Galen (known as *Commentum Haly*) which usually accompanied in the manuscripts the so-called *translatio arabica* of the *Tegni* by Gerard of Cremona.[18]

Isaac Iudaeus probably is, after Galen and Avicenna, the most cited medical authority in Peter's *De animalibus*. Peter mentions not only his *On Universal Diets* and *On Particular Diets* – to which he devoted well-known individual commentaries – but also his *De elementis*.

Constantine the African is rarely quoted, although his *De oculo* is mentioned. Hippocrates is not among the most used authorities in *De animalibus*, although Peter commented on the *Aphorisms*, *Prognostics*, and *Regimen on acute diseases* in his *articella*. Johannitius (Hunain ibn Ishaq, whose *Isagoge* is the first treatise of the *articella* collection) is mentioned in Peter's *De animalibus* and, on occasion, Rasis, Serapion, Philaretus, Bartholomaeus and Palladius.

As expected from the date of the commentary (middle of the thirteenth century) Peter is familiar with the whole *articella* (the *Isagoge* of Johannitius, the *Tegni* of Galen, Hippocrates's *Aphorisms*, *Prognostics* and *Regimen on acute diseases*, and the brief treatise *On pulse* by Philaretus). He is also well acquainted with the *Corpus Constantinum* (Haly Abbas, Isaac Iudaeus), and the *Corpus Toletanum*, in particular Avicenna's *Canon* and much of what has been called the "new Galen".[19] The presence of Galen is very strong and far outshines that of Hippocrates, including works that did not circulate widely at that time, such as *De interioribus* – in fact, some of the books by Galen used by

16. It has been attributed to Gariopontus. See P.O. KRISTELLER, "The School of Salerno," in *Studies in Renaissance Thought and Letters*, ed. P.O. KRISTELLER (Rome, 1956), pp. 495-551, p. 504.

17. Also known as *Liber regalis* (*Kitab al-Maleki*), translated by Stephen of Antioch in 1127. Constantine's *Pantegni* were a free paraphrase of this book.

18. See P.-G. OTTOSSON, *Scholastic Medicine and Philosophy* (Naples, 1984), pp. 24-27.

19. For the constitution of the *articella* see M. JORDAN, "Medicine as Science in the Early Commentaries on 'Johannitius'," *Traditio* 43 (1987),121-145. The denominations of *Corpus Constantinum* and *Corpus Toletanum* belong to H. SCHIPPERGES; see idem, *Die Assimilation der arabischen Medizin durch das lateinische Mittelalter, Sudhoffs Archiv. Beiheft 3* (Wiesbaden, 1964). For the "new Galen" see note 20.

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Peter were not readily available until the second half of the thirteenth century.[20] The early Salernitans receive scant attention: only Bartholomaeus (a twelfth-century commentator on the *articella*) is mentioned.[21] It is significant that the works used by Peter correspond almost exclusively to *medicina theorica* and neither practical treatises nor collections of recipes are mentioned.

It seems that, at the time of commenting on *De animalibus*, Peter was conversant with the most advanced medical literature available to scholars working during the first half of the thirteenth century. Where did he study medicine? Different answers to this question had presupposed de Rijk's reconstruction of Peter's life, recently called into question.[22] What we know for sure is that the Peter of Spain who wrote the

20. SIRAISI, *Taddeo*, p. 104. *De interioribus*, *De creticis diebus* and *De complexionibus* have been listed by García Ballester as belonging to "the new Galen", i.e., a group of works that would have been introduced to Montpellier, Paris and Bologna by the last quarter of the 13th century. But Peter's acquaintance with these works suggests that they were read , known and used in commentaries during the first half of the 13th century. See L. GARCÍA BALLESTER, "Arnau de Vilanova (c. 1240-1311) y la reforma de los estudios médicos en Montpellier (1309): El Hipócrates latino y la introducción del nuevo Galeno," *Dynamis* 2 (1982), 97-158.

21. See KRISTELLER, "Bartolomeo," passim. Obviously, Averroes is not considered as a medical authority (his *Colliget* was translated in 1285).

22. L. M. DE RIJK, "On the Life of Peter of Spain, the Author of the Tractatus, Called Afterwards Summule logicales," *Vivarium* 8 (1970), 123-154. In this paper, de Rijk claimed that Peter left Paris with the exodus of 1229/1230, went to northern Spain where he wrote the *Tractatus* and then to southern France, where he studied medicine at Montpellier. Since it has been shown that the author of the *Tractatus* was not the author of the commentaries on *De animalibus* and the *articella* (see notes 7 and 8), the reconstruction of Peter's life before (and after) his activity at the Siena *studium* is now even more problematic than it was. Anyway, the suggestion, raised by a number of medical historians, that Peter studied medicine in Paris during the thirties is based on textual arguments and needs not to be revised in the light of this new discussion. It has been argued that Peter probably studied at the university of Paris on the grounds that some of the medical books he commented on (like the *Viaticum*) were being used there by the middle of the 13th century and that the *Canon* was introduced earlier to Paris than to Montpellier – in the latter university the first quotation dates from 1240. See M. MCVAUGH, "Medical Knowledge at the Time of Frederick II," *Micrologus* 2 (1994), 3-17; idem, "The 'Humidum Radicale' in Thirteenth Century Medicine," *Traditio* 30 (1974), 259-283. Jacquart also thinks that Peter studied medicine at Paris; see D. JACQUART, "La réception du Canon d'Avicenne: Comparaison entre Montpellier et Paris aux XIIIe et XIVe siècles," in *110e Congrès national des sociétés savantes. Colloque sur l'École médicale de Montpellier* (Montpellier, 1985), pp. 69-77. See also N. SIRAISI, *Avicenna in Renaissance Italy* (Princeton, 1987), p. 53.

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Liber de oculo – dedicated to Gerard of Sabionetta, a translator at the service of Frederick II – calls Theodore of Antioch († 1250), the court astrologer who succeeded Michael Scot, "magister meus".[23] This attests to his links with the learned circles of southern Italy and suggests that he obtained there part of his medical education – but the issue of Peter's medical training seems to me to be still a moot point.[24]

2. *Medical issues and medical theory in Peter's* De animalibus

Peter's commentary on *De animalibus* expounds a number of outright medical themes. For example, book 5 consists of twenty-eight questions *de coitu*[25] and book 9 includes a fair number of *quaestiones* on conception, pregnancy and the newborn:[26] nine on menstruation, three on the onset of the fertile period, eighteen on conception, coitus and pregnancy, six questions on the morphological development of the embryo (*de figuratione fetus*), five on hereditary diseases (gout, leprosy and stones are considered as such)[27] and fifteen on delivery (normal

23. See *Die Ophtalmologie (liber de oculo) des Petrus Hispanus*, ed. A. M. BERGER (Munich, 1899), p. 2.

24. The *incipit* of Vatican City, Biblioteca Apostolica Vaticana, MS. Pal. Lat. 1251 (15th century) reads: "Petrus Hispanus natione Compostellanus et expertus in tota Ytalia," and that of Mainz, Stadtarchiv, MS I.530 (14th-15th century): "Magistri Petri Yspani Compostellanensis medici Salerni coñ. Senensis civis artis Medicine professoris" (quoted in M. H. DA ROCHA PEREIRA, "Die Überlieferungsgeschichte des Liber de conservanda sanitate von Petrus Hispanus," *Texte und Untersuchungen zur Geschichte der altchristlichen Literatur* 125 [1981], 491-493). But da Rocha Pereira has shown that these *incipits* are inauthentic.

25. *M*, fols. 263va-264rb. A list with the titles of the *quaestiones* in Peter's commentary can be seen in ASÚA, "Discourse on Animals," pp. 243-358. For Peter's ideas on sexuality see M.F. WACK, "The Measure of Pleasure: Peter of Spain, Men, Women and Lovesickness," *Viator* 17 (1986), 173-196. For the development of this theme in the medical literature see D. JACQUART and C. THOMASSET, *Sexuality and Medicine in the Middle Ages*, trans. M. ADAMSON (Cambridge, Eng., 1988), pp. 116-138 and J. CADDEN, *Meanings of Sex Difference in the Middle Ages* (Cambridge, Eng., 1994), pp. 64-165.

26. *M*, fols. 270ra-272vb.

27. "De morbis hereditariis ut calculus, lepra sunt morbi hereditarii"; "Quare leprosus peccat in substantia in generando et non secundum sexum. Generat enim semper leprosum sed aliquando generat masculum aliquando feminam sicut alii homines"; "Quare etiam infectio substantie inficit filium sed vitium in patre a parte anime non facit vitium in filio"; "Quare chiragricus non generat chiragricum sicut podagricus podagricum"; "Quare loripes non generat loripedem" (*M*, fols. 271vb-272ra).

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and pathological) and the newborn (including infant diseases).[28] Besides, book 12 includes eleven *quaestiones de gradu*, i.e., the Galenic pharmacological doctrine that intended to discern degrees in the four basic qualities.[29] And book 13 has four questions on pulmonary diseases and their symptoms.[30]

Scattered here and there are individual questions, such as those that ask about the diagnostic signs of conception,[31] why jaundice never originates from the blood,[32] why in phlebotomy blood must always be drawn off from the veins, never from the arteries[33] or how pestilence is transmitted.[34]

But the medical aspects of the commentary are not limited to the inclusion of medical questions. A number of *quaestiones* on animals are answered having recourse to medical authorities. For example, to the question that asks why animals such as serpents and lizards hibernate, Peter answers that, according to Galen, these beasts have a small amount of blood and, therefore, of heat; in consequence, they hide beneath the earth during the winter to preserve their scant heat.[35] To the question that interrogates why birds cure their wounds applying oregano to them, Peter answers that Galen says, in the *Megategni*, that

28. For example: "Quare philosophus lapsum in situ non appellat egritudinem, medicus autem appellat"; "Quare etiam in matrice et in ano ut plurimum veniunt pustule"; "Quare spasmus est egritudo matricis"; "Quare in puero plus accidit spasmus de repletione quam de inanitione"; "Quare si pueri transeant septimum diem signum est quod evadunt"; "Quare pueri in plenilunio plus incurrunt suas egritudines" (*M*, fols. 272vb).

29. *M*, fols. 276rb-277ra. For the treatment of this doctrine in Montpellier see *Aphorismi de gradibus*, ed. M. McVAUGH, *Arnaldi de Villanova Opera medica omnia* 2 (Barcelona, Granada, 1975), introduction and idem, "The Two Faces of a Medical Career: Jordanus de Turre of Montpellier," in *Mathematics and its Applications to Science and Natural Philosophy in the Middle Ages*, ed. E. GRANT and J.E. MURDOCH (Cambridge, Engl., 1987), pp. 301-324.

30. "Quare ulcus in pulmone vix aut numquam curatur" (*M*, fol. 281rb); "Quare ex eius ulcere sequitur ethica plus quam ex alio membro" (ibid.); "Quare sanguis veniens a pulmone est spumosus et multus et etiam sine dolore" (*M*, fol. 281va); "Quare fluxus sanguinis a pulmone est mortalis" (ibid.).

31. "Quare urina athomosa habens nebulam in superficie signum est conceptionis" (*M*, fol. 271rb).

32. "Quare itericia numquam fit ex sanguine" (*M*, fol. 280vb).

33. "Quare non fit minutio de arteria sicut de vena" (*M*, fol. 280vb).

34. "Per quam viam venit morbus pestilencialis" (*M*, fol. 267vb).

35. "Propter quid multa animalia abscondunt se in yeme in cavernis terre et prime serpentes et lacerte" (*M*, fol. 258ra).

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oregano is hot and dry and these qualities stimulate the regeneration of the flesh.[36] Peter denies that we can nourish ourselves "ex simplicibus" and affirms, on the authority of Isaac, Hippocrates and Avicenna, that the nutrition of the body proceeds only "ex mixtis".[37] "Why do dogs suffer from gout?" – he asks. The answer is that Hippocrates and Galen affirmed that "eunuchi non podagrizant"; since dogs are given to frequent sexual intercourse, they suffer from gout ("podagra").[38]

Even more significant than Peter's occasional use of medical authorities to answer particular questions, is that Galenic medical theories coexist, as a matter of fact, with Aristotelian doctrines. For example, present throughout the commentary is humoral theory in its Avicennan version – the conception of the four humors as an organizational level of the body situated between the elements and the homogeneous parts and providing the basis for complexion or balance of the qualities.[39] The lack of the gallbladder and spleen in birds and the anatomical disposition of these two organs, is explained in terms of the functions of the yellow and black bile (the humors associated with those organs).[40] A sequence of five questions in book 12[41] and the whole of book 14 (comprising ten questions),[42] provides a brief Galenic account of the behavior of the humors in digestion and nutrition, including the distinction – traceable to the *Canon* – between a "cholera iuvativa" and a "cholera necessaria".[43]

36. "Quare aves cum vulnerantur super vulnera sua ponunt origanum" (*M*, fol. 268rb).

37. "Utrum corpus humanum possit nutriri ex simplicibus" (*M*, fol. 266rb).

38. "Quare canibus plus accidit podagra quam in aliis" (*M*, fol. 267va).

39. For a discussion of the medical (Hippocratic) doctrine of the humors, the Galenic doctrine of *complexio* and its interpretation by the Arabs see OTTOSSON, *Scholastic Medicine*, pp. 129-144, in particular p. 137.

40. "Quare in avibus minus est fel et splen quam in aliis animalibus" (Madrid 1877, fol. 260vb); "Quare generaliter in animalibus fel est prope epar in sima epatis, splen est supra, longius ab epate" (*M*, fol. 260vb).

41. "Quis humor magis nutriat"; "Quare melancholia excitat appetitum et debilitat digestionem"; "Quare sanguis cum flegma continetur intra venas et cholera autem et melancholia intra et extra"; "Quare cholera et melancholia quedam est iuvativa, quedam est necessaria, sed omnis flegma et sanguis est necessarius"; "Quis humor magis iuvat virtutem animalem" (*M*, fol. 277va-vb). Cf. Avicenna, *Canon*, lib. 1, fen 1, doctr. 4, cap. 1 (Venice, 1507; repr. Hildesheim, 1964), fol. 4vb.

42. *M*, fol. 282rb.

43. See the title of the corresponding *quaestio* in note 41.

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Avicenna's systematization of the three digestions (in the stomach, the liver and the veins) and their corresponding superfluities (feces, urine and sweat) is also assumed and discussed by Peter in a number of questions corresponding to book 12.[44] And the conceptual core of much of Galenic medicine, the doctrine of the three virtues (natural, vital and animal) associated to each of the principal organs (liver, heart and brain), is not only discussed in several questions[45] and presupposed in many others, but also applied to answer, for example, why cranes elect a leader and other animals do not – Peter's solution is that *virtus estimativa* – a species of *virtus animalis*, according to Avicenna's *Canon* – is analogous to the human intellect; but the seat of *virtus animalis* is the brain; since birds have a dry brain (what is considered to be a good complexion of the organ), the operation of the animal virtue is more efficient in them than in the rest of the animals.[46]

The analysis of the notion of *spiritus* in Peter's *De animalibus* exceeds the limits of this paper. Let it be said here only that Peter endorses the philosophical idea that *spiritus* is a way of union between body and soul, as to the cognitive functions of the latter – *calor naturalis* being the medium as to the vital functions.[47] But he simultaneously

44. "De contrarietate inter Avicennam et alios auctores, nam Avicenna ponit quattuor [digestiones] et alii autem tres solum"; "Quare prima digestio et tertia dealbant, secunda autem digestio generat diversos colores"; "Quis sanguis melius nutriat, utrum grossus vel subtilis"; "Quare tertia digestio operatur continue, prima autem et secunda non" (*M*, fols. 277rb-278rb).

45. "Quare membra que sunt medium in virtute naturali et vitali sint concava sicut vene et arterie, sed membra que sunt medium in virtute animali non, sicut nervi" (*M*, fol. 261va); "Quare omnes virtutes naturales operantur per villos preter digestivam" (*M*, fol. 274va); "Quare virtus naturalis semper operatur per officialia, virtus animalis aliquando per consimilia, aliquando per officialia" (*M*, fol. 274rb-va).

46. "Quare rex eligatur in volatilibus ut in gruibus, non autem in aliis brutis" (*M*, fols. 257vb-258ra). For the relationship between *virtus animalis* and its species (among them *estimativa*), see Avicenna, *Canon*, book 1, fen 1, doct. 6, cap. 5, fols. 24vb-25rb.

47. To the question "De necessitate spiritus. Utrum spiritus sit necessarius ad uniendum animam cum corpore" Peter answers: "Cognoscere actus spiritualior est quam vivere, sed in uniendo medium inter corpus et animam calor naturalis. Ergo in cognoscendo erit medium subtilius. Hoc autem non est nisi spiritus...Cum enim vivere sit moveri ad vitam, requiritur qualitas maxime movens scilicet calor, et cum hoc requiritur suum pabulum, scilicet humidum. Unde cum virtus anime sit vivere, ei respondet a parte corporis calor naturalis et vivificus et talis vita est in plantis. Sed anima cogitativa virtutem habet influendi vitam et cognitionem. A parte [vite] respondet calor naturalis in animalibus, a parte cognitionis spiritus. Et causa huius est quia nervi, in quantum sunt flexibiles, sunt medium in movendo; in quantum pervii et clari, in cognoscendo et quia virtus defertur mediante spiritu, quia eadem est natura

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supports the medical conception of *spiritus* as the vehicle of the three virtues, claiming that this medium – spirit – is light (*lux*).[48] This allows him to explain why nerves are solid: nerves – says Peter – are the instruments of animal virtue, which is carried along them by *spiritus*; nerves can be solid because spirit is light, and light is able to go through solid bodies, like glass.[49]

Peter, as expected, also follows the medical tradition when he

medii, organi et obiecti, ergo medium deferens virtutem debet habere naturam lucis. Et propter hoc spiritus est necessarius quia est lux vel effigiem lucis habens, sicut dicit Avicenna" (Madrid 1877, fol. 287ra). Cf. also the second *sed contra* of the *quaestio* "Utrum <in> qualibet parte corporis generetur <spiritus>": "Spiritus est medium unionis anime cum corpore, sed in qualibet parte unitur anima cum corpore, ergo spiritus generatur in qualibet parte" (*M*, fol. 287rb).

48. This notion is summarized in the question "Utrum lux sit medium in virtute animali", to which Peter answers: "Ad hoc dicendum quod operatio virtutis animalis duplex est. Una interior, secundum quod a cerebro delegantur spiritus qui sunt latores virtutum usque ad organa et hec operatio est mediante luce. Spiritus enim habet naturam lucis. Et est alia operatio exterior ab organis ad obiecta et ista in organo lucido sicut in oculo fit mediante luce, in aliis non. Tactus enim, gustus et olfactus sequuntur complexiones, sicut visum, et auditus fit per aerem contranaturalem in auribus" (*M*, fol. 262va). See also the text transcribed in note 47 and the following passages in the same *quaestio*: "Anima debet sensum et motum corpori per suas virtutes. Sed virtus non potest operari sine deferente. Ergo cum spiritus sint latores virtutum, sicut dicit Avicenna, spiritus sunt necessarii...Anima est lux spiritualis, ergo vivens anima cum corpore debet habere naturam lucis. Sed hoc est spiritus...In operatione anime cogitative exterius lux est medium. Ergo similiter in operatione interiori. Sed ista lux interior non est nisi spiritus" (*M*, fol. 287ra). In a chapter of the *Scientia libri de anima* the very same conception of *spiritus* as light is expounded. See Peter of Spain, *Scientia libri de anima* 12.3, ed. M. ALONSO, 2nd ed. (Barcelona, 1961), pp. 465-467. For a history of the notion of medical spirits see J.J. BONO, "Medical Spirits and the Medieval Language of Life," *Traditio* 40 (1984), 91-130.

49. To the question "Quare membra que sunt medium in virtute naturali et vitali sunt concava sicut vene et arterie, sed membra que sunt medium in virtute animali non, sicut nervi", Peter answers: "Nervi sunt autem instrumenta virtutis animalis. Medium autem virtutis animalis est spiritus clarus, purus, subtilis. Et propter hoc lux sicut transit corpora solida in radiando, sic lux solis transit per vitrum, similiter spiritus animalis transit per nervos, licet sit solidum" (*M*, fol. 261 va). The conception of spirit as light also explains why a small head is a bad sign, discussed in the *quaestio* "Quare parvitas in capite semper vituperatur et est pravum signum. In corde autem laudatur parvitas et est signum audacie". The solution is that the brain is the principle of operation of animal virtue, which operates "per naturam lucis" – and light cannot expand and multiply itself within the limits of an small cavity: "Dicendum quod cerebrum est principium operationis animalis. Virtutes autem animales plus operantur per naturam lucis" (*M*, fol. 279va).

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affirms that the optic nerves are hollow in order to convey the spirits of vision,[50] and, at least in some questions, seems to hold a version of the Avicennan theory of vision.[51]

Avicenna described the operation of a thing "a tota specie", i. e., through some hidden power that arises spontaneously from the specific form of the thing and not in virtue of its complexion.[52] Peter asks if nutrition is "a tota specie" and also explains that poison goes straightforwardly to the heart because, as Avicenna says, poison operates in terms of its whole specific form.[53]

This brief recapitulation of the medical theories assumed by Peter shows that in *De animalibus*, he used not only the basics of Hippocratic-Galenic physiology (the concepts of humors, complexions, virtues, spirits, digestions and so on) but also pharmacological theories, like those that explained the action of the medicines in terms of their "specific forms" or those that postulated the existence of degrees of strengh in the primary qualities of drugs.[54]

50. "Quare inter nervos, nervus obtiqus [*sic*] est concavus" (*M*, fol. 261va). In the *Canon* (book 3, fen 3, chap. 1, fol. 203va), Avicenna treats the anatomy of the eye and the theory of *spiritus*; see also Avicenna, *Liber de anima seu sextus de naturalibus* 3.8, ed. S. VAN RIET (Louvain-Leiden, 1972), p. 268. The idea that the optic nerves are hollow in order to convey *spiritus visivus* to the eye was current and appeared in well-known works such as the *Ten Treatises on the Eye* by Johannitius or Constantine's *De oculo*. Peter quoted the latter in *De animalibus*. See D. LINDBERG, *Theories of Vision from Al-Kindi to Kepler* (Chicago, 1976), pp. 43-52.

51. In the question "Propter quid quedam animalia moventur de die et quedam de nocte", Peter affirms that: "Alia causa potest esse ex parte visus. Aut enim moventur quia eorum obiectum movetur de nocte, sicut patet in murilegis. Aut quia est radiositas oculorum que illuminat medium, scilicet aerem. Ita sicut mediante candela possunt conduci mediante radiositate suorum oculorum, sicut patet in oculis murilegi et lupi, valde enim sunt splendidi" (*M*, fol. 257va). Cf. Avicenna's *De anima*: "Iam etiam patebit tibi quod ipsa pupilla potest esse de his quae in nocte lucent et illuminant et iactant radios suos super id quod est oppositum illis. Oculi etenim multorum animalium sunt huiusmodi, sicut oculus leonis et serpentis" (*Liber de anima* 3.7, p. 257).

52. See MACVAUGH, "Medical Knowledge," p. 10.

53. In the quaestio "Utrum remota specie latucce possit remanere complexio per quam alteret corpus humanum", Peter says that something operates "a tota specie" when "operatur per virtutem occultam que sequitur totam speciem ut adamans attrahit ferrum a tota specie vel per virtutem occultam que est in eo, non per formam complexivam speciei, sed per aliquam virtutem que sequitur speciem" (*M*, fol. 266vb). See also the questions "Utrum [nutrimentum] nutriat a tota specie" (*M*, fol. 266vb) and "Quare venenum naturaliter petit cor" (*M*, fol. 267rb).

54. See N. SIRAISI, *Medieval and Early Renaissance Medicine* (Chicago, 1990), pp. 145-146.

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3. The encounter of medicine with philosophy

Now, how do philosophical and medical authorities interact in the commentary? On occasion, there are some solutions endorsed by both, Aristotle and the physicians. For example, Peter answers affirmatively the question whether the blood nourishes because it is sweet, resting upon the sentences of Aristotle, Galen and Isaac (mentioned in this order).[55]

More interesting seem to be those cases in which the Philosopher clashes with the doctors, i.e., the questions related to what was beginning to be known as the *controversia inter medicos et philosophos*. I found twenty-six *quaestiones* in this commentary that mention the *controversia* in their titles or address issues opposing the opinions of the Philosopher and the physicians.[56] These questions discuss the com-

55. In the question "Utrum sanguis nutriat quia dulcis" (*M*, fol. 277va). There is at least one case in which philosophical and medical authorities are used to support the same solution, although the medical doctrine invoked contradicts other basic Aristotelian notions: the question about why the human being walks straight up ("Propter quid homo intendit erectus, alia animalia intendunt prona"), is answered with Aristotle on the basis of the doctrine that heat moves from center to periphery, what causes the straighting up of the head; but then Haly's very "unaristotelian" explanation that the brain is the seat of the "anima intellectiva" (proof of which is that a brain injury disturbs the intellectual functions) is also mentioned: "Dicendum quod [homo] inter omnia animalia plus habet de sanguine et ita plus de calore et quia caloris est membrum erigere, quia calor movet a centro ad circumferentiam, ideo homo erectus procedit. Alia causa est: dicit Haly quod cerebrum est sedes anime intellective, cuius signum est <quod> lesio in cerebro habet peccatum in intellectu; quia igitur anima ordinatur ad contemplandum suum creatorem, debuit cerebrum quod est sedes anime erigi et superius elevari, ideo etc." (*M*, fol. 258va).

56. These are the *quaestiones* on the controversy (folio references correspond to the texts of the answers in *M*): (1) "Propter quid magnitudo et latitudo frontis significet hominem esse indiscretum cum Galenus et Haly dicunt quod magnitudo capitis sit bonum signum" (fol. 259ra); (2) "De controversia inter Aristotelem et Galenum. Dicit Galenus quod parvus oculus est bonum signum, magnus quondam bonum, quondam malum. Dicit autem philosophus hic contrarium quia dicit quod mediocris est bonum signum" (fol. 259rb); (3) "De controversia inter medicum et philosophum quia philosophus dicit quod cor habet tres ventriculos, medicus solum ponit duos" (fol. 259va); (4) "Utrum vene oriantur a corde vel ab epate" (fol. 261ra); (5) "De controversia philosophi ad medicos, Ysaac et ad alios medicos. Ponit enim philosophus ortum venarum a corde. Omnes autem medici preter Ysaac ab epate. Ysaac autem ponit ortum venarum a cerebro" (fol. 261rab); (6) "De origine nervorum, utrum scilicet oriantur a corde vel a cerebro" (fol. 261rb); (7) "De controversia medici et philosophi ad se ipsum. Philosophus enim dicit in secundo de anima quod ossibus et nervis nihil sentimus. Alibi autem dicit quod nervus est medium in tangendo. Et similiter medici dicunt

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plexion of the yolk and white of the egg, of putrefied matter, of the spinal cord and of the bone marrow; they address issues of conception such as the existence of a female sperm, the participation of the male sperm in the *conceptus*, the number of virtues in the male sperm, which sex first begins to acquire bodily form and which is the first organ to be generated. A number of *quaestiones* of the controversy discussed by Peter, deal with the heart: they ask about the number of ventricles in this organ, whether the heart could get sick, whether its movement causes the movement of the lungs, whether there is a bone in the deer's heart, which organ is the "terminus caloris" – whether the heart or the lungs – and whether the blood originates in the heart or in the liver. There are questions of the controversy on the sensitive power: whether it originates in the heart or in the brain, whether the sense of touch is

quod nervus est medium in sentiendo" (fol. 261va); (8) "Utrum virtus sensitiva naturaliter sit in corde vel in cerebro" (fol. 262va); (9) "De complexione partium <ovi>" (fol. 264vb); (10) "De controversia philosophi ad medicum et ad se ipsum. Dicit Avicenna quod mas citius figuratur quam femina. Hoc autem vult philosophus in uno loco, alibi dicit quod si natus fuerit femina erit impregnatio in triginta diebus, si mas in quadraginta" (fol. 271va); (11) "Quare philosophus lapsum in situ non appellat egritudinem, medicus autem appellat" (fol. 272vb); (12) "Quare iste artifex et medicus incipiunt ab elementis, physicus autem incipit a materia et forma sicut patet in libro physicorum" (fol. 275ra); (13) "De nucha sive de spinali medulla dorsi, cuius complexionis sit" (fol. 278rb); (14) "De controversia inter Haly et philosophum. Dicit enim Haly quod tactus non est unus sensus" (fol. 279rab); (15) "De controversia inter philosophum et medicum quoniam medicus dicit quod <os> invenitur in corde cervi, philosophus quod reperitur solum in corde equi et bovis" (fol. 280ra); (16) "De controversia inter philosophum et medicum. Philosophus enim ponit tantum unum principium vite, scilicet cor et medicus ponit quatuor membra principalia, cor, epar, et cerebrum et testiculi" (fol. 280rb); (17) "Utrum cor possit infirmari" (fol. 280va); (18) "Utrum cor sit principium sanguinis vel epar" (fol. 280vab); (19) "De controversia inter philosophum et medicum. Philosophus etiam dicit quod pulmo est terminus caloris, medicus ponit cor terminum caloris" (fol. 281rb); (20) "Utrum motus pulmonis sit a corde" (fol. 281rb); (21) "Utrum sperma sit in omni sexu" (fol. 285rab); (22) "De controversia inter philosophum et medicum quia medicus ponit materiam venire ab utroque, philosophus autem a sola femina" (fol. 285vab); (23) "Utrum ista virtus sit una numero vel plures" (fol. 286va); (24) "Quod membrum primum sit formatum et videtur quod epar" (fol. 288rb); (25) "De contrarietate inter philosophum et medicum, nam dicit philosophus quod albumen est calidius, medicus autem dicit contrarium" (fol. 289rab); (26) "De controversia inter medicum et philosophum, vult enim medicus quod omne putrefactum est calidum et humidum, philosophus autem vult in quarto metaphysicorum quod omne putrefactum est frigidum" (fol. 290rb). For the transcription of most of these questions see M. DE ASÚA, "El comentario de Pedro Hispano sobre el *De animalibus*. Transcripción de las *quaestiones* sobre la controversia entre médicos y filósofos," *Patristica et Mediaevalia* 16 (1995), 45-66.

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one and whether the nerves are the vehicles of feeling. We also find in Peter's *De animalibus* controversial questions on physiognomy: one about the size of the eye, another about the size of the forefront. One question asks why the physician takes as a point of departure the elements and the *physicus*, matter and form; another discusses whether the female prolapse (*lapsus*) is a disease. Of course, Peter treats in detail the crucial issues of the *controversia:* the origin of the veins, of the nerves and the number of principal members in the body.

Almost all of the *quaestiones* related to the controversy are answered by Peter through the use of a distinction. Only four of them are answered *simpliciter* following the opinion of the philosophers. Among these, the question on the existence of a female sperm – Peter says that, according to Aristotle, "mulieres non spermatizant"[57] – and the question that asks which is the first organ to be generated – Peter, following Aristotle, thought it was the heart.[58] Only the question that discusses the complexion of the spinal cord is answered following *simpliciter* the opinion of the doctors.[59]

The *quaestiones* on the origin of the nerves and of the veins are central to the controversy and deserve a closer examination. As is well known, Aristotle thought that there is only one principal organ in the body, the heart, from which arteries, veins and nerves originate. Conversely, Galen postulated the existence of three principal organs, each associated with a particular system: the brain, the heart and the liver, from which the nerves, the arteries and the veins originate (in some cases, the testicles were also considered one of the principal organs). Peter, following Avicenna, considers that veins and nerves "secundum rem et materialiter" derive, respectively, from the liver and from the brain, but that "radicaliter secundum virtutem" nerves and veins originate in the heart.[60]

57. "Utrum sperma sit in omni sexu" (*M*, fol. 285rab).

58. Question 24, of the list in note 56.

59. Question 13 of the list in note 56. Peter says that, according to Avicenna, Isaac and Haly, the spinal cord is cold and wet.

60. Question 6 of the list in note 56. Also with respect to the origin of the veins: "Dicit [Avicenna] quod aliquod oritur ab alio dupliciter, aut secundum virtutem et radicaliter, sicut omnia bona fluunt a bono primo et sic vene oriuntur a corde. Virtus enim cordis est principium radicale omnium membrorum corporis, et sic loquitur philosophus. Alio modo aliquod oritur ab alio immediate secundum rem sicut gramen a cespite, et hoc modo vene oriuntur ab epate, et sic loquitur medicus" (question 4 of the list in note 56). It is worth noting that Peter resolves the problem of the origin of the

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Peter also discusses in detail this problem in his commentaries on the *Isagoge* and on the *Tegni*, using analogous distinctions and endorsing the Avicennan view that, although the ultimate source of the virtues is the heart, nevertheless they manifest themselves in each of the principal members (*virtus naturalis* in the liver, *virtus vitalis* in the heart, *virtus animalis* in the brain).[61] This solution had the side benefit of grounding an epistemological distinction between doctors and philosophers. In the question in *De animalibus* about the number of principal organs, Peter says that the physician, who is "magis sensibilis artifex", considers the material influences and that is the reason why doctors say that there are four principal members (brain, heart, liver and testicles) – so, in case of perturbance of the animal virtue, they apply medicines to the brain, in case of a problem with the natural virtue, they medicate the liver and so on.[62]

The idea of the heart as the ultimate source of the virtues that operate in the brain, liver and testicles, is associated to the notion – assumed by Peter – that the soul is in some way specially linked with the heart – a view that could find support in some Aristotelian passages and also in Avicenna and Alfred of Sareshel's *De motu cordis,* to men-

sensitive power through a distinction analogous to the one he uses for solving the problem of the origin of the nerves and veins (question 8 of the list in note 56). He affirms that the sensitive power ("virtus sensitiva") is in the heart "tamquam a principio primo et remoto" and in the brain "tamquam a principio proximo et immediato". The controversy on the origin of the blood (question 18 of the list in note 56) is also resolved by distinguishing a "principium radicale" (the heart) and an origin "proximum et materialiter generans sanguinem" (the liver).

61. In the commentary on the *Isagoge* the questions are: "Dubitatur de membris non principalibus et primo dubitatur de nervis, utrum oriantur a cerebro" (*M*, fol. 29ra) and "Utrum contingat ponere plura membra principalia aut unum tantum" (*M*, fol. 28vb-29ra). See M. DE ASÚA, "El comentario de Pedro Hispano sobre la *Isagoge* de Johannitius. Transcripción de las *quaestiones* sobre la controversia entre médicos y filósofos", *Patristica et Mediaevalia* 17 (1996), 59-66. The questions in the commentary on Galen's *Tegni* are: "Queritur de controversia inter philosophos et medicos de origine nervorum et venarum et arteriarum" (*M*, fol. 59rb); "Queritur circa hoc specialiter de ortu nervorum et primum de controversia que est inter philosophum et medicos" (*M*, fol. 60vb); "Utrum sit unum membrum principale sicut est cor" (*M*, fol. 59ra). See M. DE ASÚA, "The Relationships between Medicine and Philosophy in Peter of Spain's Commentary on the *Articella,*" *Articella Studies* 3 (1998), 13-27.

62. Question 16 of the list in note 56. This idea is rehearsed also in the commentary on the *Isagoge* in the question "Utrum contingat ponere plura membra principalia aut unum tantum" (*M*, fols. 28vb-29ra).

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tion sources Peter used.[63] The idea is expounded by Peter in his commentary on the *Tegni* and also in *De animalibus*. In the latter work, it is called up to argue for the principality of the heart, and constitutes the conceptual background of a question devoted to investigate whether life has a special member in which to inhere, and whether this is the heart.[64]

But besides the questions on the *controversia*, in Peter's commentary on *De animalibus* we also find a smaller number of *quaestiones* that deal with conflicting views among physicians, confronting the opinions of Avicenna, Haly, Galen and Constantine the African. Examples of these questions are whether in every part of the body there are veins, whether there is a first digestion in the mouth, whether the liver originates from sperm or from menstrual blood, in which sex heat predominates or to which power "virtus regitiva" can be reduced.[65]

The relationships between medicine and philosophy

So far, we have seen the scholastic strategies deployed by Peter in his commentary, to conciliate opposite claims of philosophers and physicians. Now we will explore his conception of the relationships between philosophy and medicine as to their status as *scientiae*. This problem is

63. For example, *Part. An.* III, 5, 667b15-30. Cited in SIRAISI, *Taddeo*, p. 171, n. 66. For Alfred of Sareshel see BONO, "Medical Spirits," 115, n. 117.

64. In the commentary on Galen's *Tegni*, in the answer to the question "Queritur primo de ortu venarum, videlicet utrum oriuntur ab epate vel a corde", Peter affirms that: "Dicit philosophus et Avicenna anima est una actu. Et actus exigit aliquod membrum actu cui primo adhereat et a quo influat supra alia et huius principium membrorum est cor habentibus sanguinem" (*M*, fol. 69rab). In the commentary on *De animalibus* Peter says: "Dicendum quod philosophus ponit unum membrum principale quia corpus hominis componitur ex corpore et anima, unde sicut anima fuit una, sic et principium corporis a parte vite debet esse unum sicilicet cor" (question 16 of the list in note 56). See also, in this commentary, the question "Utrum vita in corpore determinet sibi aliquod membrum et si sic, utrum illud membrum sit cor". Peter answers distinguishing between a "vita radicalis" – which concerns the union of soul and body and belongs to every member – and a "vita materialis", which reaches the members from the heart through heat and *spiritus* (*M*, fol. 280rab).

65. These are the questions (folio references correspond to the texts of the answers in *M*): (1) "Utrum in qualibet parte corporis sint vene" (fol. 261ra); (2) "Ad quam virtutem reducitur virtus conservativa in homine" (fol. 266ra); (3) "Utrum prima digestio incipit in ore" (fol. 277ra); (4) "De epate. Queritur utrum generatur ex spermate vel ex sanguine menstruo" (fol. 281ra); (5) "In quo sexu plus caliditas dominatur" (fol. 283rb-va).

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addressed in his commentary on *De animalibus* from at least three different points of view.[66]

The question as to whether the male sperm becomes a material part of the embryo confronts the opinion of the physicians – who thought it did – and the philosopher – who denied it. Peter answers affirming that, while as a rule the male sperm participates in conception only "virtualiter", in some cases, like the goat and the human being, it is necessary that the male sperm would constitute a material part of the *conceptus*.[67] The conflict between the opinion of the physicians and the philosophers is explained away arguing that, while the philosopher "intelligit universaliter" – in all the animals – the physician's inquiry is limited to the human being ("intelligit in homine solum et particulariter").[68] But this distinction between philosophy as dealing with animals in general and medicine as the science of human beings, is nuanced by Peter in the question that asks whether the *subiectum* of the science of animals are animals or the human being. He affirms that, from an operational point of view ("loquendo de fine operationis") the subject matter of the science of animals are animals; but teleologically speaking ("loquendo de fine intentionis"), the *subiectum* of *scientia de animalibus* is the human being, towards whom everything is ordained.[69]

Now, there is a second perspective from which Peter differentiates between medicine and natural philosophy. In the question that investigates the operation of the brain upon the heart, Peter says that this problem should be treated by the philosopher and not by the physician, because the reaction of the brain against the heart is "absoluta et essentialis et invariabilis" and physicians only deal with operations that are

66. This issue has been also discussed by H. SCHIPPERGES, "Zur Unterscheidung des 'physicus' vom 'medicus' bei Petrus Hispanus," *Asclepio* 22 (1970), 321-327. Schipperges interprets the texts as providing a coherent and unified account of Peter's conception of the differences between philosophers and physicians.

67. Question 22 of the list in note 56.

68. Ibid. According to this, the difference between philosophy and medicine could be interpreted as a distinction between a universal and a particular point of view (*universaliter* vs. *particulariter*). In another question (number 12 of the list in note 56), Peter holds that the "physicus elevatus" (in the sense of natural philosopher) considers things from a more general point of view than the one used by "iste artifex" in *De animalibus*, because the former refers himself to "operationes communes in rebus naturalibus".

69. In the question "De subiecto istius scientie. An homo sit subiectum vel animal" (*M*, fol. 256va).

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variable and can be changed in order to cure the body.[70] This second criterion of distinction between philosophers and physicians, then, underlines the operative, practical aim of medicine.

Finally, if we recall that Peter solved the question about the principal members of the body resorting to a characterization of doctors as *sensibiles artifices*, we can infer a third criterion (this one epistemological), on the basis of which we could distinguish between natural philosophers and physicians: the latter occupy themselves with sensorial things, the former with what lies beyond the senses. This later conception of medicine, as bounded within the limits of sensorial experience, is related to Haly Abbas's sentence that "medicinalis consideratio sensum non transcendit", which Peter quotes several times in his medical commentaries.[71] I should add here that this is not his last word on the problem and that in his commentaries on the *Isagoge* and the *Tegni* he takes pains to articulate this view with a notion of medicine that grants it a fully intellectual character.[72]

These three ways of distinguishing between philosophers and physicians expounded in Peter's *De animalibus* have one thing in common: they are summoned to resolve particular cases of the controversy. But the issue of the relationships between medicine and philosophy is also addressed by Peter within a more uncompromising context in the question "Utrum ista scientia [de animalibus] sit ordinaria".[73] The gist of his argument is to confront the Aristotelian account of the *scientia de animalibus* – firstly to narrate and then to inquire for the causes of what has been narrated – with the methodology expounded by Galen at the beginning of the *Tegni*, according to which any *doctrina ordinaria* must proceed through one of three *genera*: *resolutivum*, *compositivum* and *diffinitivum*.[74] Peter objects (and shows to his own satisfaction) that

70. In the question "Quare philosophus tangit contraoperationem cerebri ad cor, medicus non" (*M*, fol. 280va). Transcribed in ASÚA, "Comentario al *De animalibus*," 61.

71. For example, in the question in Peter's commentary on Galen's *Tegni*, "Utrum medicinalis scientia transcendit sensum" (*M*, fol. 57va) and in the question in his commentary on the *Isagoge*, "Dubitatur de diffinitione theorice" (*M*, fol. 24va). Haly Abbas, in his commentary on the *Tegni*, considered medicine as an art which derives its principles from natural philosophy, such as agriculture or veterinarian art. See OTTOSSON, *Scholastic Medicine*, p. 71, n. 20.

72. See ASÚA, "Relationships between Medicine and Philosophy," passim.

73. *M*, fol. 273rb-va.

74. Cf. Peter's commentary on the *Tegni*, *M*, fol. 48rb. For a discussion of Peter's interpretation of Aristotle's methodology in the science of animals, see Th.W. KÖHLER, "'Processus narrativus'. Zur Entwicklung des Wissenschaftskonzepts in der Hochscholastik," *Salzburger Jahrbuch für Philosophie* 39 (1994), 109-127.

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the science of animals does not follow any of the three genera *doctrinae* mentioned by Galen. More important than his solution – which consists in distinguishing a sense in which "scientia ordinaria" can be taken to mean the two-steps sequence of "narration-causal explanation" – is the sheer fact of the confrontation of the Aristotelian concept of *scientia de animalibus* and the Galenic methodology discussed in the *Tegni*.[75]

Although the problem of the epistemological relationships between medicine and philosophy is not given in *De animalibus* as extensive consideration as Peter grants it in his *articella* commentary, it is nonetheless evident that he considered the matter important enough to provide at least a detailed account of the differences between philosophers and physicians that could serve as a rationale for the resolution of a number of particular issues of the controversy.

Natural philosophers and physicians

The process of encounter between philosophical and medical discourse on animals, which reached a climax during the thirteenth century, can be understood as the result of the simultaneous introduction into the West of competing bodies of knowledge. The treatise *De animalibus* seems to have served as a natural meeting ground of philosophical and medical discourse within an institutional context. Evidence of that is the much cited fact that at Montpellier, where the study of the liberal arts was allied with medicine well into the fourteenth century, according to the statutes of 1340, the masters were forbidden to lecture in the medical schools on any text of natural science, with the exception of *De animalibus*.[76] Conversely, at the University of Paris, the statute of 1350 precluded medical students working for their license from lecturing on philosophical books in the Arts faculty, except for the *Meteora*

75. The solution is reached by distinguishing three senses of "scientia ordinaria": (i) to narrate orderly, (ii) to narrate and then to inquire for the causes – in this sense *scientia de animalibus* is *ordinaria* – and (iii) to proceed through resolution, composition and definition (*M*, fol. 273va). Peter also takes opportunity in this question to distinguish the resolution of the *Analytica posteriora*, which resolves "effectum in causam primam et immediatam" from the resolution treated by Galen and exemplified by the method which analyzes the body into its constitutive elements.

76. See *Cartulaire de l'Université de Montpellier*, ed. A. GERMAIN, 2 vols. (Montpellier, 1890), n° 68, art. 31. Cf. L. DEMAITRE, "Theory and Practice in Medical Education at the University of Montpellier in the Thirteenth and Fourteenth Centuries," *Journal of the History of Medicine and Allied Sciences* 30 (1975), 103-123.

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and *De animalibus*.[77]

But Aristotle's books on animals were put to different uses by physicians and philosophers. It has been suggested that the philosophical interests of thirteenth-century physicians were not entirely alien to their need to enhance their professional dignity in universities where the liberal arts and medicine shared a common space, such as Bologna, Montpellier and Padua.[78] The great figures of these medical schools, the builders of scholastic medicine, like Arnald of Villanova, Peter of Abano and Taddeo Alderotti and his students, utilized *De animalibus* in their commentaries and raised the *controversia* to a high degree of sophistication.[79] But despite the interest of these doctors in the works on animals, they did not comment on them.[80]

One of the interesting things in Peter's commentary on *De animalibus* seems to be that this was an Aristotelian commentary produced within the context of his medical teaching. Peter stayed in Siena from 1245 to 1250 and all the documentary evidence shows that he was summoned as professor of medicine.[81] It is at the Siena *studium* where he wrote his most important medical work, his commentary on the *articella*, the technique of which is exactly the same as that used in *De animalibus* (a mixture of scholastic questions and questions of the

77. See the description of the statute in J.-B. L. CHOMEL, *Essai historique sur la médecine en France* (Paris, 1762), p. 150. Cf. V. L. BULLOUGH, "The Medieval Medical University at Paris", *Bulletin of the History of Medicine* 31 (1957), 187-211 and P. KIBRE, "Arts and Medicine in the Universities of the later Middle Ages", in *The Universities in the Late Middle Ages*, ed. J. IJSEWIJN and J. PAQUET (Louvain, 1978), pp. 213-227.

78. N. SIRAISI, *Arts and Sciences at Padua* (Toronto, 1973), p. 171. See also V. L. BULLOUGH, *The Development of Medicine as a Profession* (New York, 1966), pp. 108-111 and J. L. BYLEBYL, "Medicine, Philosophy and Humanism in Renaissance Italy", in *Science and the Arts in the Renaissance*, ed. J. W. SHIRLEY and F.D. HOENIGER (Washington/ London/Toronto, 1985), pp. 27-49.

79. See SIRAISI, *Taddeo*, passim. For Arnald, see MCVAUGH, "The 'humidum radicale'." Peter of Abano recommended *De animalibus* to his students and his own copy has been preserved. See SIRAISI, *Arts and Sciences*, pp. 62 and 127-28. It seems that this interest in Aristotle's works on animals was not shared by other teachers at the Padua *studium*, exception made for Engelbert of Admont, who wrote a work on animals, *De natura animalium*. See ibid., p. 112 n. 15.

80. To Gentile da Cingoli, a master who studied at Paris and then began to study medicine with Taddeo, we owe the *reportatio* of John Vath's commentary on *De generatione animalium*, kept in Vatican City, Biblioteca Apostolica Vaticana, MS Vat. lat. 4454 (TK 1490). See SIRAISI, *Taddeo*, pp. 43-44.

81. See DE RIJK, "Life," 150-151.

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genre of *quaestiones et responsiones*). We have seen that a number of questions in Peter's commentary are devoted to the discussion of conflicting issues between philosophers and doctors and that some inroads are made upon the problems of the epistemological relationships between philosophy and medicine. Peter was a very early user of Avicenna and rested upon Avicenna's works to develop his most important solutions.[82] The fact that Peter's commentary on *De animalibus* was the first Latin work to treat the controversy seems to be not unrelated to his sophisticated understanding of Avicenna.[83] In Peter's *articella*, less attention is paid to the *controversia* (I found in the commentaries on the *Isagoge* and on the *Tegni* only 13 questions on it), but the relationships between the methodologies of medicine and philosophy are discussed extensively.

In the *accessus* to his commentary on the *Isagoge* – which Peter declares is inspired in Batholomaeus's commentary on the same text – he affirms that medicine is subordinated to natural philosophy and, through natural philosophy, to philosophy.[84] But we have seen that in a question in *De animalibus*, Peter affirmed that, from the point of view of its finality, the science of animals is oriented toward the human being.[85] And in a question in the commentary on the *Isagoge*, he admits that medicine is concerned with health and disease in animals, although its ultimate end is the human being, as the noblest of them.[86] This account of the relationships between the science of animals and medicine could be construed as follows: the commentary on the *articella* is subordinated to the commentary on *De animalibus*, as far as medicine depends on the principles of natural philosophy; but the latter

82. See the literature cited in note 22.

83. I owe this suggestion to Prof. M. McVaugh.

84. "Secundum Bartholomeum circa introitum istius libri septem sunt inquirenda...Supponitur autem primo medicina et per medicinam physice sive naturali philosophie et ex consequenti philosophie" (*M*, fol. 24ra).

85. See note 69.

86. To the question "Dubitatur de diffinitione medicine quam ponit Avicenna, scilicet quod medicina est scientia que dispositiones humani corporis, etc. et ista tamen non insunt homini solum sed cuilibet animali. Unde videtur quod male diffinat medicinam solum per relationem ad corpus humanum", Peter answers: "Dicendum quod si per medicinam habeat cognosci sanitas et egritudo in aliis animalibus, quia tamen homo nobilior est omnibus aliis animalibus, ideo magis finaliter ordinatur ad hominem" (*M*, fol. 24va).

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is teleologically oriented to the former, as far as the human being – as Peter says – is the end of the whole natural Creation.[87]

In this connection, we should also recall the commentaries on *De animalibus* by Albert the Great who, although not a physician, deployed an impressive medical learning. Albert's *Quaestiones super de animalibus*, discussed at Cologne in 1258, incorporate, among a great amount of medical material, 9 questions on the *controversia* – all of which (except for one) find parallels in Peter's commentary.[88] Brian Lawn had suggested that these *Quaestiones* were "closely modelled" on Peter's commentary.[89] In fact, out of 419 questions in Albert's *Quaestiones*, 238 (around 57 %) have parallels in Peter's *De animalibus*. The analysis of the answers shows that a fair number of the solutions proposed by Albert are paraphrases of those in Peter's commentary and there are even a few cases of literal coincidences between both texts.[90]

The encounter of the philosopher with the physicians is also evident in Albert the Great's major commentary on *De animalibus*.[91] In this monumental work, Albert used his particular method of glossing Scot's text, to obtain a resolution of controversial claims by resorting to the identification of notions that belonged to the alternative systems of Aristotle and Galen.[92] Besides, his doctrine of three levels of organization in animals (*commixtio elementorum*, *complexio humorum* and *compositio membrorum*) – a refinement of Avicenna's account – reveals his determination to provide a theoretical synthesis, able to absorb Aristotelian and Galenic explanations.[93]

87. In the *accessus* to his commentary on Galen's *Tegni*, Peter says that "Est medicina alias scientias excellens que de rebus corporalibus sunt nobilibus eo quod subiectum eius corpus humanum quod nobilissimum in sui natura quia omnia sunt propter ipsum et ad eius constitutionem...[?] nature concurrunt et a parte sue perfectionis que est anima rationalis" (*M*, fol. 48ra).

88. See M. DE ASÚA, "Albert the Great and the *Controversia inter Medicos et Philosophos*," *Proceedings of the PMR Conference* 19/20 (1994-96), 143-156.

89. B. LAWN, *The Salernitan Questions* (Oxford, 1963), p. 85.

90. See ASÚA, "Peter of Spain, Albert the Great."

91. See N. SIRAISI, "The Medical Learning of Albertus Magnus," in *Albertus Magnus and the Sciences*, ed. J. A. WEISHEIPL, O.P. (Toronto, 1980), pp. 379-404.

92. See ASÚA, "Albert the Great and the *Controversia inter Medicos et Philosophos*."

93. See ibid.

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While thirteenth-century doctors willing to acquire intellectual sophistication drew upon Aristotelian natural philosophy and even proclaimed that medicine was subordinated to its principles, philosophers such as Albert the Great confronted the Aristotelian books on animals with the Galenic tradition and aimed, in typically scholastic fashion, at building a unified discourse on the living being. Peter of Spain seems to have contributed in a very significant degree to lay down the lines along which this encounter between medical and natural philosophical discourse took place in the West during the second half of the thirteenth century.[94]

94. Acknowledgments: I wish to thank Prof. Michael McVaugh for his reading of the manuscript and his valuable suggestions. Research for this work was possible thanks to a grant from the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). It was possible to present this paper at the Colloquium thanks to a travel grant from Fundación Antorchas and the kind hospitality of the hosts.

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SILVIA NAGEL

TESTI CON DUE REDAZIONI ATTRIBUITE AD UN MEDESIMO AUTORE: IL CASO DEL *DE ANIMALIBUS* DI PIETRO ISPANO

In un recente articolo[1] José Francisco Meirinhos ha delineato una completa risistematizzazione del vasto e complesso *corpus* ascritto a Pietro Ispano, distinguendo in esso vari gruppi di opere rapportabili ad almeno tre differenti individualità ed attribuendo, in particolare, le glosse ad Aristotele che sono oggetto di questo lavoro a due diversi autori, uno solo dei quali potrebbe essere identificato con colui che salì al soglio pontificio col nome di Giovanni XXI; questa tesi si accorda con quella più volte espressa da Miguel de Asúa, secondo il quale solo uno dei due commenti al *De animalibus* potrebbe essere, su basi non facilmente contestabili, ascritto a Pietro Giuliani in quanto la tesi delle doppia redazione alla medesima opera presenta, da vari punti di vista, difficoltà troppo accentuate per poter essere accolta.

La storia del rinvenimento e dell'attribuzione dei due commenti in questione presenta elementi non privi di interesse sia per il rilievo delle personalità coinvolte che per la portata storica e dottrinale delle opere prese in esame. Nel 1931 Sybil Douglas Wingate segnalava l'esistenza di un commento al *De animalibus* di Aristotele basato sulla traduzione arabo-latina di Michele Scoto e contenuto nel codice G. 4853 (ff. 79-191v) della Biblioteca Nazionale di Firenze, addebitandone la paternità a Pietro Ispano; molti anni più tardi, Josè Maria da Cruz Pontes avrebbe apportato un'ampia serie di circostanziati elementi che gli

1. "Petrus Hispanus Portugalensis? Elementos para uma diferençâo de autores", *Revista de Filosofía Medieval* 3 (1996), 51-76. Le tesi di M. DE ASÚA sono delineate in "Peter of Spain, Albert the Great and the 'Quaestiones De animalibus'", in *Physis* 34 (1997), 1-30; dello stesso autore v. anche *The Organization of Discourse on Animals in the Thirteenth Century. Peter of Spain, Albert the Great and the Commentaries on "De animalibus"*, Ph.D. Diss. University of Notre Dame (Indiana, 1991); "El comentario de Pedro Hispano sobre el 'De animalibus'. Transcripción de las 'quaestiones' sobre la controversia entre médicos y filósofos", *Patristica et Mediaevalia* 16 (1995), 45-66. Le tesi di Meirinhos si accordano anche con quelle espresse da A. D'ORS in "Petrus Hispanus O.P., Auctor Summularum", *Vivarium* 35 (1997), 21-71; D'Ors esclude il *Tractatus* dall'ambito delle opere di Pietro Giuliani, ipotizzando che esso sia invece da attribuirsi ad un membro dell'ordine dei Predicatori, probabilmente originario della Navarra.

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parevano confermare questa prima attribuzione.[2] In epoca di poco anteriore allo studio della Wingate, Martin Grabmann aveva individuato e, a più riprese, descritto,[3] un altro commento alla zoologia aristotelica, le *Quaestiones super librum De animalibus*, anch'esse riferentesi alla versione di Scoto, mutile e, probabilmente per questa ragione, prive di attribuzione, contenute nel codice 1877 della Biblioteca Nacional di Madrid (ff. 256ra-290vb), codice che contiene una serie di glosse al canone tradizionale di quella che, più tardi,[4] verrà indicata come *Articella*, ma che annette alla consueta selezione di opere commentate, oltre al *Viaticum* di Costantino, anche il *De animalibus* di Aristotele;[5] il medesimo testo delle *Quaestiones* qui contenute

2. S. D. WINGATE, *The Mediaeval Latin Versions of the Aristotelian Scientific Corpus, with Special Reference to the Biological Works* (London, 1931), p. 80. I risultati delle ricerche di J. M. DA CRUZ PONTES sono raccolti nel volume *A obra filosófica de Pedro Hispano Portugalense. Novos problemas textuais* (Coimbra, 1972); altri contributi del medesimo autore concernenti il codice si possono ritrovare in *Pedro Hispano Portugalense e as controvérsias doutrinais do século XIII. A origem da alma* (Coimbra, 1964) e "L'intérêt philosophique de deux commentaires sur le 'De animalibus' et le problème de leur attribution à Petrus Hispanus", in *La filosofia della natura del medioevo*, Atti del terzo congresso internazionale di filosofia medievale (Milano, 1966), pp. 493-501.

3. "Reciente descubrimiento de obras de Petrus Hispanus (Papa Juan XXI, † 1277)", *Investigation y Progreso*, 2 (1928), 85 e seguenti; "Mittelalterliche lateinische Aristotelesübersetzungen u. Aristoteleskommentare in Handschriften spanischer Bibliotheken", *Sitzungsberichte der bayerischen Akademie der Wissenschaften* (München, 1928), 5. Abhandlung, 98-113 (l'articolo è stato ristampato in Id., *Gesammelte Akademieabhandlungen*, München-Wien-Zürich, 1979, vol. 1, pp. 383-496); "Handschriftliche Forschungen u. Funde zu den philosophischen Schriften des Petrus Hispanus, des späteren Papstes Johannes XXI († 1277)", *Sitzungsberichte der bayerischen Akademie der Wissenschaften* (München, 1936), Heft 9, 100-101. Sul ms. v. anche H. SCHIPPERGES, "Eine noch nicht veröffentliche 'Summa Medicine' in der Biblioteca Nacional zu Madrid", *Sudhoffs Archiv* 51 (1967), 187-189; Id., "Handschriftstudien in spanischen Bibliotheken zum Arabismus des lateinischen Mittelalters", *Sudhoffs Archiv* 52 (1968), 8-12.

4. Cfr. T. PESENTI, "Le 'Articelle' di Daniele di Marsilio di Santasofia (†1410), professore di Medicina", *Studi petrarcheschi* 7 (1990), 64 e seguenti.

5. Il codice introdotto, ai ff. 1-24, da un elenco di *quaestiones* affrontate nell'opera, raccoglie le *Notule Super Johannicium* (ff. 24r-47v), quelle *Super Tegni Galieni* (ff. 48r-109r), il commento *Super Libro Regiminis acutorum* (ff. 110r-123v), quello *Super Pronosticorum* (124r-141v), le *Questiones Super Viaticum* (ff. 142r-205r), le glosse *Super libro de Dietis Particularibus* (ff. 206r-243v), quelle *Super Libro de Urinis* (ff. 244r-247v), quelle *Super Libro de Diebus Creticis* (248r-250v), il *De pulsibus Philareti* (ff. 251-255) e il *De animalibus* (ff. 256-290v). Secondo P. MORPURGO

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si ritroverebbe anche nel codice latino 6758 della Biblioteca Vaticana (XIV secolo), ai fogli 149ra-177rb, testimoniando, qualora questa corrispondenza sussistesse, che la glossa circolava in epoca posteriore al manoscritto madrileno (che risale alla seconda metà del XIII secolo) che essa circolava indipendentemente all'*Articella* e che, pur essendo il codice vaticano chiaramente rivolto ad un fruizione interna al *curriculum* delle Arti, alcune delle opere in esso contenute, e cioè, oltre al commento al *De animalibus*, alcune glosse alle *Meteore*, potevano essere utilizzate anche nell'ambito dei percorsi didattici di Medicina.[6]

L'indice del volume madrileno, che riporta a lato la scritta *Petri Hispani Opera Medica*, prospetta i vari trattati come elaborati ascrivibili ad un unico autore ed, al contempo, all'interno del codice, mentre da un lato alcune delle opere sono espressamente ascritte a Pietro negli *incipit* o negli *explicit*, dall'altro sono riprodotti scritti assai conosciuti di questo autore e, quindi, di indubbia attribuzione. L'intero manoscritto presenta grande rilevanza dottrinale e storico-didattica ed affronta, soprattutto nel *De animalibus*, analogamente alla glossa del manoscritto di Firenze, molte questioni di carattere specificatamente "filosofico", alcune delle quali sono state analizzate, oltre che dal Gra-

(*L'idea di natura nell'Italia normanno-sveva* (Bologna, 1993), p. 113 e passim), le *Notule* di Pietro contenute nel manoscritto madrileno sarebbero da mettere in stretta relazione con le *Glosule* di Bartolomeo da Salerno e del suo gruppo; l'autore stesso, nell'*accessus* al commento all'*Isagoge* (Cod. Madrid 1877, f. 24va), sembra indicare il commento di Bartolomeo al testo di Johannitius quale guida esemplare della propria glossa.

6. Ringrazio vivamente il dr. Christoph FLÜELER per avermi fornito questa preziosa indicazione e la dottoressa Barbara FAES DE MOTTONI per avermi fatto pervenire una prima descrizione del codice. Il ms, che non ho potuto esaminare che superficialmente, contiene, oltre alle *Quaestiones super librum de animalibus*, delle *Quaestiones Super librum physicorum* (ff. 1ra- 43rb, mutile alla fine), una *Sententia De sensu et sensato* (ff. 44ra-62ra), il *De memoria et reminiscentia* di Tommaso d'Aquino (ff. 62ra-68ra; l'autore è indicato nell'*explicit*), questioni *Super De causis* (ff. 68rb-83vb, mutile alla fine), le glosse *Super libros Methaurorum* di Tommaso d'Aquino (ff.84ra-102va; l'autore è segnalato nell'*incipit*), quelle *Super librum secundum et tertium Metaurorum* di Alberto Magno (ff. 113ra-136vb; l'autore è indicato nell'*explicit*, insieme alla data del compimento della trascrizione, che è l'"anno domini 1338 et die quinta iulii") e quelle *Super librum quartum Metaurorum* dello stesso autore (ff. 137ra-148ra; l'autore è indicato nell'*explicit*). Non sono ancora in grado di determinare se e quanto il testo delle glosse al *De animalibus* contenuti nei codici di Madrid e della Vaticana coincidano. Sulla fruizione delle *Meteore* e del *De animalibus* a Medicina, oltre che alle Arti, almeno nell'ambito delle università di Parigi e Montpellier, v. nota 24.

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bmann e dal Da Cruz Pontes, anche da Etienne Gilson.[7] Entrambe i commenti sono redatti in forma di *quaestio*, ma utilizzano una diversa divisione e procedura di approccio al testo: mentre, infatti, il manoscritto di Madrid, si limita a trascrivere un lemma all'inizio di ciascuna serie di problemi, quello di Firenze illustra la divisione adottata attraverso la segnalazione di alcune occorrenze dello scritto aristotelico, dopo averla contrassegnata con la citazione del testo stesso e prima di esporre le questioni.[8] Diversamente dal codice fiorentino, il manoscritto di Madrid presenta inoltre, per quanto riguarda la tecnica espositiva, una forma di commento che Brian Lawn[9] indica come "fusione

7. M. GRABMANN, in "Mittelalterliche lateinische Aristotelesübersetzungen", 112-113, trascrive parti di questioni riguardanti la metodologia della scienza e la dottrina della conoscenza; un brano di quest'ultima è utilizzato da E. GILSON ("Les sources gréco-arabes de l'augustinisme avicennisant", *Archives d'Histoire doctrinale et littéraire du moyen âge* 4 (1929), 106) al fine di integrare Pietro nella corrente dottrinale dell'"agostinismo avicennizzante" e confermare la tesi di A. CALLEBAUT ("Jean PECHAM O.F.M. et l'augustinisme. Aperçus historiques (1263-1265)", *Archivum franciscanum historicum* 18 (1925), 460-61); J.M. DA CRUZ PONTES (*Pedro Hispano Portugalense e as controvérsias doutrinais do século XIII*, pp. 87-249) esamina la dottrina dell'origine dell'anima nei due commenti.

8. Cfr. J. M. DA CRUZ PONTES, "L'intérêt philosophique", p. 497 e "La division du texte dans le ms. inédit des "Quaestiones super libro de animalibus" de Petrus Hispanus Portugalensis", *Bulletin de philosophie médiévale* 4 (1962), pp. 118-126. Al f. 100ra del ms di Firenze si legge ad esempio: "[...] in hac parte determinatur de diversitate organorum formantium vocem in diversis animalibus. Dividitur autem hec pars in duas partes, in quarum prima determinatur de voluntate et natura ipsius, ostendens quibus animalibus inest et quibus non; in secunda ibi *vox autem et sermo* determinatur de voce et natura ipsius penes conditiones animalium. Pars vero prima dividitur in duas, in quarum prima determinatur de natura vocis et diversitate eius a sono; in secunda ibi *strepidus animalis* determinatur in quibus animalibus habetur vox et quibus non. Secunda vero pars dividitur in duas partes, in quarum prima determinatur de natura animalium quibus non inest vox propria, sed aliquid simile, in secunda ibi *animal vero vocem habens* determinatur de natura animalium in quibus est vox propria. Prima manet indivisa, secunda dividitur in duas, in quarum prima determinatur de natura animalium in quibus appropriatur vox absoluta, in secunda ibi *animal vero generans et habens quattuor pedes* determinatur de natura animalium quibus appropriatur loquela ut et sermo. Hec est divisio huius partis et sunt in presenti capitulo quinque partes sicut patet; circa partem istam sunt quattuor inquirenda, primum est de generatione soni, secundum de generatione vocis, tertium est de voce significativa et de modo sue significationis, quartum est de diversitate in aliis animalibus sicut patet in avibus et aliis [...]". Per una descrizione dell'ordine procedurale del ms. madrileno v. M. DE ASÚA, "El comentario de Pedro Hispano sobre el 'De animalibus'", pp. 47-50.

9. B. LAWN, *I quesiti salernitani* (Napoli, 1969), p. 112. Si tratta della traduzione italiana di *The Salernitan Questions* (Oxford, 1963).

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fra dispute e semplici *quaestiones* e *responsiones*" tipiche della complessa tradizione della letteratura problematica salernitana, forma alla quale si rifanno anche le *Quaestiones super De animalibus* di Alberto Magno, parimenti basate sulla versione di Michele Scoto; in questa forma "mista" di commento, lo schema *dictio-responsio*, specifico del genere letterario del quesito salernitano, viene incorporato nella struttura e nell'articolazione complessiva del corpo della *quaestio* costituendone uno degli *articula* e conservando, in tal modo, le proprie caratteristiche. Questo fattore permette da un lato di sottolineare l'importanza che la metodica del *commentum per modum quaestionis,*[10] che rappresenta ormai sia la forma quasi esclusiva di ricognizione del testo che lo schema privilegiato di insegnamento, riveste all'interno dell'attività scientifica e professionale del *magister*, mentre, dall'altro, evidenzia il permanere, entro forme didattico-letterarie tipiche dell'istituzione universitaria, all'interno della quale sono da situarsi i commenti in questione, di tecniche pedagogiche ed argomentative tradizionali, che continuano a formare la base, anche per quanto riguarda contenuti ed assunti, delle nuove forme di analisi e di trasmissione di un *corpus* testuale ormai enormemente esteso grazie alle traduzioni.[11]

A conferma di questa asserzione si può menzionare il fatto che il commento al *De animalibus* contenuto nel codice di Madrid va confrontato con una serie di quesiti *naturales* o *Problemata* presenti in almeno dieci manoscritti che vanno dal XIII al XV secolo, manoscritti che contengono una selezione di *quaestiones* e relative *responsiones* che sono, per la maggior parte, trascrizioni letterali di questioni che si ritrovano nel commento di Madrid; tre dei manoscritti indicano come autore dei quesiti, rispettivamente, "Petrus yspanus", "magister Petrus" e "magister de Yspania". La collezione seleziona *quaestiones* tratte dai primi nove libri della glossa madrilena e cioè questioni corrispondenti all'area testuale e metodica sottoposta a quello che l'autore, come vedremo più tardi, chiama *modus narrativus.*

10. Sulle metodiche dell'insegnamento all'interno dell'università v. A. MAIERÙ, "Università, "studia" e collegi", in *Storia della filosofia, 2. Il Medioevo,* a cura di P. ROSSI e C. A. VIANO (Bari, 1994), cap. XI, pp. 227-230 (3. Programmi, attività didattiche e *curricula*).

11. Cfr. D. JACQUART, "La question disputée dans les facultés de médecine", in *Les questions disputées et les questions quodlibétiques dans le facultés de théologie, de droit et de médecine* (Turnhout, 1985), pp. 285 e seguenti. Nel codice fiorentino le *quaestiones et responsiones* rappresentano tuttavia una rara eccezione.

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I *Problemata* comprendono un massimo di 127 quesiti che si ritrovano sempre nel medesimo ordine; si tratta quindi, non di una serie di estratti compilati in epoche diverse, ma di un unico testo risalente al XIII secolo, data del più antico dei manoscritti, e ripetutamente ripreso nei secoli seguenti. La raccolta si inserisce in modo evidente nella tradizione dei quesiti didattici salernitani, molti dei quali, del resto, vi si ritrovano, mentre in due manoscritti serie di questioni salernitane seguono o precedono il testo. È da notare, inoltre, che in quest'opera appaiono quesiti salernitani presenti anche nel commento di Pietro al *De dietis* di Isaac Israeli,[12] che la maggior parte delle opere contenute nel codice 1877 si conclude con una serie di questioni[13] e che, in particolare, come nota Danielle Jacquart, le *Notule super [Ysagoge] Johannitii* sono composte di *trecenta problemata disputata,* in parte ricavati dal testo di Johannitius ed in parte concernenti questioni tradizionali.[14]

Il commento incluso nel manoscritto fiorentino sarebbe invece da confrontare, secondo la paleografa francese Tamara Goldstein-Préaud, con questionari di carattere zoologico contenuti in codici della Biblioteca Laurenziana di Firenze (ms LXXXIII, 24) e della Nazionale Marciana di Venezia (ms CL VI, cod. 224), che ne rappresenterebbero una formulazione leggermente rimaneggiata soprattutto per quanto riguarda i primi tre libri, mentre una parte dei libri XVI e XVII si ritroverebbe ai ff. 55-70 del manoscritto 549 dell'Angelica di Roma. In questi due codici, entrambe segnalati per la prima volta dalla Wingate,[15] il testo dei due manoscritti sarebbe il medesimo, anche se quello della Laurenziana si ferma alla questione 54, mentre quello della Marciana riporta anche la questione 55, segno, questo, di indipendenza dal precedente. Il confronto fra questi due codici ed il manoscritto fiorentino sarebbe, sempre secondo la Goldstein-Préaud, assai importante soprattutto per quanto riguarda l'attribuzione dei commenti stessi; le modificazioni ai primi tre libri che si ritrovano nei questionari della Marciana e della Laurenziana consisterebbero, infatti, nell'introdu-

12. Cfr. B. LAWN, *I quesiti*, pp. 98-100; v. anche S. NAGEL, "Antropologia e medicina nei 'Problemata' di Pietro Ispano," *Medioevo* 17 (1991), 231 e seguenti.

13. V. J. AGRIMI, *Le 'Quaestiones de sensu' attribuite ad Oresme e a Alberto di Sassonia* (Firenze, 1983), p. 24 e nota 39.

14. Ad esempio, *Utrum solus sanguis nutriat, utrum cor et cerebrum sensiat, Utrum mulieres spermatiçent* (v. "La question disputée dans les facultés de médecine", p. 292).

15. *The Mediaeval Latin Versions*, pp. 84 e 106, nota 160.

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zione di questioni non riportate nel manoscritto della Nazionale di Firenze, questioni che però si ritroverebbero nel codice madrileno.[16] Entrambe le opere conterrebbero inoltre questioni che non appaiono né nel commento di Alberto Magno né in quello di Gherardo di Breuil, mentre nelle glosse di Pietro alle *Dietae* di Isaac Israeli si individuerebbero questioni presenti nell'uno o nell'altro dei due commenti al *De animalibus* a lui attribuiti, nonché questioni comuni sia all'uno che all'altro.

Elemento importante per l'attribuzione delle opere sarebbe poi rappresentato, oltre che dall'esame delle fonti, dal fatto che, soprattutto nel manoscritto di Firenze, sono presenti numerose questioni sull'occhio e sull'apparato visivo; questa presenza appariva alla studiosa in sintonia con gli interessi dell'autore del *Liber de oculo* e del *Tractatus de mirabilibus aquarum*, che contiene numerose ricette contro le malattie degli occhi. Si può aggiungere che questi elementi potevano risultare anche in forte connessione col particolare sviluppo assunto dagli studi di ottica presso la corte papale di Viterbo, la quale, secondo le indicazioni di Agostino Paravicini Bagliani e di David Lindberg,[17] fra il 1267 ed il 1277 e cioè durante il periodo nel quale Pietro si sarebbe trovato pressoché stabilmente alla curia pontificia prima al seguito del cardinal Ottobono Fieschi (il futuro papa Adriano V), poi, secondo una tradizione assai radicata ma non documentata,[18]

16. "Gérard du Breuil et la zoologie aristotélicienne au XIIIe siècle", in *Positions des thèses soutenues par les élèves de la promotion de 1969 pour obtenir le diplôme d'archiviste-paléographe* (École des Chartes, 1969), 66-67.

17. Cfr. D. LINDBERG, "Lines of Influence in Thirteenth-Century Optics: Bacon, Witelo and Pecham", *Speculum* 46 (1971), 65-83; A. PARAVICINI BAGLIANI, "Witelo et la science optique à la cour pontificale de Viterbe (1277)", *Mélanges de l'École Française de Rome, Moyen âge et temps modernes* 87 (1975), 425-453 e Id., "A proposito dell'insegnamento di medicina nello Studium Curiae", in *Studi sul XIV secolo in memoria di Anneliese Maier*, a cura di A. MAIERÙ e A. PARAVICINI BAGLIANI (Roma, 1981), Storia e letteratura. Raccolta di studi e testi, 151, pp. 395-413; cfr. anche P. NARDI, "Comune, impero e papato alle origini dell'insegnamento universitario in Siena (1240-1275)", *Bullettino senese di storia patria* 90 (1983), 76.

18. Lo stesso A. PARAVICINI BAGLIANI ("Medici e ricette mediche alla corte papale del duecento", in *Medicina e scienze della natura alla corte dei papi nel duecento*, Biblioteca di "Medioevo latino" 4 (Spoleto, 1991), p. 32) sottolinea il fatto che non esiste alcun documento che attesti che Pietro Giuliani sia stato archiatra di Gregorio X e che abbia scritto il *Thesaurus pauperum* durante il suo servizio alla corte di questo papa; del resto non esiste alcuna prova certa che il maestro di scienze mediche a Siena possa essere identificato con Giovanni XXI (v. P. NARDI, "Comune, impero e papato alle origini dell'insegnamento universitario in Siena (1240-1275)", 72),

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come archiatra di Urbano IV e di Gregorio X ed infine come papa col nome di Giovanni XXI, oltre che centro di un folto gruppo di traduttori e studiosi di problemi legati alle teorie della visione e della luce quali Guglielmo di Moerbeke e Campano da Novara, rappresenta anche la sede di trasmissione dei trattati di ottica di Bacone, nonché di elaborazione delle *Perspectivae* di Witelo e di Pecham.

L'ipotesi centrale espressa della Goldstein nel 1969 ed accettata poco più tardi anche da Josè da Cruz Pontes,[19] era che entrambe gli scritti avrebbero potuto essere attribuiti a Pietro Ispano ed all'attività magistrale da lui svolta e che, quindi, si trattava di due differenti redazioni di commento al medesimo testo, redazioni rispondenti ad esigenze di ambienti geografici e professionali diversi;[20] il primo sarebbe stato forse anteriore al 1245 e connesso coll'insegnamento alle Arti di Parigi, mentre il secondo, più ricco di riferimenti a fonti mediche ed arabe, avrebbe dovuto collocarsi in data successiva al 1248 e sarebbe stato, quindi, da rapportarsi al periodo di Siena ed all'area di attività interna al corso di studi in medicina. Questi elementi sembravano spiegare il fatto che il commento contenuto nel manoscritto di Madrid presenta, a proposito del problema dell'origine dell'anima, come precedentemente indicato da Josè Maria da Cruz Pontes,[21] una soluzione diversa da quella adottata nella *Scientia libri De anima*, opera che era attribuita al medesimo autore e che sembrava risalire ad una fase più matura dell'attività di Pietro, soluzione che appare invece nel commento contenuto nel manoscritto fiorentino. In quest'ultimo manoscritto sembravano inoltre ritrovarsi altre, fondamentali affinità con la *Scientia*, quali ad esempio l'eccedenza dell'interesse per l'antropologia anche dal punto di vista dell'utilizzo delle fonti, il forte influsso di Dionigi Pseudo-Areopagita e, di nuovo, la grande importanza data all'organo visivo, il quale, secondo la definizione data nella *Scientia*, *maxime* rappresenta la *porta cognitionis* e *maxime* opera *ad anime illustrationem* proprio in quanto, *maxime*, da esso la *perfectio* della cono-

19. *A obra filosófica*, pp. 53-102.

20. "Albert le Grand et les Questions du XIIIe siècle sur le 'De animalibus' d'Aristote", *History and Philosophy of Life Sciences* 3 (1981), 64; v. anche, della stessa autrice, "Gérard du Breuil et la zoologie aristotélicienne", 67. Il manoscritto di Firenze cita il commento di Alberto Magno al *De causis elementorum*, posteriore al 1248.

21. Cfr. J.M. DA CRUZ PONTES, *Pedro Hispano Portugalense, e as controvérsias doutrinais do seculo XIII*, pp. 113 e seguenti.

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scenza trae origine.[22] Questi elementi di omogeneità sembravano poi suffragare l'ipotesi, espressa nel 1980 da José Meirinhos,[23] ma infirmata dai risultati delle sue più recenti ricerche, secondo la quale la *Scientia De anima* e l'*Expositio librorum beati Dionysii* dovevano entrambe risalire agli anni 1245-50, risultando, quindi, contemporanee alla seconda redazione del commento.

Per tornare al *De animalibus*, se entrambe i commenti fossero stati attribuibili allo stesso autore, importante era sottolineare sia la funzione di cerniera che questo testo, presente nei *curricula* dei percorsi didattici sia di medicina che delle arti, aveva rivestito nella storia intellettuale e professionale dell'autore, sia una possibile attinenza anche di questa seconda redazione all'area culturale francese, all'interno della quale appare documentata per il medico, oltre che per *l'artista*, l'utilizzazione di questo testo.[24]

Benché la doppia redazione di commento al medesimo testo da parte di un solo autore rimanesse, malgrado tutte le osservazioni appena fatte, un fatto non usuale, si poteva tuttavia rimarcare che anche ad Alberto Magno risalgono due stesure del *De animalibus*, entrambe estranee all'ambito dei *curricula* di medicina, e cioè le *Quaestiones*, disputate a Colonia nel 1258 e redatte dopo il 1260 da Corrado d'Austria ed un'ampia parafrasi in 26 libri, iniziata nello stesso periodo e forse compiuta durante il soggiorno alla curia pontificia di Viterbo (1262-63). La doppia redazione non era, peraltro, inconsueta

22. Pedro Hispano, *Scientia libri de anima*, in *Obras filosóficas I*, ed. M. A. ALONSO, secunda edición (Barcelona, 1961), cap. XIII, p. 224, 1-5 e 16: "Visus autem [....] ad anime illustrationem maxime operatur eo quod cognitionis perfectio ab ipso maxime ducit originem [...] ipse igitur maxime est porta cognitionis [...]".

23. *A fundaçao do conhecimento na 'Scientia libri de anima' de Pedro Hispano Portugalense,* Dissertaçao de mestrado em filosofia medieval (Porto, 1980), p. 38. Meirinhos, in "Petrus Hispanus Portugalensis? Elementos para uma diferençâo de autores", 68-69 e 75, sostiene invece che la *Scientia*, oltre a dover essere ascrivibile ad un autore diverso da quelli delle due glosse al *De animalibus*, risale alla prima metà del XIII secolo, forse in data anteriore al 1240.

24. P. KIBRE, "Arts and Medicine in the Universities of the Later Middle Ages", in *Les universités à la fin du Moyen Age. Actes du Congr. int. de Louvain* (Louvain, 1978), p. 223 e n. 43; J.B.L. CHOMEL, *Essai sur la médecine en France* (Paris, 1762), p. 117 ("Quod in scholis magistrorum medicinae non legent nisi libros medicinales, exceptis libro de animalibus et quarto metheororum"); M. FOURNIER, *Les statuts et privilèges des universités françaises depuis leur fondation jusqu'à 1789* (Paris, 1890-94), p. 94, n. 947 quater; *Cartulaire de l'Université de Montpellier*, ed. A. GERMAIN (Montpellier, 1890), n. 68, art. 31.

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neppure all'interno del vasto *corpus* attribuito a Pietro, il quale era considerato l'autore, oltre che del commento in forma espositiva *Scientia libri de anima*, non legato all'attività magistrale, di un questionario sulla medesima opera ad esso anteriore e risalente agli anni 1240-45, questionario nel quale, fra l'altro, l'autore sembra alludere al fatto di aver già commentato il *De animalibus.*[25]

Fonte di qualche dubbio rimaneva, piuttosto, il fatto che, per quanto riguarda quest'ultima opera, si sarebbe non solo trattato in *entrambe* i casi di questionari, ma anche, in *entrambe* i casi, di opere direttamente riferentesi all'attività didattica, come sembravano segnalare i riferimenti del codice madrileno "[...] in lectione hodierna [...]" (f. 266va, r. 44) e "[...] circa lectionem istam [...]" (f. 267rb, r. 23); questa era, almeno, l'indicazione del Grabmann, indicazione che però è stata recentemente messa in dubbio da Miguel de Asúa, secondo il quale il commento costituirebbe non il risultato di questioni esposte durante una *lectio*, ma la *reportatio* di una serie di *quaestiones disputatae.*[26]

Restava, comunque, poi da chiedersi come mai fosse stato proprio il primo commento, frutto dell'attività "artistica" di Pietro, ad essere inserito all'interno del canone tradizionale delle glosse all'*Articella* contenuto nel codice madrileno e non il secondo, che, appartenendo all'area di esercizio interna ai *curricula* di medicina, avrebbe dovuto essere più adeguato alle esigenze degli utenti del codice stesso e come mai il medesimo testo proponga una definizione nominale di *physionomia* ("[...] et dicitur a *physis* quod est natura et *nomen-nominis*, quasi nominatio sue nature in operibus [...]") che sembra richiamare quella data nella versione di Bartolomeo da Messina dei *Physiognomonica* pseudoaristotelici ("[...] Physiognomia ergo est sicut et nomen eius dicit, de naturalibus passionibus [...]"), la cui prima diffusione avviene

25. V. J.M. DA CRUZ PONTES, *Pedro Hispano Portugalense*, p. 63; Id., *A obra filosófica de Pedro Hispano Portugalense. Novos problemas textuais*, p. 54, nota 2. Secondo J. MEIRINHOS ("Petrus Hispanus Portugalensis? Elementos para uma diferençâo de autores", 67 e seguenti) l'opera in questione, e cioè le *Questiones Libri de Anima* edite da P. M. ALONSO in Pedro Hispano, *Comentário al "De Anima' de Aristoteles, Obras Filosóficas II* (Madrid, 1944), non è riferibile al medesimo autore della *Scientia libri de anima.*

26. Cfr. M. GRABMANN, "Mittelalterliche lateinische Aristotelesübersetzungen", 110 e M. DE ASÚA, "El comentário de Pedro Hispano sobre el 'De animalibus'", 48-50. Il Grabmann segnala solamente la seconda occorrenza.

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solo intorno agli anni 1262-65.[27] Mentre il primo interrogativo può trovar risposta sia nella forte interazione fra i percorsi didattici di Arti e di Medicina che nella tesi di De Asúa, secondo il quale sarebbe attribuibile a Pietro unicamente il commento al *De animalibus* contenuto nel manoscritto di Madrid, commento che l'autore avrebbe compiuto a Siena durante il periodo di insegnamento a Medicina,[28] il secondo appare di assai più difficile risoluzione. Jole Agrimi, alla quale sono debitrice di tutte le indicazioni riguardanti la *phisionomia*, suggerisce, oltre alla riconsiderazione della datazione delle *Questiones* del manoscritto madrileno, anche la possibilità di tentativi di traduzione precedenti quella di Bartolomeo nonché quella di un libero riferimento al *Liber Phisionomie* di Michele Scoto ("[...] Nec obmittas amplecti illam scientiam, quae a philosophis phisionomia naturaliter nominatur [...]").[29]

Al di là dei complessi problemi concernenti l'attribuzione e la datazione delle opere, ne esistono poi altri, parimenti di non facile soluzione; desta infatti non pochi interrogativi il fatto che entrambe i codici, quello madrileno e quello fiorentino, pur basandosi sulla versione di Michele Scoto che riunisce in un solo *corpus* l'*Historia* (ll. I-X), il *De partibus* (ll. XI-XIV) e il *De generatione animalium* (ll. XV-XIX) secondo la versione araba che accorpa in 19 libri quel materiale zoologico aristotelico che da allora in poi sarà indicato col nome di *De animalibus,*[30] segnali una profonda diversità di metodo fra le parti del

27. La definizione del commento al *De animalibus* si trova al f. 258va del codice madrileno (v. J. AGRIMI, "La ricezione della *Fisiognomica* pseudoaristotelica nella facoltà delle Arti", *Archives d'Histoire doctrinale et littéraire du moyen âge* 64 (1997), 143; per quella di Bartolomeo da Messina v. l'edizione R. FÖRSTER, *Scriptores Physiognomonici Graeci et Latini* (Lipsiae, 1893), vol. I, p. 17; sulla datazione della prima circolazione della traduzione di Bartolomeo v. J. AGRIMI, "La ricezione della *Fisiognomica* pseudoaristotelica nella facoltà delle Arti", 134-135.

28. V. "Peter of Spain, Albert the Great and the 'Quaestiones De animalibus'"; per quanto riguarda i legami fra Arti e Medicina, essi risultano pienamente confermati dal fatto che i due insiemi disciplinari sono stati, nelle università italiane, fino a data assai tardiva, oggetto di insegnamento all'interno del medesimo *consortium* professionale (cfr. D. JACQUART, "La question disputée dans les facultés de médecine", p. 312).

29. *Liber Phisionomiae magistri Michaelis Scoti* (Venetiis 1505), f. a 4v.

30. Su questa traduzione araba, attribuita ad ibn Batriq, si baseranno sia l'*Abbreviatio de animalibus* di Avicenna (tradotta da Michele Scoto per Federico II) che i commenti di Averroè al *De partibus* e al *De generatione*. Sulla cosiddetta traduzione di ibn Batriq v. qui R. KRUK, "*On Animals*: excerpts of Aristotle and Ibn Sînâ in Marwazî's *Taba'i al hayawan*".

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testo, in modo del tutto analogo a quanto si ritrova sia all'inizio delle glosse al *De partibus* di Gherardo di Breuil[31] che nelle questioni di Giovanni Vath sul *De generatione animalium* di recente edite da Luciano Cova[32] e cioè in opere che si basano invece sulla traduzione di Guglielmo di Moerbeke e che quindi ravvisano nettamente la distinzione delle opere. Il codice fiorentino,[33] afferma infatti che vi è una tradizione (*solet assignari*) che attribuisce alla *divisio* del testo uno statuto *bimembris*; Aristotele, nei primi libri, procederebbe *narrando*, mentre il resto dell'opera sarebbe caratterizzato dalla *verificatio per causas*. Non è insignificante, a questo proposito, sottolineare il fatto che qui il termine *verificare*, assunto in rapporto all'attribuzione delle

31. Cod. lat. 3517 della Bibl. Mazarine di Parigi, f. 58ra-b: "[...] Postquam determinavit Philosophus de naturis animalium per viam narrationis, incipit // nunc determinare de eis per viam demonstrationis vel assignationis causarum [...]". Cfr. anche il testo degli *Scripta super librum de animalibus* di Gherardo contenuto nel cod. lat. 16166 della Bibliothèque Nationale di Parigi: "Proemium enim commune est ad totum librum, tam ad eius partem narrativam quam ad partem ostensivam sive causarum redditivam [...] (f. 1vb); "Et primo procedit narrando naturas ipsorum usque ad XI. Propter quod illa pars dicitur Historia animalium. Secundo ponit causas vel rationes prius narratorum ab XI usque ad finem [...]" (f. 8rb). Sulla divisione testuale e metodica in Gherardo v. Th. KÖHLER, "'Processus narrativus'. Zur Entwicklung des Wissenschaftskonzepts in der Hochscholastik", *Salzburger Jahrbuch für Philosophie* 39 (1994), 124-125.

32. V. L. COVA, "Le questioni di Giovanni Vath sul 'De generatione animalium'", *Archives d'Histoire doctrinale et littéraire du moyen âge* 59 (1992), 175 e seguenti; cfr. 203: " [...] Quidam autem istorum (librorum) sunt ystoriales et sunt decem [...] In aliis determinat de causis horum et primo de partibus [...]". Tuttavia in Pietro la narrazione "scientifica" non deve essere confusa con un metodo quasi *ystorialis* in quanto procede anch'esso da principi e *dignitates* (v. cod. 1877, f. 273rb: " [...] Ad obiecta autem in contrarium dicendum quod quidam est modus narrativus qui procedit ex principiis et dignitatibus et hic est magis necessarius quam causarum assignativus, alius est modus narrativus quasi ystorialis in quo narrantur multe res que non sunt principia nec dignitates [...]".

33. Cod. G. 4. 853, f. 79ra: "[...] Unde liber de animalibus sive de natura animalium intitulatur, cuius divisio bimembris solet assignari, quia primo procedit auctor sive Aristoteles narrando ut in principio noni vel XI secundum alios narrata per causas verificando [...] XI in quo incipit narrata verificare [...]"; cfr. f. 134va: "[...] Cum duplex sit modus procedendi in hac scientia scilicet narrativus et causarum assignativus usque <ad XI> modo narratione processit, in hac parte intendit determinare de natura animalium et de diversitate naturarum eorum secundum processum causarum assignativum [...]".

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cause, presenta la medesima valenza focalizzata da Alfonso Maierù[34] in documenti e testi attinenti l'insegnamento della medicina a Bologna almeno fin dall'epoca di Taddeo Alderotti. Il manoscritto di Madrid determina poi l'ambito specifico dell'individuazione o *assignatio* delle cause, individuazione che segue la *narratio* delle proprietà comuni degli animali, in uno specifico *liber proprietatum*;[35] si tratta di un accenno alla versione greco-latina del *De partibus animalium* precedente a quella di Guglielmo di Moerbeke[36] oppure di un riferimento in qualche modo connesso alla tradizione araba delle opere sulle proprietà occulte degli animali?[37] In queste sue affermazioni l'autore potrebbe poi essere stato orientato da alcune suggestioni dello stesso

34. V. A. MAIERÙ, "La terminologie de l'université de Bologne de médecine et des arts: 'facultas', 'verificare'", in *Vocabulaire des écoles et de méthodes d'enseignement au moyen âge*, ed. O. WEIJERS (Turnhout, 1992), pp. 147 e seguenti; v. anche Id., "Gli atti scolastici nelle università italiane", in *Luoghi e metodi di insegnamento nell'Italia medioevale (secoli XII-XIV)*, ed. L. GARGAN-O.LIMONE (Galatina, 1989), pp. 272-273.

35. Petrus Hispanus, *In Aristotelis De animalibus*, f. 273 rb: "[...] Ad tertium dicendum quod, sicut dicit in litera, multe sunt proprietates communes pluribus animalibus, unde, si de qualibet redditur causam, oportet bifidem repetere et propter hoc procedit distincte ita quod primo procedit proprietates narrando [...] post reddit causas communes illarum proprietatum [...] sed sufficit quod <ista scientia de animalibus> primo ponat proprietates narrando, secundo asignet causas omnes in *libro proprietatum* illarum [...]".

36. V. P. ROSSI, "La *Translatio anonyma* e la *Translatio Guillelmi* del *De Partibus Animalium* (Analisi del libro I)", in *Guillaume de Moerbeke. Recueil d'études à l'occasion du 700e anniversaire de sa mort (1286)*, ed. J. BRAMS & W. VANHAMEL (Leuven, 1989), pp. 221-245.

37. Ad esempio Abu l-Ala' Zuhr (X secolo) è autore di un *Kitab al-Hawass* ('Libro delle proprietà') molto citato e diffuso nella zoologia araba (cfr. M. ULMANN, *Die Natur- und Geheimwissenschaften im Islam* (Leiden-Köln, 1972), pp. 28 e 29), mentre quello che è indicato, nell'edizione delle opere di al-Razi's stampata a Bergamo nel 1497, come *Liber Rasis philosophi filii zacharie de proprietibus iuvamentis membrorum et de utilitatibus et nocumentis animalium [...]* e che Alberto Magno (*De animalibus*, ed. H. STADLER (Münster, 1920), l. XXII, trac. 2, cap. 1, 35) cita come *Liber sexaginta animalium* (cfr. L. THORNDIKE, *A History of Magic and Experimental Science* (New York-London, 1964), vol. 2, p. 762) è conosciuto solo attraverso la tradizione latina; di tali opere abbonda comunque tutta la letteratura zoologica araba medievale. Sulle compilazioni ebraiche basate sulla trattatistica araba v. M. ZONTA, "Mineralogy, Botany and Zoology in Medieval Hebrew Encyclopaedias. 'Descriptive' and 'Theoretical' Approach to Arabic Sources", *Arabic Sciences and Philosophy* 6 (1996), 280 e n. 62.

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Scoto[38] che si ritrovano in due passi dei libri I e X della sua traduzione del *De animalibus*, passi nei quali si prospetta una certa diversità nella caratterizzazione metodica della trattazione; è però da notare che nel primo dei brani citati il termine *narrare* è da Michele avvicinato a *causas* ed è quindi assunto in senso contrario a quanto sostenuto dall'autore del manoscritto madrileno, mentre il secondo sembrerebbe piuttosto, più verosimilmente, essere fonte dei procedimenti che sono indicati come *via generalis* e *via specialis* nel commento alle *Dietae* di Isaac,[39] dove esse vengono ampiamente descritte, e che rappresentano anche il metodo organizzativo generale di argomentazione della *Scientia de anima*, opera che, però, non sarebbe, secondo J. Meirinhos, attribuibile al medesimo autore dei commenti all'*Articella* e al *De animalibus* contenuti nel codice madrileno.[40] Del resto i due *modi, narrativus* e *causarum assignativus* esaminati in quest'ultima opera non paiono del tutto identificabili con le due *vie* di cui sopra; il sistema normativo della discussione adottato nel *De anima* sembra infatti essere quello descritto da Aristotele nel I libro dell'*Historia animalium* (6, 491a6-14), là dove si afferma l'intenzione di utilizzare la seguente processione dissertativa: dopo un abbozzo generale degli argomenti da trattare si dovrebbe passare ad una descrizione puntuale degli argomenti stessi, nonché all'individuazione sia delle differenze che delle caratteristiche comuni, mentre l'identificazione delle cause dovrebbe aver luogo solo a questo punto. Questo, secondo Aristotele, sarebbe "[...] il metodo di ricerca in accordo con la natura una volta che si sia acquisita la conoscenza (*ystoria*) dei singoli dati [...]": in tal modo dovrebbe

38. Cfr. *De animalibus*, Vat. Chig. E VIII 251, l. I, f. 3rb: "[...] Et nos narrabimus inferius omne genus istorum generum singulariter. Et subtiliamus considerationem in eos comprensionem nostre investigationis et nos anterioravimus ad dicendum quod diximus ut manifestaretur diversum (?) animalium cum omnibus accidentibus qui eis accidunt, deinde narrabimus causas illius totius [...]"; ibid., l. X, f. 47vb: " [...] utrum debeamus considerare prius que accidunt omnibus generibus animalium, deinde considerabimus in proprietatibus cuiuslibet illorum generum; aliter, prius debemus incipere narrare naturas et dispositiones cuiuslibet animalis [...] Et si debemus dicere in hoc generaliter et communiter [...] scilicet quod prius debent considerare res manifeste operationum modorum animalium et partes cuiuslibet illorum et post debent dare causas de eis aut debet facere et contra in rebus quas narravimus, et dicemus nos multas causas post scilicet causas generationis [...]".

39. Cod. Madrid 1877, f. 239ra; *Commentarium singulare doctissimi viri Petri Hispani olim pontificis maximi Johannis vicesimi primi super librum dietarum universalium Isaac*, in *Opera omnia Isaac*, vol. II (Lugduni 1515), f. 19va; Pedro Hispano, *Scientia*, p. XXXIX.

40. "Petrus Hispanus Portugalensis? Elementos para uma diferençâo de autores", 68 e seguenti.

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infatti risultare manifesto "[..] su cosa debba vertere la dimostrazione, e a partire da quali principi [...]".

L'autore della *Scientia de anima,*[41] in pieno accordo col metodo descritto da Aristotele, si propone, una volta esposte le caratteristiche dell'anima secondo la sua essenza (*circa substantiam*), di procedere *secundum viam generalem* per poi accedere al *processus specialis* di ciascuna delle sue differenze. Secondo la *via generalis* egli intende produrre una sistematizzazione di tutte le facoltà, forme e funzioni dell'anima secondo un procedimento che consiste in primo luogo nella loro definizione e cioè in quell'operazione che, secondo la tradizionale formulazione pseudo-boeziana,[42] non solo è in grado di delineare, al di là delle qualità proprie (*qualis sit*) di un determinato oggetto, la sua natura sostanziale (*quid sit*), ma anche di delimitare, mediante l'identificazione dei suoi ambiti significativi o *divisio,* le modalità di reciproca rispondenza delle sue componenti; la seconda fase della procedura dello scritto consiste, infatti, nella focalizzazione della concatenazione e della relazione reciproca degli elementi dell'anima sopra definiti. Questa sistematizzazione sarà poi seguita da alcune precisazioni necessarie alla comprensione delle divisioni dell'anima proposte. La trattazione individuale (*via specialis*) delle differenze dell'anima esige invece un metodo diverso in quanto procede per *sermones* distinti (*speciales*) applicati a ciascuno degli elementi precedentemente (nel *tract.* II) ordinati e definiti; questo è il metodo che sarà usato nei trattati seguenti, metodo in cui dalle facoltà superiori dell'anima si "discende" a quelle inferiori.

Non paiono quindi esserci elementi sufficienti per avvicinare queste due *vie* ai metodi esposti nel commento al *De animalibus*; tanto più che nel manoscritto madrileno (f. 273rb) l'autore indica la psicologia (= *in libro De anima*) quale unica disciplina che goda del privilegio di utilizzare un modello procedurale in cui *modus narrativus* e *modus causa-*

41. Ed. cit., p. 43, 34-38.

42. La formulazione, che appare anche in Isidoro (*Etym.*, II, 29, I: "[...] Definitio est philosophorum, que in rebus exprimendis explicat quid res ipsa sit, (non) qualis sit, et quemadmodum membris suis constare debeat [...]"), è di M. Vittorino, *Liber de definitionibus*, ed. P. HADOT, in *Marius Victorinus. Recherches sur sa vie et ses oeuvres*, Études Augustiniennes (Paris, 1971), p. 337, 1-3 (ed. T. STANGL, in *Tertulliana et Mario-Victoriniana* (München, 1888), p. 7). La tradizione si riferisce ovviamente alla definizione *ousiodes* o *substantialis*, l'unica " [...] Quae proprie et vere dicitur definitio [...]". Sulla *definitio-divisio* v. G. D'ONOFRIO, *Fons scientiae. La dialettica nell'Occidente tardo-antico* (Napoli, 1989), pp. 60 e 83.

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rum assignativus risultino indifferenziati (*indistincti*)[43] in quanto, al suo interno, la determinazione delle diverse proprietà dell'anima insite nelle diverse *potentie* porta ad una quasi simultaneità delle due diverse operazioni.

L'affermazione, alla quale accennavo sopra, di una certa disparità metodologica all'interno di quella che Piero dovrebbe considerare un'unica, coerente e compatta opera è particolarmente rilevante anche in relazione ad un'altra questione e cioè al raffronto fra *artes* e *scientiae* che ritroviamo nel commento al *De animalibus* contenuto nel manoscritto di Madrid,[44] raffronto secondo il quale esse si distinguono

43. "[...] Queritur quare modus causarum assignativus plus est in arte quam in scientia et quare plus in quadrivio quam in trivio et quare iste dictus modus procedendi distinctus est in hoc libro (e cioè il *De animalibus*), in libro autem *De anima* est indistinctus, quia modo procedit narrando, modo philosophando sive causas assignando [...] in libro *De anima* determinat de anima secundum diversas eius potencias et quia diversis potentiis insunt diverse proprietates, oportuit quod narrata proprietate statim redderet causam et propter hoc ibi (e cioè nel *De anima*) processit <in>distincte, hic autem (e cioè nel *De animalibus*) distincte dicta de causa [..]". Sul *modus narrativus* e *causarum assignativus* in Pietro Ispano v. anche J.F. PRETO MEIRINHOS, *A fundaçao do conhecimento na 'Scientia libri de anima' de Pedro Hispano Portugalense*, Dissertaçao de mestrado em filosofia medieval (Porto, 1980), p. 53. Su *narratio* e *causarum assignatio* nel secolo XIII e, in particolare, in Alberto Magno cfr. Th. KÖHLER, "'Processus narrativus'", 114 e seguenti; il prof. Köhler mi fa notare che il termine *indistinctus* potrebbe forse indicare che, secondo l'autore del commento madrileno, nel *De anima*, a differenza del *De animalibus*, i due *modi* non sono distribuiti nelle serie diverse dei libri (l'uno nei primi dieci, ed il secondo nei restanti). Lo ringrazio vivamente per l'indicazione.

44. Petrus Hispanus, *In Aristotelis De animalibus*, f. 268ra: "[...] ars et scientia differt in hoc quia ars est in operatione, scientia autem in quiete. Dicit enim philosophus in secundo phisicorum (*Phys.*, VII, 3, 247b22-24; cfr. *Anal. Post.*, II, 19, 100a6-8) quod anima in sedendo et quiescendo fit sapiens et prudens [...] Secunda causa est quia ars est regula multorum ad unum vera, nec additur nec diminuitur et hanc viam habent VII artes: regulantur enim per sua principia propria. Sed scientia [...] est habitus qui potest augeri vel diminui ut medicina, theologia, decretales proprie dicuntur scientie et non artes quia continue recipiunt additionem et diminutionem. Quia ergo [...] est in operatione regulata ad unum dicitur ars et non scientia [...]". Ibidem, f. 273rb: "[...] <in> scientia, que est habitus unius conclusionis, propositiones que narrantur sunt magis necessarie quam conclusio que probatur [...] Iusta hic queritur quare modus causarum assignativus plus est in arte quam in scientia [...] Ad primum istorum dicendum quod ars est scientia propriis principiis artata, sed scientia appellatur illa que est confusa nec est artata propria principia sicut medicina, theologia, ius canonicum vel civile. Iste enim scientie semper possunt augmentari et quia modus causarum assignativus procedit propriis principiis, iste scientie que non habent propria principia, non habent modum causarum assignativum sed solum narrativum [...]". Sulla classificazione delle scienze in Pietro Ispano cfr. S. Nagel, "Antropologia e medicina nei 'Problemata' di Pietro Ispano", *Medioevo* 17 (1991), 237-238 e "*Artes, scientiae* e medicina nel commento al *De animalibus* di Pietro Ispano", *Bulletin de philosophie médiévale* 38 (1996), 53-65.

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sia per quanto riguarda la struttura costitutiva che per le metodologie di indagine. Le *artes* del trivio e del quadrivio rappresentano un insieme compiuto e conchiuso di norme che si governano attraverso propri principi e che fanno uso di un modello procedurale quasi esclusivamente *causarum assignativus*; le *scientiae*, e cioè medicina, diritto e teologia, che non sono, invece, legate a propri principi, hanno carattere stratificato e composito, sono soggette a continue alterazioni quantitative ed utilizzano prevalentemente il metodo *narrativus*, inteso come procedimento metodico che privilegia, non solo a fini espositivi e didattici, ma anche di acquisizione dottrinale, non già la conclusione, ma piuttosto i vari passaggi o proposizioni del procedimento stesso. Ne consegue che, nel caso della trattazione del *De animalibus*, vi sarebbe una sequenza procedurale che va non solo dall'ambito narrativo all'ambito verificativo, ma anche dall'ambito "scientifico" all'ambito "artistico", sequenza che procede in senso contrario a quanto indicato nella glossa *Super Tegni* contenuta nello stesso codice[45] nei riguardi del disegno della gerarchia delle discipline fondato sulla considerazione del loro oggetto (*res* o *verba*) nonché della loro funzione, disegno che impone invece il seguente ordine metodico e finalistico: discipline *de verbis* (e cioè trivio), scienze teoriche o *de rebus* (e cioè fisica, matematica, metafisica) ed, infine, medicina. Mentre, poi, nella glossa al *De animalibus* sia la medicina che la *scientia de animalibus*, si configurano quale momenti di scansione interna all'assetto disciplinare della *physica*[46] e, presumibilmente, in quanto tali, anche all'assetto gerarchico delle scienze, nel commento *Super Tegni*, la medicina rappresenta, oltre che il fondamento, anche il fine di tutte le discipline, fisica compresa. La *physica*, insieme al settenario ed alla metafisica, risulta infatti "ordinata" alla medicina, che assume così l'aspetto di scienza onnicomprensiva, ordinatrice ed unificante dell'intero sapere, eccellente su tutte le altre proprio per questa sua prerogativa di "[...] com-

45. Petrus Hispanus, *Super Tegni*, f. 48ra (v. nota 47). Sugli influssi in epoca posteriore cfr. A. MAIERÙ "I commenti bolognesi al 'Tractatus' di Pietro Ispano", in *L'insegnamento della logica a Bologna nel XIV secolo*, Studi e memorie per la storia dell'università di Bologna, Nuova serie, vol. 8 (Bologna, 1992), pp. 517-519.

46. Non è infatti possibile avere, *de homine* (oggetto della scienza *de animalibus* oltre che della medicina), una nozione adeguata, e cioè una *cognitio et philosophia ultimata*, disgiunta dall'intero campo della *philosophia naturalis* (in particolare dalla botanica, dalla zoologia e, soprattutto, dalla psicologia), né, tanto meno, una medicina, che, pur nei suoi intenti operativi, su questa *cognitio et philosophia* si basa, disgiunta dalla *physica*; v. *De animalibus*, cod. 1877, f. 256va.

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prehensionis multorum ad ipsam concurrentium [...]" e all'apice della gerarchia delle discipline in quanto, in essa, il loro *ordo* pienamente si compie, secondo la *communis intentio* di tutte le cose.[47]

Nell'ambito del confronto fra i testi delle due glosse al *De animalibus*, per quanto riguarda le questioni concernenti la *vox* da me recentemente analizzate ancora nell'ambito di una lettura che Meirinhos[48] designa come "concordista" fra le opere attribuite a Pietro Ispano, esse si ritrovano al libro IV di entrambe i commenti e, per quanto riguarda quelle comuni ai due manoscritti, esse giungono ad esiti analoghi pur seguendo percorsi espositivi non del tutto uniformi. Il codice di Madrid presenta, al libro IV (ff. 262vb-263ra), un numero maggiore di questioni di quante non ne presenti il codice fiorentino,[49] il quale però, al libro XIX (ff. 181vb-185rb), prospetta una rassegna molto ampia di questioni (44) che non si ritrovano nel primo commento, forse perché mutilo degli ultimi due libri; va, tuttavia, sottolineato il fatto che esse non si presentano neppure nel questionario zoologico di Alberto Magno,[50] mentre trovavano, verosimilmente, forma nel commento,

47. *Super Tegni Galieni Commentarius*, cod. 1877, f. 48ra: "[...] sexto nobilitate comprehensionis multorum ad ipsam concurrentium [...] scientie sermocinales que sunt de signis sunt propter illas que sunt de rebus scilicet naturales, mathematicas et divinas et omnes iste sunt propter medicinam, unde antiqui fecerunt ipsam finem omnium scientiarum [...] Est autem sexto modo nobilis eo quod omnium rerum communis intentio ad ipsam concurrit <cum> VII [...]". Per un'interpretazione della medicina come fine e fondamento di tutte le scienze cfr. *Conciliator controversiarum que inter philosophos et medicos versantur*, Petro Abano Patavino auctore (Venetiis 1565, reprint Padova 1985), f. 9a e b e l'interpretazione di F. ALESSIO, "Filosofia e scienza. Pietro d'Abano", in *Storia della cultura veneta*, vol II, *Il Trecento* (Vicenza, 1976) pp. 199-200; sulla gerarchia delle scienze in Pietro v. S. NAGEL, "*Artes, scientiae* e medicina nel commento al *De animalibus* di Pietro Ispano", *Bulletin de philosophie médiévale*, 38 (1996), 53-65.

48. "Petrus Hispanus Portugalensis? Elementos para uma diferençâo de autores", 52.

49. Le questioni contenute nel codice madrileno che non appaiono in quello di Firenze sono le seguenti: "utrum sermo in homine sit a natura vel ab arte, utrum omnis vox sit licterativa, quare muti naturaliter sunt surdi et non e contrario, quare pueri sunt muti et non sunt surdi, quare accidentaliter citius impeditur auditus quam loquela et tunc ad privationem loquele non sequitur privatio auditus naturaliter, autem accidentaliter e contrario".

50. Le questioni 10-11 del XIX libro (*Quaestiones super de animalibus*, in *Alberti Magni Opera Omnia*, t. XII, ed. E. FILTHAUT (Münster, 1955), pp. 307-308), riportano invece le seguenti questioni: "De voce. Utrum virtus inspirativa sit vocis formativa. Utrum differentiae vocum consequantur dispositionem tracheae arteriae aut fortificationem vel debilitatem virtutis".

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perduto, di Boezio di Dacia, il quale nelle *Quaestiones super Priscianum Maiorem* accenna ad argomenti trattati "[...] in quaestionibus nostris super librum de animalibus [...]".[51]

Le questioni che, in entrambe i manoscritti, presentano, a proposito della *vox*, analogie non irrilevanti, riguardano in primo luogo la formazione della voce e cioè se essa rappresenti un fattore istintivo dipendente dalla *virtus naturalis* oppure un fattore volontario dipendente dalla *virtus animalis*;[52] la tripartizione, di origine galenica, delle facoltà dell'anima in *naturalis, vitalis* ed *animalis* pare, in entrambe i casi, essere ripresa da Johannitius[53] ed é presente, accanto a quella più tradizionale, di origine aristotelica (vegetativa, sensitiva ed intellettiva), sia nelle *Questiones*[54] che nella *Scientia de anima*, anche se, in quest'ultimo testo, l'esposizione delle caratteristiche della *virtus animalis* potrebbe però essere derivata da al-Ghazali.[55] Due delle argomentazioni, e cioè il fatto che ogni movimento che, come la voce, si produce *per lacertos*, è volontario e che ciò che è naturale è uguale in ogni individuo sono usate in entrambe i testi; nel codice madrileno esse

51. Cfr. *Modi significandi sive Quaestiones super Priscianum Maiorem*, in *Boethii Daci Opera*, vol. IV, pars I, ed. J. PINBORG, H. ROOS, S. S. JENSEN (Hauniae, 1969), pp. 61-62: " [...] Si autem tu queras unde est diversitas modorum loquendi apud diversos homines et distinctio ydiomatum cum naturaliter debeat esse idem apud omnes, hoc dictum est in quaestionibus nostris super librum de animalibus [...]".

52. Il manoscritto madrileno aggiunge la questione "[...] utrum sermo sit a natura vel ab arte [...]" che riporta, oltre alla consueta distinzione *vox a natura-sermo ab arte*, un interessante accostamento fra *virtus moralis* e *sermo*; quanto agli elementi virtuali di *aptitudo* e *potentia* la prima e materiali (*sui principium*) il secondo, sono entrambe *a natura*, mentre per quanto riguarda l'aspetto formale nel primo caso e formale e determinativo insieme (*formaliter et distinctive*) nel secondo, essi sono entrambe *ab arte* (f. 262vb).

53. *Isagoge ad Techne Galieni*, ed. G. MAURACH, *Sudhoffs Archiv* 62 (1978), 153-154.

54. Pedro Hispano, *Comentario al 'De anima' de Aristoteles*, pp. 723-25. Secondo il MEIRINHOS ("Petrus Hispanus Portugalensis? Elementos para uma diferençâo de autores", 67 e seguenti) il *Comentario* e la glossa fiorentina, al contrario della *Scientia*, risalirebbero entrambe al medesimo autore e sarebbero opere compiute all'interno del *curriculum* delle Arti fra il 1245 e il 1260.

55. Pedro Hispano, *Scientia libri de anima*, pp. 67-68. Per l'esposizione delle caratteristiche della *virtus animalis* in al-Ghazali (espressa nella *Logica et Philosophia Algazelis Arabis* (Venetiis, 1506), l. II, trac. IV, cap. II, della *Philosophia*), v. E. GILSON, "Les sources gréco-arabes de l'augustinisme avicennisant", *Archives d'Histoire doctrinale et littéraire du moyen âge* 4 (1929), 76-77.

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sono attribuite rispettivamente ad Haly ed a "[...] Boetius in *Divisionibus* [...]", mentre quello fiorentino le utilizza senza citarne la fonte.

La seconda questione analoga riguarda il ruolo rivestito della vista e dell'udito nell'apprendimento e cioè quale dei due sensi rivesta maggior rilievo nell'acquisizione della conoscenza, nel caso del codice madrileno, e nell'*affectionum impressio* ed *expressio,* nel caso nel codice fiorentino. Entrambe i testi usano l'espressione *porta mentis*[56] per designare l'udito, espressione che si ritrova anche nella *Divisio scientiae* di Giovanni di Dacia;[57] analogamente a quanto appare in quest'ultimo testo, nonché nella *Scientia de anima,*[58] il codice fiorentino riporta, inoltre, il *topos* della duplice modalità di *cognitio* e di acquisizione del sapere, che si attua *per inventionem*, col concorso di *visus et obiectus eius* e *per doctrinam*, con riferimento alla *vox ratione conveniencie cum auditu* (la *vox* rappresenta, nella scienza, il *medium naturale*, la scrittura ed il gesto il *medium accidentale*).[59] Il ruolo primario dell'udito nell'acquisizione della conoscenza, sottolineato in entrambe i commenti, è però sostenuto con motivazioni diverse: il

56. Cod. Madrid 1877, f. 262vb; cod. C S G. 4853, f. 101ra e 184vb. Cfr. Pietro Ispano, *Problemata*, cod. N. 9 sup. della Bibl. Ambrosiana di Milano, q. 36, f. 118 r. I termini usati nella *Scientia de anima* sono invece *porta doctrine* (v. tract. VI, cap. XIV, pp. 233-4) e *porta discipline* (ibid. p. 241, 24 dell'ed. cit.).

57. In *Johannis Daci Opera*, ed. A. OTTO (Hauniae, 1955), p. 13: "[...] exitus scientie in esse est duplex, scilicet via inventionis, ad quam maxime confert sensus visus [...] et via doctrine, ad quam maxime valet sensus auditus. Est enim auditus porta mentis [...]".

58. Tract. VI, cap. XIV, p. 232, 1-3 dell'ed. cit.: "Ad cognitionis decorem auditus ordinatur, set per eius opus anima magis in doctrina quam inventione illustratur, nam auditus est porta doctrine; [...]".

59. Cod. G. 4853 f. 101ra: "[...] Ad primam rationem dicendum quod duplex est cognitio et sciencie adquisicio: quedam est per inventionem et ad istam operatur visus et obiectum eius, alia est per doctrinam et ad istam operatur vox ratione conveniencie cum auditu. Ad secundam rationem dicendum quod duplex <est> medium in scientia, scilicet naturale, et hoc est vox, aliud vero est accidentale et hoc est multiplex sicut scriptura vel nutus corporis [...]". Sul *topos*, che si ritrova anche nel *Commentum super Priscianum Maiorem* attribuito a R. Kilwardby (ed. K.M. FREDBORG, N.J. GREEN-PEDERSEN, L. NIELSEN e J. PINBORG, *Cahiers de l'Institut du Moyen-Age Grec et Latin* 15 (1975), 14-15), cfr. A. MAIERÙ, "Gli atti scolastici nelle università italiane", 249. Secondo Ruggero Bacone l'*inventio* si attua invece *per viam sensus memorie et experientie*, soprattutto per quanto riguarda le scienze pratiche, delle quali fa parte la medicina (v. *De erroribus medicorum*, ed. A.G. LITTLE e E. WITHINGTON, in *Opera hactenus inedita Rogeri Baconi*, vol. 9 (Oxford, 1928), p. 154, 19-21; v. D. JACQUART, *La question disputée*, p. 315).

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codice madrileno riporta, oltre ad un'argomentazione *ex auctoritate,*[60] il fatto che la *vox*, oggetto dell'udito, a differenza di quanto avviene negli altri sensi, il cui principio è esclusivamente naturale, può subire variazioni a seconda della volontà del proferente. La *vox* si trova inoltre, "[...] tamquam in obiecto et tamquam in differente [...]", in un elemento, l'aria, che penetra al centro del cuore, portando con sé la voce, che proprio in quel punto si frange; ed il cuore, come verrà altrove specificato, è *causa sapientie* in quanto, al suo interno, si generano gli *spiritus* che sono *media* di sapere e conoscenza.[61] Anche il manoscritto fiorentino riporta un'argomentazione *ex auctoritate,*[62] accompagnata dall'affermazione che all'espressione "privilegiata" delle affezioni dell'anima da parte della *vox* concorrerebbero più elementi concomitanti, quali il fatto di poter essere il loro veicolo grazie al contatto diretto con l'organo che ne rappresenta il deposito (*thesaurus*), il fatto di essere in grado di ridurre a conveniente forma le affezioni comuni, nonché il fatto di possedere la capacità di proporzionarle all'udito.[63]

60. F. 262vb: "[...] sicut dicit Ysaac auditus est porta mentis [...]". Non sono riuscita a ritrovare la citazione in Ysaac Israeli, il quale è, peraltro, spesso oggetto di attribuzione di definizioni non sue; cfr. G. DAHAN, *L'incontro con la filosofia ebraica,* capitolo 9 della *Storia della filosofia, 2. Il medioevo* (Bari, 1994), p. 200.

61. F. 262vb: "[...] Alia causa est quod vox, que est obiectum auditus, est a principio voluntario, sed obiecta aliorum sensuum sunt a principio naturali et non possunt variari secundum voluntatem hominis. Tertia causa est quod vox est in aere tamquam in obiecto et tamquam in differente, alia autem obiecta sensuum alium habent pro subiecto et alium pro differente, quia ergo aer penetrat in medietate ad cor, in quo frangitur vox [...]"; f. 281vb: "[...] Cor autem causa sapientie est quia in corde generantur spiritus qui sunt media sapientie et cognitionis in hominis [...]". Cfr. Pietro Ispano, *Problemata*, cod. N 9 sup della Biblioteca Ambrosiana di Milano, q. 83, f. 122 r; v. S. NAGEL, "Antropologia e medicina nei 'Problemata' di Pietro Ispano", *Medioevo* 17 (1991), 243-244.

62. Cod. G. 4853, f. 101ra: "[...] illius sensus qui est causa discipline est maxime in expressione affectionum, sed obiectum auditus est huiusmodi quia, sicut habetur in *Metaphysica* (I, 1, 980b22-24), auditus est causa discipline et in libro *De sensu et sensato* (1, 437a10-15) [...]".

63. F. 101 ra : "[...] Ad hoc dicendum quod mediante voce fit maxime affectionum impressio, sed ad affectionum expressionem tria concurrunt: primum est ut medium per quod exprimitur et in quo imprimitur, [...] ad illud membrum attingit in quo sunt affectiones; secundum est tanquam medium deformat illas affectiones communes; tertium est ut sit proportionale illi membro quod est quasi porta anime sicut patet in nuncii. Tale autem medium est vox, quia in ea exprimuntur affecciones et tendat ad illud membrum quod est thesaurus affeccionum et est proportionale auditui quia porta mentis et discipline est [...]". In termini che mi sembrano presentare non poche affinità, nella *Scientia* si afferma che l'espressione vocale, la cui finalità consiste

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L'espressione delle *affectiones* attraverso la voce è, infatti, preminente in quanto essa avviene attraverso ciò che in modo immediato esce dall'anima, e cioè la voce stessa, ed in modo immediato raggiunge il primo organo-funzione col quale l'anima si misura e cioè l'udito. Se paragonata alla vista, la voce è inoltre, come specificamente affermato da Avicenna,[64] caratterizzata dalla proprietà di essere in qualche modo sibisufficiente in quanto percepibile anche in assenza di *media* di carattere *extrinseco*, come dimostra il fatto che, a differenza della scrittura o della segnalazione gestuale, l'*impressio-expressio* della voce può avvenire anche in assenza di luce.

Una terza questione, riguardante in ambedue i testi la *significatio* della *vox*, ha però un contenuto completamente diverso; mentre il codice madrileno riporta il quesito "[...] utrum omnis vox sit significativa [...]", nel quale si ritrova la tradizionale classificazione *voces non significativae-significativae* e *significativae naturaliter-ad placitum*,[65] il manoscritto fiorentino verte sulla possibilità e sulle modalità della *copulatio* fra *intentio animae* e *vox*, nonché sulla possibilità di *representatio* di sostanze spirituali quali l'anima e le sue *affectiones* attraverso un *medium corporale* quale la *vox*, contenuti, questi, che segnalano un radicale spostamento di interesse dai commenti boeziani al *De interpretatione* agli assunti del neoplatonismo avicenniano quali si pre-

nell'espressione delle affezioni dell'anima, si concretizza nell'impatto dell'aria *ad cor*, luogo di formazione delle affezioni stesse, dal quale, in qualità di *medium*, essa le trasferisce all'organo uditivo "[...] proportionaliter vocem ferens [...]" (Trac. VI, capitolo XIV, p. 241, 20-25 dell'ed. cit.: "[...] Finis autem vocis est affectuum anime expressio que maxime fit per vocem, que est inpressio aeris ad cor in quo affectuum est origo, delegati, eius impressiones recipiens, et est medium delegatum ad animal recipiens affectus proportionaliter vocem ferens ad auditum, qui est porta discipline [...]").

64. Avicenna Latinus, *Liber de anima seu sextus de naturalibus*, ed. S. VAN RIET (Louvain-Leiden, 1968), vol. 2, p. 73: "[...] vox autem sibi sufficit [...] etiam non eget medio ad hoc ut apprehendatur [...]". Avicenna si riferisce qui alla superiorità della *vox* nei confronti del *nutus*.

65. Di qualche rilievo è l'argomentazione che imputa l'esistenza di *voces non significativae* unicamente all'interno del linguaggio umano al fatto che, a differenza degli animali, la cui emissione vocale è indotta dalla *virtus imaginativa* (nel caso dei *bruti*) o da quella *extimativa* (nel caso degli animali *astuti*), l'intelletto, da cui dipende il linguaggio umano, è in grado di concertare (*combinare*) le *voces* in misura assai maggiore rispetto alle *virtutes* di cui sopra, nonché di formarne anche di non addutive di significato (Cod. Madrid 1877, f. 263ra; cfr. Alberto Magno, *Quaestiones super de animalibus*, ed. cit., l. IV, q. 8, p. 143, 39-53).

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sentano nella *pars quinta* del commento al *De anima.*[66]

È da notare, inoltre, che, descrivendo le modalità di congiunzione fra significato ed espressione vocale, l'autore esprime, a proposito della possibilità di esistenza di emissioni vocali *non significativae*, un'opinione che sembrerebbe contrastare con quanto viene affermato non solo nel commento madrileno, ma anche nelle *Summulae*. Secondo l'autore del commento fiorentino, all'interno della *copulatio* fra *affectio animae* e *vox,* vi sarebbe, infatti, concomitanza di una duplice causalità di unione ed una di queste cause agirebbe "[...] sicut id quod est ad finem unitur suo fini [...]";[67] è proprio in ragione di questa modalità che tutte le *voces* dovrebbero trovare la loro unica ragion d'essere nella segnalazione espressiva delle *intentiones* [...] *in mente*, il che porterebbe, appunto, ad escludere la possibilità di esistenza di emissioni vocali *non significativae*. Tutte le voci sono inoltre significative in quanto la loro natura spirituale le rapporta necessariamente all'*intentio*[68]; l'aspetto spirituale della *vox*, che le proviene dalla natura, è infatti quello "[...] per quam recipit intentionem [...]" ed è proprio la natura spirituale ciò che rende la *vox proportionalis* alla *virtus auditiva* e quindi atta a rappresentare l'*intentio.*[69] Queste affermazioni non portano però necessariamente a supporre che qui il commentatore rifiuti del tutto l'idea aristotelico-boeziana dell'arbitrarietà della significa-

66. In particolare considerazioni che si ritrovano nel primo capitolo del quinto libro del *De anima*, ed. S. VAN RIET (Louvain-Leiden, 1968), vol. 2, pp. 69 e seguenti.

67. V. cod. G. 4853 f. 101rb: "[...] Quarto modo unitur aliquid alteri sicut id quod est ad finem unitur suo fini [...] et hoc modo unitur intencio voci [...] quia propter intenciones significandas in mente sunt voces omnes [...]".

68. Cfr. questione tredicesima del f. 185ra: "[...] Item est vox significativa et ideo unitur ei intencio; ideo natura dat ei naturam spiritualem et hec est propria natura per quam recipit intentionem [...]". L'autore si potrebbe qui riferire ad una tradizionale dottrina di derivazione averroista, quella della natura spirituale o intenzionale dei sensibili nel medio, che R.-A. GAUTHIER, nella sua introduzione alla *Sentencia libri de anima* di Tommaso (in *Opera Omnia,* t. XLV, 1 (Roma-Paris, 1984), p. 226*), afferma essere diffusa almeno dal 1230; secondo questa dottrina dell'*esse intentionis* delle specie nel medio, l'aria costituirebbe la parte corporale della voce, mentre ciò che è udibile ed è trasportato dall'aria stessa ne sarebbe la parte spirituale e rappresenterebbe ciò che rende la voce proporzionata all'anima e quindi in grado di veicolare la significazione o *intentio* o *repraesentatio.* Ringrazio vivamente il dott. Costantino Marmo per avermi fornito questa indicazione.

69. "[...] res duplex habet esse, unum naturale, aliud per quod representari possit anime (evidentemente per mezzo dell'*exemplar*) et illud esse non habent res nisi per abstractionem et ideo fit abstractio [...]" (f. 183vb).

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zione del linguaggio, ma semplicemente che egli, al pari di altri autori,[70] pur sostenendo il collegamento fra voce e significazione, lo medi col tradizionale modo di concepire il linguaggio stesso, modo espresso sia nel *Tractatus*[71] che nel commento al *De animalibus* contenuto nel codice madrileno.[72] Questa mediazione si evidenzia, infatti, laddove l'autore opera una distinzione fra discorso interiore, che non richiede *medium*, che è naturale e non volontario e che è comune ad ogni individuo ed uguale per tutti gli uomini e discorso esteriore,[73] il quale, al contrario, non si concretizza che tramite i sensi ed assume caratteristiche diverse a seconda della volontà di chi lo utilizza, come testimonia la pluralità delle lingue esistenti. Se, infatti, puntualizza l'autore, due individui crescessero all'interno di una caverna, lontani da ogni consorzio umano, formerebbero, ciascuno una propria lingua nel caso fossero isolati, ed una lingua comune, nel caso si trovassero insieme; in entrambe le circostanze questa lingua, creata "[...] secundum beneplacitum voluntatis [...]", sarebbe del tutto *nova* nonché diversa da quella adamitica (ebraico) in quanto determinata non *ab ordine nature*, ma dalla determinazione individuale.[74]

La formulazione della distinzione fra discorso esteriore e *representatio interior*, di cui si ritrova un'analisi anche nella *Scientia de anima,*[75] è, in entrambe i testi, ripresa non, o, per lo meno, non solo dal *De Trinitate* di Agostino (cap. XV, 10, 19 e 11, 20), ma dal *De fide orthodoxa* di Giovanni Damasceno,[76] là dove l'autore descrive l'*inte-*

70. V., ad esempio, Alberto Magno, *Quaestiones super de animalibus*, l. IV, q. 8, p. 143 dell'ed. cit.

71. Ed. L.M. DE RIJK (Assen, 1972), *De voce*, pp. 2-3.

72. Ff. 262vb-263ra.

73. L'autore, al f. 185rb, descrive in realtà una *triplex representacio* dell'anima: "[...] prima est interior naturalis et est communis apud omnes, secunda est expressiva et est diversa (si tratta probabilmente del linguaggio gestuale e della scrittura), tertia est per vocem exteriorem et diversificatur [...]".

74. F 184ra: "[...] Secundo queritur si aliqui duo foderentur in cavernis, utrum proprium ydioma loquerentur aut non, aut commune sibi facerent. Dicendum quod uterque diversam linguam sibi formarent secundum beneplacitum voluntati. Tertio queritur quod si unum haberet ydioma, quid esset illud unum aut ebraicum aut aliud. Dicendum quod esset commune novum et non esset lingua <primi> patris; tamen, si per ordinem nature proficeret ydioma, tunc esset ydioma primi patris, quia sicut natura observat ordinem in aliis, sic in hoc. Sed ydioma est a voluntate, non autem ab ordine nature, sicut virtus seminaria et huiusmodi [...]".

75. Trac. XI, capitolo X, pp. 453-456, ed. cit.

76. Ed. E.M. BUYTAERT (New York, 1955), l. II, cap. 35, p. 131.

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rior dispositus sermo e lo indica come elemento che provvede alla razionalità (presente, di fatto, anche in chi non è in grado parlare), distinguendolo dal *sermo prolatus,* il quale è, invece, *annuntiativus intelligentiae* e cioè latore (*nuntius*) di intelligibilità attraverso la sua opera di mediazione fra locutori e di emissione di suoni contrassegnati da significato; il termine *annuntiativus* si ritrova anche nella *Scientia*, mentre il ms fiorentino utilizza più volte il termine *nuntius.*[77]

L'influsso, oltre che di Giovanni Damasceno, di Avicenna ed il contenuto delle argomentazioni avvicinano le questioni del ms fiorentino a due articoli della *Summa de creaturis* di Alberto Magno riguardanti il rapporto fra suono vocale e significato, nonché ad un brano dello Pseudo-Kilwardby sull'istituzione del linguaggio che si ritrova nel *Commentum super Priscianum Maiorem*, testo dal quale Giovanni di Dacia, nella *Summa grammatica*, riprende larghi estratti fra i quali quello sull'imposizione; gli articoli ed il brano sono stati puntualmente analizzati da Irène Rosier in un recente volume sui rapporti fra grammatica e semantica nel XIII secolo[78] e, verosimilmente, un esame più

77. *Scientia libri de anima*, ed. cit., trac. XI, capitolo X, p. 455, 26-27: "[...] per locutionem est intentionis intellective annuntiativus [...]". Il ms fiorentino usa il termine *nuntius* applicato alla *vox* al f. 101ra ("[...] est quasi porta anime sicut patet in nuncii [...]") e 185ra ("[...]. Duodecimo queritur quomodo simul veniant ad sensum et quomodo ad intellectum. Dicendum quod utraque recipiunt utraque, sed primo recipitur ydolum vocis et per consequens intentio rei que est exemplar, sed primo modo veniunt ad intellectum, intellectus separat intentionem vocis et retinet intentionem rei sicut expellit nuntium et retinet rem nuntiatam [...]"). Il termine *nuntius* appare anche nello Pseudo-Kilwardby, *Commentum,* p. 61, 22-23.

78. *La parole comme acte. Sur la grammaire et la sémantique au XIIIe siècle* (Paris, 1994), capitolo 4, pp. 123 e seguenti e testo n. 5, pp. 303 e seguenti. Sui rapporti fra l'opera di Giovanni e il manoscritto fiorentino v. anche S. NAGEL, "La *vox* come *medium* fra anima e corpo: annotazioni in margine ai commenti al *De animalibus* attribuiti a Pietro Ispano", prossima pubblicazione in *Anima e corpo*, Atti del "Quinto convegno di studi sul pensiero medievale della SISPM" (Venezia, 25-28 settembre 1995), a cura di C. CASAGRANDE e S. VECCHIO, collana "Biblioteca di Medioevo Latino", Certosa del Galluzzo. Gli articoli della *Summa de creaturis* (*Secunda pars-De homine*) di Alberto sono i primi due della q. 25 del I trac. (in *Opera omnia*, ed. A. BORGNET (Parisiis, 1896), tomo 35, pp. 243-247), composta a Parigi prima del 1246; nel commento al *Peri Hermeneias* (*ibidem*, tomo 1, l. I, trac. II, capitolo I, pp. 380-382), redatto negli anni '60, Alberto riprende, ma questa volta sul piano semantico, i medesimi argomenti, rinviando al suo commento al *De anima* (II, 8, 420b5 e seguenti), risalente agli anni 1254-57, dove Alberto ne propone una trattazione parallela ma molto più breve (in *Alberti Magni Opera Omnia,* t. VII, ed. C. STROICK, (Münster, 1968), pars I, l. 2, trac. III, capitolo 22, p. 131). Lo Pseudo-Kilwardby tratta *De institutione* al capitolo 2.1,

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approfondito delle relazioni fra questi tre scritti e la glossa al *De animalibus* sarebbe atta a fornire elementi non irrilevanti ai fini, se non dell'attribuzione, almeno della datazione del commento fiorentino, il quale potrebbe rappresentare uno dei punti di riferimento dello Pseudo-Kilwardby nella discussione delle dottrine *de institutione*, in particolare di quelle riguardanti i modi di unione fra voce e significazione.[79]

In conclusione, l'analisi delle glosse in questione, più che ad esiti conclusivi riguardo la cronologia o l'attribuzione dei testi mi pare conduca piuttosto all'individuazione di una serie di indicazioni di possibili orientamenti di ricerca nonché di interrogativi che coinvolgono nodi storici e teorici assai rilevanti i quali, mentre da un lato, travalicano, almeno in parte, l'ambito stesso degli scritti dello o degli autori, dall'altro portano a focalizzare gli elementi di complessità, densità e spessore dottrinale delle opere prese in esame.

pp. 49 e seguenti del *Commentum*, composto verosimilmente intorno alla metà del secolo, capitolo che corrisponde letteralmente, in molti passi (compreso quello sull'imposizione, pp. 57-59 dell'ed. cit.), alla *Summa Grammatica* di Giovanni di Dacia (pp. 177-181 dell'ed. cit.), nella quale, tuttavia, si omettono sistematicamente tutti i riferimenti espliciti ad Avicenna (*Commentum*...cit., p. 57) e a Giovanni Damasceno (*ibid.* pp. 57-58). L'opera di Giovanni di Dacia si situa intorno al 1280.

79. Lo Pseudo-Kilwardby, (2.1.4a, pp. 53-56 dell'ed. cit.) presenta infatti dei parallelismi sorprendenti con il ms. fiorentino, f. 101rb.

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CHRISTIAN HÜNEMÖRDER

DER TEXT DES MICHAEL SCOTUS UM DIE MITTE DES 13. JAHRHUNDERTS UND THOMAS CANTIMPRATENSIS III

Thomas von Cantimpré hat in seiner 1240/41 abgeschlossenen naturkundlichen Enzyklopädie Aristoteles bekanntlich an die erste Stelle seiner Quellenautoren gesetzt, und zwar mit den Worten des Prologs[1]:

> Der erste von allen (nämlich denjenigen, welche das folgende Werklein geschmackvoll erleuchten) ist Aristoteles, der nicht nur in diesen Dingen, sondern auch in allen zur philosophischen Disziplin gehörenden strahlender als die übrigen erblüht ist.

Aristoteles war für Thomas also nicht nur die höchste Autorität auf dem Gebiet der Zoologie, sondern auch der gesamten Philosophie, also nicht nur der Naturphilosophie. Freilich hat Thomas selber nur das von Michael Scotus um 1210 aus dem Arabischen übersetzte zoologische Korpus des Aristoteles in insgesamt 19 Büchern benutzt, das ich als "de animalibus" zitiere. Da Michael kein zoologischer Fachmann war, erkannte er nicht immer die sprachliche Äquivalenz zu den von Aristoteles erwähnten Tierarten und transliterierte sie nur, so z.B. ahanes = *αἱ Ἀχαίναι τῶν ἐλάφων*, die achainischen Hirsche aus *Hist. An.*, II, 6, 506a21 ff., bei Thomas I/II 4,8[2]: "Ahanes animal ... ad magnitudinem cervi"; "ana", angeblich nach Aristoteles, ein Tier des Orients bei Thomas I/II 4,9;[3] "duran", vielleicht der Wisent, auch angeblich nach Aristoteles, bei Thomas I/II 4,31;[4] "henichires = bonacus" [*βόνασος*], d.h. der Bison oder Wisent von Aristoteles, *Hist. An.*, VIII(IX), 8, 630a21 ff., bei Thomas I/II 4,37;[5] "furionz" = *αἴλουρος*, Katze, "furonius" von Aristoteles, *Hist. An.*, V, 2, 540a4 ff., bei Thomas I/II 4,43;[6]

1. Thomas Cantimpratensis, *Liber de natura rerum*, ed. H. BOESE (Berlin/New York, 1973), p. 3, 17-19: "Primus omnium Aristotiles est, qui non solum in hiis, verum etiam in omnibus ad philosophicam disciplinam pertinentibus eminentior cunctis effloruit".
2. Thomas, *o.c.*, p. 112.
3. Thomas, *o.c.*, p. 112.
4. Thomas, *o.c.*, p. 125.
5. Thomas, *o.c.*, p. 133.
6. Thomas, *o.c.*, p. 136.

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"gali" = γαλῆ, das Wiesel, von Aristoteles, *Hist. An.* VIII(IX),4, 612a29, bei Thomas I/II 4,47;[7] "aigothilez" = αἰγοθήλας, der Ziegenmelker, von Aristoteles, *Hist. An.*, VIII(IX), 5, 618b3 ff., bei Thomas I/II 5,5.[8] Diese letzte Stelle beginnt bei Aristoteles in der Version des Michael Scotus[9] folgendermaßen: "Animal vero, quod dicitur agothilez est montanum", wobei eine Marginalglosse dazu "caprimulgus" anmerkt. Im weiteren Kontext heißt es: "Et suggit ex mamillis caprarum, et propter hoc dicitur agotilez, scilicet 'suggens ubera caprarum'." Thomas I/II selber sagt 5,5:

"Agothilez avis est orientis, que a re nomen habere noscitur. Dicit enim Michael, qui transtulit librum Aristotilis De animalibus, quod agothilez Arabice, Latine dicitur sugens lac caprarum." Thomas von Cantimpré weiß also, daß Michael, dessen Beinamen Scotus er offenbar nicht kennt, der Übersetzer der Zoologie des Aristoteles gewesen ist. Die Glosse "caprimulgus" scheint ihm aber nicht zur Verfügung gestanden zu haben, wohl aber Albertus Magnus, De animalibus, XXIII, §19, 1339, 34: "Agothylez Graece, Latine caprimulgus vocatur..."! Nehmen wir noch ein zweites Beispiel, nämlich "hamraham", das ebenso wie Thomas I/II (5,11[10]) auch Thomas III (6,8[11]) kennt:

"Amraham avis est Orientis, ut dicit Aristotiles, que nidificat super montes ..."

Quelle ist Aristoteles, *De animal.*, VI, 1, 563a5-11[12]: "Harraham vero nidificat super montes, ad quos non potest homo ascendere, et propter hoc <dixit> Arotinus sofista, quod raham venit ab alia terra remota; et dicit, quod argumen<tum> huius est, quod nemo numquam vidit suos pullos, licet multi appareant insimul subito sequentes exercitus. Et istud difficile aparet, licet iam videbatur. Et raham facit duo ova."

Es handelt sich bei der von Aristoteles zitierten Quelle um Herodoros, den Sohn des Bryson. Dadurch, daß hier bei Michael Scotus in unseren Handschriften keine erklärende Glosse zu finden ist, konnten

7. Thomas, *o.c.*, p. 137.

8. Thomas, *o.c.*, p. 180.

9. Aristoteles latinus, *De animalibus* libri XIX in der Übersetzung des Michael Scotus, Buch I-XIV, ed. B.K. VOLLMANN (München, 1994), p. 141.

10. Thomas, *o.c.*, p. 183.

11. Thomas von Cantimpré, *Liber de naturis rerum*, Redaktion III. Erarbeitet von der Projektgruppe B2 des SFB 226 Würzburg-Eichstädt unter Leitung von B.K. VOLLMANN (1992) [= Thomas III], p. 55.

12. Arist. lat. (siehe oben, n. 9), p. 90.

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weder Thomas I/II noch Thomas III die Identifizierung mit einer Geierart [γύψ] vornehmen. Hier hat zwar der arabische Übersetzer griechisch γύψ richtig ins Arabische übertragen, was aber Michael nicht nachvollziehen konnte und nur transliterierte.

Gehen wir jetzt genauer auf Thomas III ein. Dieser hat an vielen Stellen nicht direkt auf den lateinischen Aristoteles-Text zurückgegriffen, sondern die Aristoteles-Zitate aus einer seit langem bekannten anonymen lateinischen Enzyklopädie mit dem Incipit "Triplex est esse" übernommen. Ich werde diese Tatsache durch die Gegenüberstellungen von Thomas I/II und Thomas III, sodann der von Thorndike-Kibre[13] dem englischen Karmeliter John Folsham (†1348) zugeschriebenen anonymen Enzyklopädie und schließlich der vorläufigen Edition der lateinischen Übersetzung der *Hist. An.*[14] beweisen. Im einzelnen ist hierzu folgendes zu sagen:

Im Kapitel 4,7 über das Ergrauen ("de canicie") des Thomas III heißt es im 1. Paragraphen[15]: "Aristoteles: Das Ergrauen geschieht aufgrund der Schwäche der natürlichen Wärme, die jedem Glied eigentümlich ist." Ps.-John Folsham bietet in allen drei mehr oder weniger vollständigen Handschriften (O = Oxford, Corpus Christi College 221 [s. XIV], fol. 50 va; T = Cambridge, Trinity College R.15.13 [s. XIV], p. 619; U = Rom, Bibliotheca Vaticana, Cod. Urbinas 1378 [olim 437, s. XV], fol. 147 v): "Canicies est ex debilitate caloris naturalis, qui est in quolibet membro ei proprius." Der Text ist also absolut identisch! Zugrunde liegt Aristoteles, *De animal.*, XIX, 4, 784a31-33,34-35[16]: "*Canities* autem *est propter debilitatem* caloris qui exit a corpore ... Et debemus scire quod ad quodlibet membrum pervenit cibus, et ille cibus digeritur *ex calore naturali qui est in quolibet membro*." Ps.-John Folsham hat hier also Aristoteles durch Verkürzung des Satzes in der damals üblichen Weise interpretiert, daß nämlich die natürliche Körperwärme allmählich abnehmen soll, was dann für alle Körperteile, auch die Haare, gelten muß, die eben durch Grauwerden darauf reagie-

13. L. THORNDIKE and P. KIBRE, *A Catalogue of Incipits of Mediaeval Scientific Writings in Latin*, revised and augmented edition (Cambridge, Mass., 1963), col. 1589.

14. Arist. lat. (siehe oben, n. 9).

15. Thomas III, p. 23: "Aristotiles: Canicies est ex debilitate caloris naturalis qui est in quolibet membro ei proprius."

16. Aristotle, *De animalibus. Michael Scot's Arabic-Latin Translation. Part Three*, ed. A.M.I. VAN OPPENRAAIJ (Leiden/New York/Köln, 1992), p. 231.

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ren. Auch die folgenden neun Paragraphen stammen aus verschiedenen Stellen von Aristoteles, vermittelt durch jene von Thomas III ausgiebig, aber immer stillschweigend, benutzte Enzyklopädie! Gleiches gilt für die Paragraphen 15 bis 17 sowie 19-22. Ein Sonderfall ist § 18: Hier liest man bei Thomas III 4,7 "De canicie"[17]: "Alexander: Das Auge erscheine zuerst, werde aber zuletzt geschaffen [d.h. vollendet]." Dies entspricht wörtlich wieder Ps.-John Folsham, aber kein Randhinweis in einer der drei Handschriften weist auf Alexander Neckam als Quelle hin, U jedoch auf den tatsächlich benutzten Aristoteles. Thomas III hat also hier wie auch in vielen anderen Fällen die Abkürzung "Ar" mit "Al" verwechselt! Gemeint ist Aristoteles, *De animal.*, XVI, 6, 744a19-21[18]: "Et propter humiditatem oculorum apparent prius magni et complentur in ultimo." Man sieht, daß die Fortlassung der richtigen Beschreibung der embryonalen Augenanlagen mit ihrer durch die Feuchtigkeit bewirkten Größe zu einer widersprüch-lichen Aussage bei Ps.-John Folsham und demnach auch bei Thomas III geführt hat, daß das Auge zwar zuerst sichtbar ist, aber zuletzt vollendet wird. Es ist aber natürlich möglich, daß diese Veränderung des Aristoteles-Kontextes auf einen anderen Vermittler wie etwa die – freilich nicht benutzten – "Auctoritates Aristotelis"[19] zurückgeht.

Andererseits gelang noch kein Nachweis des folgenden angeblichen Aristoteles-Zitats von §19: "Aristoteles: Was die Sonne und der Mond am Himmel sind, das sind die Augen des Menschen im Kopf" ("Aristotiles: Quod sol et luna in celo, hoc sunt oculi hominis in capite"). Dies übernahm Thomas III ungeprüft wörtlich von Ps.-John Folsham (O, fol. 51 ra; T, p. 624; U, fol. 149 r). Wie weit dieser jedoch außer der "Meteorologie" noch weitere aristotelische Schriften in lateinischer Übersetzung benutzt hat, dürfte erst zu klären sein, wenn die Erstedition jener Enzyklopädie aus den Jahren ca. 1241 bis 1254 von meinem Schüler Dimitri Abramov vorliegen wird.

Ein besonders lehrreicher Fall für die Benutzung von Aristoteles ist das Kapitel 6,43 "De kiche" über den Eichelhäher, griech. *κίττα*, von Thomas III:

17. Thomas III, p. 23: "Alexander: Oculus primo apparet, sed ultimo creatur."

18. Arist., *De animal.* (siehe oben, n. 16), p. 98.

19. J. HAMESSE, *Les Auctoritates Aristotelis. Un florilège médiéval. Étude historique et édition critique* (Louvain/Paris, 1974).

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Thom.I/II [ed. Boese, p. 212 f.]	*Thom.III [ed. Vollmann, p. 70]*
Kyches avis est, ut dicit Aristotelis, que vociferat vocibus diversis et in quolibet fere die mutat vocem suam.	Kiches vociferat vocibus diversis et fere in quolibet die mutat vocem.
Nidificat autem super arbores ex lana et pilis ovatque ibi ovationem. Quando autem mature sunt glandes, congregat sibi ex eis cibum sufficientem.	
Educti vero pulli et ad volatum roborati cibant parentes in senectute faciuntque eos manere in nidis absque ullo labore.	Pulli huius avis ad volatum roborati cibant parentes in senio faciuntque eos in nidis vivere absque ullo labore.

Hierzu möchte ich folgendes anmerken:

Der § 1 ("Der Kiches rufe mit unterschiedlichen Stimmen und verändere seine Stimme fast an jedem Tag") bietet nichts Besonderes; denn er stammt – was Thomas I/II auch erwähnt – wörtlich aus Aristoteles, und zwar aus *De animal.*, VIII (IX), 5, 615b20 ff.[20]: "Et avis, que dicitur kiche, vociferat vocibus diversis <et> fere in quolibet die mutat vocem." Diesen Satz referiert aber auch Ps.-John Folsham (O, fol. 37 ra; T, p. 481; U, fol. 108 v): "Kike uociferat uocibus diuersis. Fere enim quolibet die uocem mutat."

Im § 2 heißt es dann: "Die bereits für den Flug kräftigen Jungen dieses Vogels füttern ihre Eltern im Greisenalter und bewirken, daß diese ohne Mühe in den Nestern leben". Dies steht etwas tiefer bei Aristoteles (615b25 f.), aber in bezug auf den "lalac", d.h. den Storch (*πελαργός*): "Et dicunt homines, quod *pulli* **lalac** cibant patres et matres, sicut prius cibabantur ab illis. Et quidam homines dicunt, quod **marokez** *cibant parentes* non *in senectute* tantum, set in omni tempore, in quo poterunt, et *parentes manent in nidis sine labore*." Dieser letzte Satz

20. Arist. lat. (siehe oben, n. 9), p. 138.

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bezieht sich bei Aristoteles wieder auf eine andere Vogelart, nämlich die "marokez", d.h. *μέροπες*, die Bienenfresser, doch auch er wurde fälschlich bereits von Thomas I/II auf den nur dort (nicht aber bei Thomas III!) wegen der Eichelnahrung als Eichelhäher identifizierbaren Vogel "kiches" (*κίττα*) übertragen.

Ein weiteres Beispiel:

Der letzte Paragraph (18) des Schwalbenkapitels 6,41 "De yrundine" lautet in der Gegenüberstellung:

Thom.III [ed. Vollmann, p.70]	*Ps.-John Folsham (O;T,U)*
Bis ovat in anno, ut dicit Aristotiles, sed ova eius in hieme corrumpuntur propter frigus.	Bis ouant in anno, set oua eius in hyeme corrumpuntur propter hyemem.
	Arist. V,3 [ed. Vollm. p.79] Irrundines vero ovant bis, et similiter fatocor [griech. *κόττυφος*]. Et ova prima corrumpuntur propter hiemem.

Thomas III hat den von Ps.-John Folsham (O, fol. 37 ra; T, p. 480; U, fol. 108 v) übernommenen Absatz: "Sie (die Schwalbe) legt zweimal im Jahr Eier, wie Aristoteles sagt, aber ihre Eier werden im Winter wegen der Kälte verdorben," nicht nur aus dem Plural in den Singular verändert, sondern die Tautologie "in hyeme ... propter hyemem" durch die Ersetzung von "hiemem" durch "frigus" beseitigt. Aber gerade "hiemem" bietet der Aristoteles-Text (*De animal.*, V, 3, 544a25[21])! Übrigens weist die Handschrift T von Ps.-John Folsham auf dem Blattrand auf die Quelle hin: "Aristotiles libro 6".

Im 1. Kapitel des 6. Buches von Thomas III, des "sermo generalis de avibus", stellen wir fest, daß die Paragraphen 19-33 überwiegend Exzerpte aus "de animalibus" des Aristoteles enthalten, welche aber in dieser Reihenfolge aus einer O nahestehenden Handschrift des Ps.-John Folsham entnommen sind. Dies verdeutlicht die Gegenüberstellung:

21. Arist. lat. (siehe oben, n. 9), p. 79.

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Thomas III: 6,1 "Sermo generalis de avibus"

Thom.III [ed. Vollm., p.52 f.]	*Ps.-John Folsham (O;T;U)*
§ 19 Aristotiles. Aves que comedunt carnes non ovant nisi semel in anno, preter yrundines, que ovant bis.	Aues que comedunt carnes non ouant nisi semel in anno preter yrundines, que ouant bis.
§ 20 Idem: Egritudo avium cognoscitur ex turbatione alarum.	Egritudo auium cognoscitur ex turbacione alarum.
§ 21 Idem: Aves cum pugnant ad invicem, ponunt super plagas origanum agreste.	Aues cum pugnant ad inuicem ponunt super plagas origanum agreste.
§ 22 Idem: Aves rapaces colerice sunt et ita multum calide.	Aues rapaces colerice sunt et ita multum calide.
§ 23 Idem: Omnes aves uncorum unguium cum vident pullos suos **post** se volare, percutiunt illos et eiciunt a nidis, et quando sunt completi, non sunt solliciti preter cornicem, que cogitat de pullis suis longo tempore.	Omnes aues uncorum unguium cum uident pullos suos **posse** volare, percuciunt illos et eiciunt a suis nidis, et quando sunt completi, non sunt solliciti preter cornicem, que cogitat de pullis suis longo tempore.
§ 24 Idem: Ut plurimum aves uncorum unguium sunt paucorum ovorum.	Ut plurimum aues uncorum unguium sunt paucorum ouorum.
§ 25 Idem: Ova longa acuti capitis producunt mares, rotunda vero et habentia in loco acuminis rotundum producunt feminas.	Oua longa acuti capitis producunt mares, rotunda uero et habentia in loco acuminis rotundum producunt feminas.
§ 26 Pulli autem erunt ex parte acuta.	Pulli autem erunt ex parte acuta.
§ 27 Idem: Ova habent duos colores. Principium generationis est ab albo, cibus a citrino.	Oua habent duos colores. Principium generationis est ab albo, cibus a citrino.
§ 28 Idem: Ova non sunt generabilia nisi que masculino **sunt** concubitu concepta et spiritu penetrata.	<Oua> non sunt generabilia nisi que **fuerint** concubitu masculino concepta et spiritu penetrata.
29 Idem: Pullus completur in diebus X **preter** generationem.	Pullus completur in X diebus **post** generationem.

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§ 30 Ovi prius exit latum, post acutum.	Oui prius exit latum, post acutum.
§ 31 Omnia genera volucrum bis nascuntur; primum enim ova gignuntur, **tandem** calore corporis materni formantur et animantur.	Omnia genera uolucrum bis nascuntur; primum enim oua gignuntur, **inde** calore materni corporis formantur et animantur.
§ 32 Idem: Tonitruum corrumpit ova tempore cubationis.	Tonitruum corrumpit oua tempore cubacionis.
§ 33 Idem: Glarea albuginis iniecta in liquorem spissum ut sirupum subtiliat ipsum et attenuat.	Glarea albuginis iniecta in liquorem spissum ut sirupum subtiliat ipsum et attenuat.

Man sieht, daß die Übereinstimmungen zwischen Thomas III und Ps.-John Folsham verblüffend sind. Allerdings habe ich der Deutlichkeit halber die Varianten der Handschriften fortgelassen, doch ließ sich durch eine vergleichende Heranziehung dieser drei Textzeugen der Thomas III vorliegende Kontext aus der Mitte des 13. Jahrhunderts leicht rekonstruieren.

Sehen wir uns jetzt an, wie weit der Aristoteles-Text mit der Konkordanz von Thomas III und Ps.-John Folsham übereinstimmt:

[§ 19]: Aristoteles, *De animal.*, VI, 1, 563a13 ff.[22]: "Et aves que comedunt carnes, non ovant nisi semel in anno preter irrundines, quoniam ille sole inter comedentes carnes pullificant bis."

[§ 20]: Aristoteles, *De animal.*, VII(VIII), 8, 601b5 ff.[23]: "Et egritudines avium cognoscuntur ex alis, quoniam cum infirmantur, turbatur s[c]itus alarum et non remanebunt in una dispositione." Hier entspricht die Formulierung von Thomas I/II ziemlich genau dem Text des Aristoteles, den er ja auch direkt vor Augen hatte, während andererseits Thomas III die Enzyklopädie des Ps.-John Folsham ausschreibt. Der Satz muß deshalb auch in der Edition von Vollmann[24] fett gedruckt werden.

[§ 21]: Aristoteles, *De animal.*, VIII(IX), 4, 612a33 ff.[25]: "Et alie aves, cum pugnant ad invicem, ponunt super plagas origanum agreste."

22. Arist. lat. (siehe oben, n. 9), p. 90.
23. Arist. lat. (siehe oben, n. 9), p. 120.
24. Thomas III, p. 52.
25. Arist. lat. (siehe oben, n. 9), p. 133.

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[§ 22]: Daß die Greifvögel cholerischer Natur seien, kann ich bei Aristoteles nicht finden. Es sei denn, daß "colerice" ein Fehler für "calide" ist: *De animal.*, XVII, 1, 753a33[26]: "Quoniam iste modus (sc. aves uncorum unguium) avium est calidae naturae."

[§ 23]: Aristoteles, *De animal.*, VI, 1, 563b7 ff.[27]: "Et omnes aves uncorum unguium, cum viderint suos pullos posse volare, percutiunt illos et eitiunt eos a suis nidis. Et quando sui pulli fueri<n>t completi, non sunt solliciti super ipsos preter acohat (i.m.: cornix latine) quoniam cogitat de suis pullis magno tempore, et quando volant sui pulli, volat cum eis et dat eis ad comedendum." Hier wird deutlich, daß Ps.-John Folsham eine Aristoteles-Handschrift zur Verfügung hatte, welche die Glosse enthielt. Aristoteles selbst spricht von der Krähe (κορώνη), die er demnach für einen Greifvogel gehalten hat.

[§ 24]: Aristoteles, *De animal.*, VI, 1, 558b28 ff.[28]: "Et aves uncorum unguium sunt paucorum <ovorum>."

[§ 25]: Aristoteles, *De animal.*, VI, 1, 559a29 ff.[29]: "Ova vero longa accuti capitis producunt mares; rotunda vero, habentia in loco acuminis rotundum producunt feminas."

[§ 26]: Aristoteles, *De animal.*, XVII, 3, 754b11-12[30]: "Pulli autem avium erunt ex parte acuta, scilicet ex parte per quam sunt ova continuata cum matrice."

[§ 27]: Aristoteles, *De animal.*, XVII, 1, 751a32 f.[31]: "Et non sunt duo colores nisi propter fortitudinem membrorum" und 751b5-7: "Principium ergo generationis animalium erit ex albo, quoniam principium animae est in calido, cibus autem erit ex citrino." Eine Parallele findet sich *De animal.*, VI, 1, 561a24 ff.[32]: "Et principium generationis pulli est ab albumine et cibus eius a vitello."

[§ 28]: Vgl. Aristoteles, *De animal.*, XVII, 5, 756a18-20[33]: "Et ova quae sunt in piscibus per se non conveniunt generationi praeterquam ova super quae eicit mas sperma."

26. Arist., *De animal.* (siehe oben, n. 16), p. 129.
27. Arist. lat. (siehe oben, n. 9), p. 90.
28. Arist. lat. (siehe oben, n. 9), p. 86.
29. Arist. lat. (siehe oben, n. 9), p. 87.
30. Arist., *De animal.* (siehe oben, n. 16), p. 132.
31. Arist., *De animal.* (siehe oben, n. 16), p. 122.
32. Arist. lat. (siehe oben, n. 9), p. 88.
33. Arist., *De animal.* (siehe oben, n. 16), p. 138.

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[§ 29]: Aristoteles, *De animal.*, VI, 1, 561a26 ff.[34]: "Et quando transierint decem dies generationis pulli, complebitur pullus."

[§ 30]: Aristoteles, *De animal.*, VI, 1, 559a28 ff.[35]: "Et prius (sc. ouum) erit latum et post accutum." Seinen Fehler (**exit** statt **erit**) verdankt Thomas III eindeutig der Enzyklopädie!

[§ 31]: Daß alle Vögel eine zweifache Entstehung hätten, zunächst als Ei, danach durch Ausbrüten als Küken, finde ich nicht bei Aristoteles.

[§ 32]: Aristoteles, *De animal.* VI, 1, 560a4 ff.[36] weicht in der Formulierung etwas ab: "Et quando tonitrua veniunt in hora cubationis, corrumpunt ova."

[§ 33]: Woher Ps.-John Folsham die Angabe hat, daß das Reine des Weißen, in eine zähe Flüssigkeit wie Sirup geworfen, diese fein und dünner mache, habe ich noch nicht feststellen können.

Vieles vom Inhalt dieser Paragraphen, die alle von Vollmann als Zusatz gegenüber Thomas I/II fett zu drucken sind, findet man auch gleichlautend im zweiten Teil des Kapitels 6,35 "Über die Haushenne" von Thomas III.[37] Dort lesen wir als letzten Paragraphen das folgende Zitat über das Unterlegen der Eier bei zunehmendem Mond mit der Überschrift "Michael Scotus", den Thomas III also durch Ps.-John Folsham, im Gegensatz zu Thomas I, mit vollem Namen kannte: "Michael Scotus: Galline ova sunt subponenda crescente luna." In der Form: "Gallinis oua sunt subponenda crescente luna" ist auch hier Ps.-John Folsham die Quelle von Thomas III gewesen. In der Handschrift O, welche, wie gesagt, der benutzten Vorlage des Thomas III nahesteht, wird dabei auf dem Rand Michael Scotus als Gewährsmann genannt. Ob damit die auch von ihm gegen 1230 angefertigte Übersetzung der "Abbreviatio Avicenne"[38] gemeint ist, habe ich noch nicht untersuchen können.

Zusammenfassend läßt sich sagen, daß Thomas III die aristotelische Tierkunde sowohl durch Thomas I/II benutzt hat als auch über Ps.-John Folsham, welcher vieles als aristotelisch bezeichnet hat, was man heute, zumindest in *De animalibus*, nicht entdecken kann. In der Form der Zitierung geht allerdings Thomas I/II wesentlich freier mit Aristo-

34. Arist. lat. (siehe oben, n. 9), p. 88.
35. Arist. lat. (siehe oben, n. 9), p. 87.
36. Arist. lat. (siehe oben, n. 9), p. 87.
37. Thomas III (siehe oben, n. 11), p. 67.
38. In: *Avicenne perhypatetici philosophi ... opera* (Venetiis, 1508), f. 29r-64r.

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teles um als Ps.-John Folsham. Insofern bietet gerade dieser von der Forschung bisher völlig vernachlässigte Autor um die Mitte des 13. Jahrhunderts eine gute Möglichkeit der Rekonstruktion des damaligen lateinischen Textes! Daß die von Thomas III jeweils angeführte Quelle, und dies gilt nicht nur für Aristoteles, manchmal mit der in den Handschriften O und U auf dem Rand notierten Quellenangabe des Ps.-John Folsham nicht übereinstimmt, kann daran liegen, daß erklärende Zeichen oder Markierungen für den Anfang der jeweiligen Quellenzuschreibung fehlen, sodaß vielleicht auch in der Vorlage des Thomas III die gleiche Unsicherheit geherrscht hat. Meine Aufgabe als Kommentator von Thomas III ist daher ebenso reizvoll wie schwierig, weil ich bei jeder einzelnen Stelle zu berücksichtigen habe, ob die Aristoteles-Kenntnis aus direkter oder indirekter Quelle wie etwa Ps.-John Folsham, geflossen ist.

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THEODOR WOLFRAM KÖHLER

DIE WISSENSCHAFTSTHEORETISCHE UND INHALTLICHE BEDEUTUNG DER REZEPTION VON *DE ANIMALIBUS* FÜR DEN PHILOSOPHISCH-ANTHROPOLOGISCHEN DISKURS IM 13. JAHRHUNDERT

Die folgenden Beobachtungen zur inhaltlichen und wissenschaftstheoretischen Bedeutung der Rezeption von *De animalibus* ergaben sich im Zuge der Arbeit an meinem Forschungsprojekt zum philosophisch-anthropologischen Diskurs im 13. Jahrhundert. Dabei zog naturgemäß sehr bald die Beschäftigung der Autoren dieses Zeitraumes mit dem aristotelischen Textbuch *De animalibus* die Aufmerksamkeit auf sich. Dieses Werk war, wie hier nur kurz in Erinnerung zu rufen ist, durch die spätestens seit Anfang 1220 vorliegende Übersetzung des Michael Scotus aus dem Arabischen weiten Gelehrtenkreisen im Westen zugänglich geworden. Michaels Übersetzung gab in ihren neunzehn Büchern die drei tierkundlichen Abhandlungen des Stagiriten, *Hist. An.*, *Part. An.* und *Gen. An.* wieder.

Bei meiner Untersuchung von Quellentexten zur Beschäftigung der Autoren mit *De animalibus* standen unter anderem zwei Gesichtspunkte im Vordergrund: Erstens, welche Funktion und Bedeutung maßen die Magister des 13. Jahrhunderts *nach eigenem Bekunden* diesem aristotelischen Textbuch hinsichtlich des philosophischen Erkenntnisbemühens um den Menschen zu? Zweitens, welche wissenschaftstheoretisch-methodologischen Impulse gingen von der Beschäftigung mit *De animalibus* aus? Dabei ergaben sich zwei grundlegende Befunde: Erstens, die Wissenschaft von den Sinnenwesen[1] (Tieren) galt im Untersuchungszeitraum neben der Medizin, der Wissenschaft von der Seele und in gewisser Weise der Moralwissenschaft als Schwerpunktdisziplin philosophischer Erkenntnisbemühung um den Menschen; zweitens, die Bekanntschaft mit *De animalibus* gab Anlaß zu wissenschaftstheoretischen Überlegungen, die zu einer erweiterten Konzeption wissenschaftlicher Erkenntnis beitrugen.

Da ich zu letzterem, dem wissenschaftstheoretisch-methodologischen Befund, bereits drei Studien vorgelegt habe,[2] werde ich mich

1. Cf. Alberts Begriffsbestimmung von *animal* als *substantia animata sensibilis*: Albertus, *De animalibus*, XI, § 8, 763, 35.

2. Th.W. KÖHLER, "'Processus narrativus'. Zur Entwicklung des Wissenschaftskonzepts in der Hochscholastik", *Salzburger Jahrbuch für Philosophie* 39 (1994) 109-

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dazu mit einem summarischen Hinweis am Schluß dieser Untersuchung begnügen, um ausführlicher auf den ersten, zentralen Befund eingehen zu können. Diesen werde ich nach einer Vorbemerkung zum Quellenfundus und zur wissenschaftshistorischen Ausgangslage (Teil I) anhand folgender zwei Sachverhalte zu belegen versuchen: Die Wissenschaft von den Sinnenwesen gehört zu denjenigen Disziplinen, die im Untersuchungszeitraum formell als *scientia de homine* erwogen wurden (Teil II); eine starke Gruppe von Autoren weist das aristotelische Textbuch *De animalibus* bzw. die Wissenschaft von den Sinnenwesen als wissenschaftssystematischen Ort der philosophischen Erörterung über den menschlichen Leib aus (Teil III). Hervorheben möchte ich, daß meine Beobachtungen sich auf die *formellen wissenschaftstheoretischen Äußerungen* der Autoren zu *De animalibus* beziehen, nicht auf die *faktische inhaltliche Rezeption* dieses Werkes.

I.

Hauptquellen für die hier mitzuteilenden Beobachtungen sind die einschlägigen Passagen aus Kommentaren zu *De animalibus* sowie die in großer Zahl überlieferten *divisiones scientiae*. Der Werktyp der Wissenschaftseinteilungen liegt vor in Form selbständiger Einleitungsschriften, insbesondere aber auch in Form von Einleitungen zu einem bestimmten Textbuch, wie dies in zahlreichen Kommentarprologen unter anderem zu fast allen aristotelischen und ps.-aristotelischen Schriften sowie zumal auch zur *Isagoge* des Porphyrios zu beobachten ist.

Die Mehrzahl unserer Textzeugnisse datiert schwerpunktmäßig aus den Jahrzehnten um die Mitte des 13. Jahrhunderts. Das bedeutet, sie müssen ebenso wie auch die uns hier beschäftigende Thematik in einem Kontext gesehen werden, der unter anderem durch drei Faktoren gekennzeichnet ist: durch das aus dem Autonomiebestreben der Artisten einerseits und dem erweiterten spekulativen Kontakt der Theologie mit der Philosophie andererseits verstärkt erwachsene Interesse, philosophische gegenüber theologischen Behandlungsperspektiven abzugrenzen; durch die Entwicklung der Medizin zur Universitätsdis-

127; idem, "Wissenschaftliche Annäherung an das Individuelle im 13. Jahrhundert. Der Einfluß von 'De animalibus' des Aristoteles", in *Individuum und Individualität im Mittelalter*, ed. J.A. AERTSEN und A. SPEER, Miscellanea Mediaevalia 24 (Berlin, 1996), pp. 161-177; idem, "'Scientia perfecta'. Zur Konzeption philosophischer Erschließung empirischer Gegenstandsbereiche im 13. Jahrhundert", in *Was ist Philosophie im Mittelalter?*, ed. J.A. AERTSEN und A. SPEER, Miscellanea Mediaevalia 26 (Berlin, 1998), pp. 749-755.

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ziplin – verbunden mit der Notwendigkeit, deren fakultären und wissenschaftstheoretischen Status zu klären –, und insbesondere, als herausragender Impulsgeber jener Jahre, durch das fortschreitende Bekanntwerden des "neuen" Aristoteles, speziell der aristotelischen und ps.-aristotelischen *libri naturales,*[3] und dessen Berücksichtigung in den universitären Curricula.

Das Bekanntwerden des breiten Fächers der *libri naturales* konfrontierte die Autoren mit einem bemerkenswerten Sachverhalt: Unter diesen Werken fand sich keines, das formell den Menschen als solchen zum Thema gehabt hätte. Es gab darunter keinen *liber de homine*, und das durch das *Corpus Aristotelicum* aufgespannte Wissenschaftsspektrum sah keine eigene *scientia de homine* vor. Damit aber ergab sich das Problem, wo innerhalb einer Systematik der verschiedenen philosophischen Disziplinen schwerpunktmäßig und *de iure* ein Ort für die philosophische Erkenntnisbemühung um den Menschen anzusetzen sei: wenn nicht in einer eigenen *scientia de homine*, in welchem Teilbereich der Philosophie dann?

II.

Die wichtigsten Gewährsleute für die formelle Erörterung der Frage nach einer eigenen Wissenschaft vom Menschen sind, soweit ich die Quellenzeugnisse überblicke, Petrus Hispanus (Medicus), der Verfasser eines Kommentars zu *De animalibus* aus Vat.lat. 2164 und Robert Kilwardby. In bezug auf Petrus Hispanus ist die seit neuestem veränderte Forschungslage zu berücksichtigen. Wie José Francisco Meirinhos nach meinem Dafürhalten mit überzeugenden Gründen dargelegt hat, können die bislang einheitlich Petrus Hispanus, dem späteren Papst Johannes XXI., zugeschriebenen Werke schwerlich alle von diesem verfaßt worden sein. Offenbar ist von mindestens drei verschiedenen Verfassern auszugehen.[4] Im Anschluß an Meirinhos unter-

3. Hierzu: C.H. LOHR, "The new Aristotle and 'science' in the Paris arts faculty (1255)", in *L'enseignement des disciplines à la Faculté des arts de Paris (Paris et Oxford, XIIIe-XVe siècles)*, ed. O. WEIJERS und L. HOLTZ, Studia Artistarum 4 (Turnhout, 1997), pp. 251-269, hier: 253-256.

4. J.F. MEIRINHOS, "Petrus Hispanus Portugalensis? Elementos para uma differenciaçao de autores", *Revista Española de Filosofía Medieval* 3 (1996), 51-76, hier: 70; 76; idem, "A atribuiçao a Petrus Yspanus das Sententie super libro de physonomia de Guillelmus Hispanus, no manuscrito Vaticano, Urb. lat. 1392", *Mediaevalia* 7-8 (1995), 329-359, hier: 345. Cf. auch A. D'ORS, "Petrus Hispanus O.P., Auctor Summularum", *Vivarium* 35 (1997), 21-71.

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scheide ich daher im folgenden zwischen Petrus Hispanus (Medicus), dem Verfasser des Madrider *De animalibus*-Kommentars und möglicherweise eines Kommentars zur *Articella*, Petrus Hispanus Portugalensis, dem Verfasser der *Scientia libri de anima*, und Petrus Hispanus, dem Verfasser der *Sententia cum questionibus in libros de anima*.

(1) Explizit und in grundsätzlicher Perspektive hat Petrus Hispanus (Medicus) die Frage einer eigenen *scientia de homine* erörtert. Sein Prolog zu den *Questiones super libro de animalibus*, entstanden wohl nicht lange nach 1245,[5] ist für diese Fragestellung das nach meiner Kenntnis bedeutendste Quellenzeugnis, über das wir aus dem Untersuchungszeitraum verfügen.

Im Anschluß an die Einteilung der neunzehn Bücher *De animalibus* erörtert Petrus eine Serie von wissenschaftstheoretisch aufschlußreichen Fragen. Zwei von ihnen sind unmittelbar zur Sache. Die eine lautet, warum sich unter den aristotelischen Schriften keine eigentliche Abhandlung über den Menschen (*proprie dictum de homine*) findet, die andere, die hier besonders interessiert, ob nicht der Mensch als Gegenstand (*subiectum*) der Wissenschaft von den Sinnenwesen (Tieren) in Betracht zu ziehen sei.[6]

"Warum", so lautet also die erste Frage, "verfügen wir über kein eigentliches Textbuch über den Menschen, wo sich doch in der Erkenntnis des Menschen die höchste Erkenntnis und die ganze Philosophie vollendet und sowohl über die Pflanzen als auch über die Sin-

5. Zur Datierung unter der traditionellen Zuschreibung 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*, Ph.D. Diss. (Notre Dame, 1991), p. 30, p. 85 gegenüber der von T. GOLDSTEIN-PRÉAUD, "Albert le Grand et les questions du XIIIe siècle sur le de animalibus d'Aristote", *History and Philosophy of the Life Sciences* 3 (1981), 61-71, hier: 64 vorgeschlagenen.

6. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (Madrid, Biblioteca Nacional, MS lat. 1877 [= *M*], fol. 256va): "Postea queritur de subiecto istius sciencie, an homo sit subiectum vel animal. [...] Preterea (post *M*) cum habeamus unum librum proprie dictum de plantis, alium de animalibus, quare non habemus unum proprie dictum de homine [...]." Bislang galt die Handschrift von Madrid als einziger Textzeuge dieses Kommentars. Zu großem Dank bin ich Silvia Nagel verpflichtet. Sie machte mich im Mai 1997 liebenswürdigerweise darauf aufmerksam, daß in der Handschrift der Biblioteca Apostolica Vaticana MS Vat.lat. 6758, fol. 149ra-177rb vor kurzem ein zusätzlicher Textzeuge entdeckt wurde. Im folgenden zitiere ich nach dem Madrider Codex (*M*), wobei mit der Sigle *Va* die Varianten des Vaticanus, soweit sie über das Orthographische hinausgehen, vermerkt werden. Nicht berücksichtigt sind belanglose Wortumstellungen.

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nenwesen (Tiere) jeweils eigene Werke vorliegen?"[7] Petrus Hispanus (Medicus) erklärt und rechtfertigt diesen Sachverhalt damit, daß eine Wissenschaft vom Menschen überhaupt nur in dreifacher Hinsicht möglich sei: in bezug auf das Vegetative, in bezug auf das Sensitive und in bezug auf seine Erhaltung. In bezug auf das Vegetative und das Sensitive stimme der Mensch mit den Pflanzen und Tieren überein. Für diese gebe es jedoch jeweils eine eigene Wissenschaft, in deren Untersuchungsbereich auch der Mensch unter diesen Aspekten falle. Unter dem Gesichtspunkt des Vegetativen und des Sensitiven bedürfe es daher über die Wissenschaft von den Pflanzen und von den Tieren hinaus keiner eigenen Wissenschaft vom Menschen. In bezug auf den Intellekt, was er sei, genüge – stellt Petrus in einem Einschub fest – die Wissenschaft von der Seele.[8] Die dritte Hinsicht, in welcher der Mensch untersucht werden könne, sei die der Erhaltung seines (individuellen) Lebens. In diesem Fall handele es sich aber, so Petrus, nicht um eine philosophische Betrachtung. Eine solche habe Wahrheitserkenntnis zum Ziel. Die Betrachtung des Menschen in lebenserhaltender Hinsicht hingegen ziele auf handelndes Eingreifen.[9] Sie folge also keiner theoretischen, sondern einer praktischen Perspektive. Mit diesem dritten Betrachtungsgesichtspunkt meint Petrus denjenigen der praktischen Medizin. Falls Petrus zugleich der Autor des in derselben Madrider Handschrift enthaltenen Kommentars zur *Articella* sein

7. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "Preterea (post *M*) cum habeamus unum librum proprie dictum de plantis, alium de animalibus, quare non habemus unum proprie dictum de homine, cum in cognitione hominis sit cognitio ultimata et philosophia."

8. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "Ad aliud (aliud] idem *Va*) dicendum, quod non potuimus habere librum proprium de homine, quoniam de homine non potuit esse (esse *om. Va*) nisi triplex sciencia, vel in quantum est vegetativum vel in quantum est sensitivum – et quoniam in his convenit cum plantis et brutis, ideo (iam *M*) non oportuit esse aliam scienciam (scienciam *om. Va*) quam de plantis <et de brutis>; si in quantum est sciencia intell<ectu>s (intellectiva *Va*) quid sit, sufficit sciencia de anima; ideo et cetera – vel quantum ad conservationem istius hominis." Cf. Petrus Hispanus, *Sententia cum questionibus in libros de anima* 1.14, ed. M. ALONSO, *Pedro Hispano: Obras filosóficas*, 2 (Madrid, 1944), p. 82 l. 24-31; p. 83 l. 30-32.

9. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "[...] vel quantum ad conservationem istius hominis. Ista autem (autem *om. Va*) operationem respicit. Finis autem ipsius (istius *Va*) philosophie est veritas et non operatio (opera *Va*); et (et *om. M*) ideo de ipso quantum ad hoc non potuit esse philosophica sciencia. Sed si esset a (a *om. Va*) materia, non differret (differeret *M* differet *Va*). Et sic patet solutio quesitorum circa partem istam."

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sollte, wäre – zumindest auf den ersten Blick – eine gewisse Inkonsistenz festzustellen: Im *Articella*-Kommentar wird der menschliche Leib als Gegenstand der Medizin genannt.[10]

Die uns besonders interessierende Frage ist die zweite, ob nicht die Wissenschaft von den Sinnenwesen – trotz des anders lautenden Titels des entsprechenden aristotelischen Textbuches *De animalibus* – eigentlich eine vom Menschen handelnde Wissenschaft darstelle. Petrus geht diese Frage mit besonderer Umsicht an. Er entfaltet sie methodisch in der Form einer *quaestio* mit jeweils zwei Argumenten und zwei Gegenargumenten. Die Annahme, daß die Wissenschaft von den Sinnenwesen eigentlich den Menschen zum Gegenstand habe, findet nach den beiden Argumenten Rückhalt in zwei Äußerungen des Aristoteles selbst. So scheine aus einer Bemerkung des Stagiriten am Schluß der *Meteor.* hervorzugehen, daß dieser die Absicht gehabt habe, seine vorausgegangenen Untersuchungen jeweils in einer Wissenschaft von den Pflanzen und vom Menschen weiterzuführen. Da aber im Unterschied zur Abhandlung über die Pflanzen in *Plant.* tatsächlich keine der aristotelischen Wissenschaften speziell über den Menschen handle, habe es den Anschein, als geschehe eben dies in der Wissenschaft von den Sinnenwesen.[11]

Das zweite Argument bezieht sich auf die oft zitierten Äußerungen des Stagiriten im siebenten und neunten Buch *De animalibus*, wonach alle Lehraussagen in der Wissenschaft von den Sinnenwesen letztlich im Hinblick auf den Menschen gemacht werden. Zulässig ist es diesem Argument zufolge, dasjenige als *subiectum* einer Wissenschaft zu bezeichnen, auf welches vornehmlich und letztlich alle ihre Lehraussagen hingeordnet sind. Eben dies treffe im Fall der Wissenschaft von den Sinnenwesen nach dem Zeugnis des Aristoteles selbst auf den

10. *Scriptum super libro Tegni Galeni* (Madrid, Biblioteca Nacional, MS lat. 1877, fol. 48ra): "Primo igitur modo est medicina alias scientias excellens, que de rebus corporalibus sunt nobilibus, eo quod subiectum eius est corpus humanum, quod nobilissimum in sui natura, quia omnia sunt propter ipsum et ad eius constitutionem omnes (omnes *e corr. cod.*) nature concurrunt, et a parte sue perfectionis, que est anima racionalis."

11. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "Nam dicit Philosophus in quarto metheorum (methaur<um> *M*): 'Videtur, quod dictum est de (de *om. Va*) partibus consimilibus et officialibus. Dicemus postea de plantis et de homine.' Ergo cum in nulla alia sciencia determinet de homine, videtur quod hic determinet de homine. Sed in sciencia de plantis planta est subiectum. Ergo in hac (in hac] et hic *Va*) homo erit subiectum." Cf. Aristoteles, *Meteor.* IV, 12, 390b19-22.

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Menschen zu. Folglich könne er auch als Gegenstand dieser Wissenschaft angesehen werden.[12]

Auch die beiden Contra-Argumente berufen sich für ihren Standpunkt auf die Autorität des Aristoteles. Das erste führt ins Feld, der Stagirite betone, daß jeweils eine einzelne Wissenschaft auch nur einen einzigen Gegenstand habe, den sie auf seine Teile und Eigenschaften hin untersuche. In der Wissenschaft von den Sinnenwesen aber würden Lehraussagen über Teile und Eigenschaften nicht nur des Menschen, sondern überhaupt eines jeden Sinnenwesens gemacht. Daher könne auch nicht der Mensch als solcher Gegenstand dieser Wissenschaft sein, sondern nur generell jedes Sinnenwesen.[13] Das zweite Gegenargument nimmt auf den Titel der Schrift Bezug und verweist darauf, daß nach dem Stagiriten ein Werktitel im Hinblick auf die Wirk- und Materialursache zu wählen sei (und somit den Gegenstand anzeige). Nach dem Zeugnis des Übersetzers der Schrift *De animalibus* handle dieses Werk aber von den Land- und Meerestieren insgesamt. Der Mensch mache aber nicht alle Land- und Schwimmtiere aus, sondern lediglich einen Teil der auf dem Land lebenden Tiere. Folglich könne er auch nicht der Gegenstand dieser Wissenschaft sein.[14]

12. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "Ad idem: Subiectum alicuius (alicuius] huius *Va*) sciencie potest esse multipliciter; aut per resolutionem, aut id, a quo fluunt omnia, et hoc modo punctus est subiectum in geometria, unitas in arismetrica, materia prima in omnibus mixtis – ab ea enim exeunt et (et *om. Va*) ad ipsam fluunt –; alio modo id, ad (ad *om. Va*) quod principaliter et finaliter omnia determinata in illa sciencia ordinantur, et sic est felicitas (infelicitas *Va*) subiectum in moralibus. Sed (sed] si *Va*) dicit inferius in VII° et IX°, quod omnia, que determinantur in hac sciencia, determinantur (-nat *M*) propter hominem. Ergo ad ipsum omnia, que in ista sciencia determinantur, ad hominem ordinantur, et (et *om. Va*) omne tale est subiectum in sciencia. Ergo homo est subiectum in hac sciencia." Zu diesem Gegenstandskonzept generell auch: *Compendium examinatorium Parisiense* 77, ed. C. LAFLEUR, *Le 'Guide de l'étudiant' d'un maître anonyme de la Faculté des arts de Paris au XIIIe siècle* (Québec, 1992), p. 54; Albertus, *Super ethica* Prol. 3c, ed. W. KÜBEL, *Alberti Magni ... opera omnia*, 14/1 (Münster, 1968-1972), p. 3 l. 54-64.

13. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "Contra: Sicut dicit Philosophus in libro posteriorum, una est sciencia, que est unius generis subiecti partes et passiones considerans. Cum ergo non determinet in hac sciencia solum partes et (et] in *Va*) passiones hominis, sed cuiuslibet animalis, non erit homo subiectum in hac sciencia, sed potius quodlibet animal." Cf. Aristoteles, *Anal. post.* I, 28, 87a38-b1.

14. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "Ad idem: Titulus debet componi ex efficiente et materiali causa (causa *om. Va*), secundum quod dicit Philosophus. Sed iste liber est animalium agrestium et marinorum, ut testatur translator. Ergo cum homo non sit omnia animalia agrestia et

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Petrus entscheidet die Frage, indem er einen im zweiten Argument geäußerten Gedanken aufnimmt und zugleich präzisiert. Danach kann auch dasjenige als Gegenstand einer Wissenschaft angesehen werden, auf das als obersten Zweck alle Lehraussagen dieser Wissenschaft hingeordnet sind. Petrus unterscheidet hierzu zwischen dem Ziel einer Handlung (*finis operationis*), beispielsweise der Fertigstellung eines Hauses, und dem mit der Handlung beabsichtigten Zweck (*finis intentionis*), nämlich – im Hausbeispiel – durch das fertige Haus den Bewohnern Schutz zu bieten. Die von Petrus vorgeschlagene Lösung des Problems besteht darin, daß der Mensch zwar nicht im Sinne eines Handlungsziels Gegenstand der Wissenschaft von den Sinnenwesen sei, das sei generell das Sinnenwesen, wohl aber im Sinne des beabsichtigten Zweckes; denn alles, was in dieser Wissenschaft behandelt werde, werde des Menschen wegen behandelt und sei auf ihn hingeordnet.[15]

Die eigentliche Vorschau auf den Inhalt von *De animalibus* gibt ihm Gelegenheit, diese Überlegung zu konkretisieren. Dort führt er aus, daß Aristoteles im ersten Buch die Physiognomie und Anatomie des Menschen behandle, im zweiten und dritten vergleiche er die Glieder der bluthaltigen Tiere mit denen des Menschen, im dritten entsprechend die Glieder der blutlosen, im neunten wiederum spreche er über die menschliche Fortpflanzung und im zehnten über die Hindernisse für die menschliche Natur.[16] Wie wichtig dem Petrus der Gedanke, daß

natantia (ma- *Va*), sed (sed *om. Va*) solum pars agrestium, ergo non erit subiectum huius (huius] istius *Va*) sciencie." Gegen eine derartige Interpretation von Werktiteln wendet sich später u.a der Verfasser der *Questiones supra librum ethicorum* Proh. (Paris, Bibliothèque Nationale, MS lat. 15106, fol. 2va).

15. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256va): "Solucio: Duplex est finis; scilicet operationis, et hic ad completionem terminatur, sicut patet in carpentatore (-tacione *Va*) faciente (-tem *Va*) domum; finis eius operationis domus ad complementum domus terminatur; finis iterum est intentionis, et hic (hec *M*) in fine terminatur, scilicet ut protegat homines. Dico ergo, quod loquendo (quod l.] coloquendo *Va*) de fine operationis homo non est subiectum in hac sciencia, sed animal, secundum quod visum (iussum *Va*) est; loquendo autem de fine intentionis homo est subiectum, quia omnia, que hic determinantur, determinantur propter hominem et ad ipsum ordinantur. Hoc viso (iusso *Va*) obiecta (subiecta *Va*) solvuntur." Andere Autoren scheinen prinzipiell zwischen *subiectum* und *finis* einer Wissenschaft zu unterscheiden; so der Verfasser der *Questiones supra librum ethicorum* Proh. (Paris, Bibliothèque Nationale, MS lat. 15106, fol. 2rb-va).

16. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256rb): "In primo agit de phisonomia et anothomia in homine; in secundo et tertio

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De animalibus letztlich auf den Menschen ausgerichtet sei, gewesen ist, zeigt sich unter anderem daran, daß er ihn in der anschließenden Quaestion erneut vorbringt. Petrus verbindet ihn dort mit der Aussage, daß sich in der Erkenntnis des Menschen die Philosophie vollende.[17]

Aus dem Quellenzeugnis des Petrus Hispanus (Medicus) können wir somit folgendes festhalten: Für diesen bedeutenden Magister hat die philosophische Erörterung über den Menschen als solchen prinzipiell in den philosophischen Disziplinen insgesamt ihren Ort. Schwerpunktmäßig allerdings sieht sie Petrus in der Wissenschaft von den Sinnenwesen (Tieren), darüber hinaus auch in der Wissenschaft von den Pflanzen und von der Seele angesiedelt. Der Wissenschaft von den Sinnenwesen mißt er aber offenkundig eine besondere anthropologische Bedeutung bei. Diese naturphilosophische Wissenschaft gilt ihm als ein ausgezeichneter Ort philosophischer Erkenntnisbemühung um den Menschen als solchen. Dies ist sie in dem Maße, daß Petrus es in bestimmter Hinsicht für gerechtfertigt erachtet, den Menschen als Gegenstand derselben zu bezeichnen.

(2) Ähnlich wie Petrus Hispanus (Medicus) hat sich der bislang nicht identifizierte Verfasser eines Kommentars zu *De animalibus* aus Vat.lat. 2164 formell mit der Frage auseinandergesetzt, ob der Mensch als solcher Gegenstand der Wissenschaft von den Sinnenwesen sei. Er erörtert in allgemeiner Form, was Gegenstand dieser Wissenschaft sei.[18] Offenbar kennt er die Auffassung des Petrus Hispanus (Medicus), wonach in der Wissenschaft von den Sinnenwesen alles im Hinblick auf den Menschen betrachtet werde und dieser insofern als Gegenstand dieser Wissenschaft zu bezeichnen sei. Er nimmt auf diese These Bezug und hält ihr das uns schon bekannte Argument entgegen, daß Gegenstand dieser Wissenschaft allgemein das Sinnenwesen sei. Er verwirft die von Petrus erwogene Lösung, wonach der Mensch zwar

comparat membra brutorum habentium sanguinem ad hominem; in quarto comparat membra non habentium sanguinem ad membra hominis; [...] in nono de generatione hominis, in decimo de impedimentis humane nature."

17. Cf. n. 8.

18. *Commentarium cum questionibus super librum de animalibus* (Biblioteca Apostolica Vaticana, MS Vat.lat. 2164, fol. 235ra): "Iuxta hoc: Quid est subiectum in ista scientia." Zur Verfasserschaft und Datierung: A. MAIER, *Codices Vaticani Latini: Codices 2118-2192* (Città del Vaticano, 1961), pp. 127-129; eadem, *An der Grenze von Scholastik und Naturwissenschaft*, Storia e Letteratura 41, 2. Aufl. (Roma, 1952), p. 128 n. 85; L. COVA, "Le questioni di Giovanni Vath sul De generatione animalium", *Archives d'Histoire Doctrinale et Littéraire du Moyen Age* 59 (1992), 175-287, hier: 194 n. 80.

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nicht im Sinne eines Handlungszieles, wohl aber im Sinne des beabsichtigten Zweckes Gegenstand dieser Wissenschaft sei. Für ihn sind Gegenstand und Ziel einer Wissenschaft disparate Größen.[19] Soweit es der offensichtlich stark verderbte und vermutlich lückenhafte Zustand des überlieferten Textes zu erkennen gestattet, möchte er die Wissenschaft vom Menschen und diejenige von den Tieren nicht völlig trennen. Auf ein angefügtes Gegenargument geht er nicht mehr ein.[20]

(3) Zur Diskussion um die Frage nach einer eigenen *scientia de homine* trug unter den von uns untersuchten Autoren schließlich auch Roger Bacon bei, in den Jahren 1241-1246 Magister der Pariser Artistenfakultät.[21] Seine in den sechziger Jahren[22] in den *Communia natu-*

19. *Commentarium cum questionibus super librum de animalibus* (Vat.lat. 2164, fol. 235rb): "Et videtur, quod homo, quia illud debet esse subiectum, ad quod omnia considerantur. Sed omnia speculantur propter hominem. Ergo et cetera. Sed videtur, quod animal in communi, quia ista scientia intytulatur de naturis animalium, et ista prepositio 'de' dicit circumstantiam cause materialis. Ergo est subiectum in ista scientia. Et distinguitur: Aliquod est subiectum intencionis, et sic homo; aliud est subiectum operationis (opi<ni>onis *cod.*), et sic animal. Sed non oportet sic dicere, quia homo nullo modo est subiectum, sed in ratione finis. Sic eciam est in sciencia morali. Sed illud est subiectum, de quo partes et passiones probantur in scientia. Sed de animali omnia probantur, scilicet partes et passiones. Ergo animal est subiectum huius (cuiuslibet *cod.*) sciencie." Zur Diskussion über das Verhältnis von wissenschaftlichem Gegenstand und Ziel in bezug auf die Theologie cf. U. KÖPF, *Die Anfänge der theologischen Wissenschaftstheorie im 13. Jahrhundert*, Beiträge zur historischen Theologie 49 (Tübingen, 1974), p. 93.

20. *Commentarium cum questionibus super librum de animalibus* (Vat.lat. 2164, fol. 235va): "Sed si animal est medium inter plantam et hominem, quare non coniungitur sciencia de plantis cum sciencia de homine? Dicitur, quod nec sciencia de homine coniungitur cum ista, ymmo est separata sicut medicina. Sed tamen non solvunt, quia scientia de homine, quam considerat naturalis, traditur in ista scientia. Propter quod dicendum, quod non debet coniungi scientia de plantis. Cum (cum] quamvis *cod.*) enim planta sit privata sublimitate hominis, (tamen] *add. cod.*) nimis remota est et per consequens <non> habet similitudinem cum homine. Non enim assimilantur <nisi> in vegitando. Sed animal, quamvis sit privatum sublimitate, quam <habet> (fol. 235va) homo, tamen magnam convenienciam habet cum eo in complexione cum figura quedam in nutrimento. Quare animal dicitur proprie privatum sublimitate hominis. Item privatio debet cognosci iuxta suum habitum. Quare <non> debuit coniungi sciencia de homine cum sciencia de animalibus, ymmo debuit esse sciencia per se separata ab ista sciencia."

21. Zu den Daten: J.D. NORTH, "Roger Bacon", in *Lexikon des Mittelalters* 7 (München, 1995), col. 940-942, hier: 940.

22. Zur Datierung: S.J. WILLIAMS, "Roger Bacon and His Edition of the Pseudo-Aristotelian Secretum secretorum", *Speculum 69* (1994), 57-73, hier: 63; T.S. MALONEY, *Roger Bacon, Compendium of the Study of Theology: Edition and Translation With Introduction and Notes*, Studien und Texte zur Geistesgeschichte des Mittelalters 20 (Leiden, 1988), p. 6.

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ralium verfochtene Lehrmeinung bringt ihn in klaren Widerspruch zu der von Petrus Hispanus und – wie wir noch sehen werden – von Robert Kilwardby vertretenen Auffassung. Roger löste die philosophisch-wissenschaftliche Betrachtung des Menschen von derjenigen der tierischen und pflanzlichen Lebewesen ab und erklärte den Menschen als solchen zum wissenschaftlichen Gegenstand der Medizin. Er sah somit den wissenschaftssystematischen Ort philosophisch-wissenschaftlicher Betrachtung des Menschen durchaus in einer eigenen *scientia de homine*, und diese identifizierte er mit der Medizin.[23] Möglich, daß sich in dieser pointierten These die von Richard Dales beobachtete gelegentliche Tendenz Rogers zur Übertreibung geltend machte.[24] Jedenfalls entspricht sie seiner Wertschätzung der Medizin, auf deren hohen Rang immer wieder hinzuweisen er nicht müde wird.[25] Hierin trifft er sich im übrigen, trotz des gegensätzlichen Standpunktes in der obigen Frage, durchaus mit Petrus Hispanus (Medicus), falls dieser mit dem Autor des erwähnten Kommentars zur *Articella* identisch ist.[26]

23. Roger Bacon, *Communia naturalium* 1.1.2, ed. R. STEELE, *Opera hactenus inedita Rogeri Baconi*, 2 (Oxford, o.J.), p. 7 l. 23-26: "Deinceps de plantarum natura et animalium specialis sciencia et maxima constituitur, scilicet, de omnibus animatis preterquam de homine, de quo, propter nobilitatem suam et necessitatem, constituitur sciencia propria que dicitur Medicina." Cf. Vincenz von Beauvais, *Speculum doctrinale* 13.1 (Douai, 1624, Nachdr. Graz, 1964), col. 1169B-C.

24. Cf. R.C. DALES, *The Problem of the Rational Soul in the Thirteenth Century*, Brill's Studies in Intellectual History 65 (Leiden, 1995), p. 75.

25. Roger Bacon, *Opus maius* 2.9, ed. J.H. BRIDGES, *The 'Opus Maius' of Roger Bacon*, 3 Bände (Oxford, 1879-1900, Nachdr. Frankfurt a.M. 1964), 1:48-49: "Et tamen ante istos fuit inaestimabilis gloria medicinae, secundum quod Aristoteles tangit in libro de regimine vitae, quam Adae et Enoch magis ascribit quam sequentibus philosophis. Et cum medicina magis sit necessaria homini quam multae aliae scientiae, non est dubium quin filii Adae et Noe illam adinvenerunt, quibus sapientiae plenitudo data fuit, et quibus concessum est tamdiu vivere propter studium sapientiae perficiendum." Cf. *ibid.* 6.12, 2:208-209.

26. *Scriptum super libro Tegni Galeni* (Madrid, B.N., lat. 1877, fol. 48ra): "Nobilitas sciencie secundum philosophos multis modis discernitur: [...] Primo igitur modo est medicina alias sciencias excellens, que de rebus corporalibus sunt nobilibus, eo quod subiectum eius est corpus humanum, [...]. Est autem quarto modo nobilis dupliciter; eo quod ad optimum finem est, scilicet ad custodiendum corpus humanum, [...]; et eo quod omnes alie sciencie sunt ordinate ad sciendum rerum naturas, hec autem ordinata est ad sciendum rerum naturas et ad conservandum eas et earum nocumenta removenda et maxime circa naturam hominis et eorum, que ad ipsum spectant. Est autem quinto modo nobilis, eo quod sine omni alia sciencia possit homo in vita salva consistere; [...]. Et cum multe sciencie apud multas gentes irrite reputentur, sola medicina apud omnes propter communem utilitatem laude celebri exaltatur. [...] Hiis modis hec sciencia super omnes laudabili extollitur nobilitate."

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(4) Die Frage einer eigenen *scientia de homine* greift Robert Kilwardby in seiner nicht lange nach dem *De animalibus*-Kommentar des Petrus Hispanus (Medicus), um 1250 am Ende seiner Pariser Lehrtätigkeit, verfaßten Einleitungsschrift *De ortu scientiarum* in einer spezielleren Variante auf.[27] Robert setzt sich mit dem an der Pariser Artistenfakultät kontrovers diskutierten Problem auseinander, warum es keinen eigenen, abgegrenzten wissenschaftlichen Lehrbereich vom vernunftbeseelten, menschlichen Leib gebe.[28] Bei der von ihm erörterten Fragestellung geht es somit nicht um das Fehlen eines aristotelischen Textbuches bzw. einer philosophischen Disziplin vom Menschen als solchem, sondern speziell um das Fehlen eines eigenen Werkes bzw. einer eigenen Disziplin vom vernunftbeseelten Leib. Diese beiden Fragen sind nicht schlechthin bedeutungsgleich und wurden, wie eine Bemerkung Alberts des Großen zeigt,[29] offenbar auch nicht so aufgefaßt.

Für Kilwardby steht ebenso wie für Petrus Hispanus (Medicus) fest, daß die naturphilosophische Teildisziplin bzw. das zugehörige Textbuch *De animalibus* des Stagiriten den sensitiv beseelten Körper, und zwar den tierischen wie den menschlichen gleichermaßen, behandelt.[30] Seine Gründe konvergieren in ein und demselben Kernargument: Der menschliche Leib stelle gegenüber dem tierischen an und für sich nichts völlig Neuartiges dar; er erfordere daher auch keine spezifische

27. Robert Kilwardby, *De ortu scientiarum*, ed. A.G. JUDY, Auctores Britannici Medii Aevi 4 (London, 1976).

28. Robert Kilwardby, *De ortu scientiarum* 10.53, ed. JUDY, p. 26 l. 22-25: "Si quis autem quaerit quare non habemus doctrinam separatam de corpore intellectivo sicut habemus de vegetativo et sensitivo, ita quod alius tractatus esset de humano corpore cui unitur intellectus et alius de corpore brutali cui non unitur nisi sensitiva potentia, dicendum [...]."

29. Albertus, *Quaestiones super de animalibus* 11.7, ed. E. FILTHAUT, *Alberti Magni ... opera omnia*, 12 (Münster, 1955), p. 221 l. 43-47.

30. Robert Kilwardby, *De ortu scientiarum* 10.52, ed. JUDY, p. 26 l. 15-20: "De posteriori, scilicet de corpore sensitivo, est liber Animalium ubi de speciebus animalium, scilicet homine et ceteris rationem non habentibus, et de partibus eorum et naturali et essentiali generatione eorundem et singularium partium eorum et de aliis eorum naturis accidentibus, de moribus etiam et omnino de anatomia eorum sufficienter docere videtur." *Ibid.* 10.57, ed. JUDY, p. 28 l. 3-5: "Dico ergo quod non est alia pars scientiae naturalis quae speculativa est de corpore humano licet ei uniatur intellectus quam de corpore brutali, et propter rationes praedictas." Cf. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* (*M*, fol. 256va) sowie Petrus Hispanus, *Sententia cum questionibus in libros de anima* 1.14, ed. ALONSO, p. 83 l. 30-32.

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wissenschaftliche Behandlung in einer eigenen Disziplin. Der wissenschaftssystematische Ort philosophischer Erörterung über ihn sei die Wissenschaft von den Sinnenwesen. Dieser verleiht somit auch Robert besonderes anthropologisches Gewicht. Ähnlich wie Petrus Hispanus (Medicus) schließt er die Möglichkeit aus, daß die Medizin eine solche eigenständige Disziplin vom menschlichen, vernunftbeseelten Leib abgeben könnte.[31]

Eben dieser Ansicht waren nicht wenige seiner Magisterkollegen an der Pariser Artistenfakultät. Auf diese Autoren werde ich insgesamt im nächsten Abschnitt eingehen. Sie gehören bereits zur Gruppe derjenigen Magister, die nicht formell zur Frage einer eigenen Wissenschaft vom Menschen oder vom menschlichen Leib Stellung nahmen, sondern im Rahmen ihrer Wissenschaftseinteilungen allgemein die Gegenstände der verschiedenen philosophischen Disziplinen gegeneinander abgrenzten. Lediglich Richard Rufus von Cornwall und Heinrich von Renham sollen schon hier mit ihrer Meinung zu Worte kommen. Anders als die übrigen sprechen sie nämlich bei ihrer Einteilung der Wissenschaften direkt die wissenschaftssystematische Zuordnung der philosophischen Erkenntnisbemühung um den Menschen (*de homine*) an. Sowohl Richard Rufus im Prolog zu seinem *Physik*-Kommentar (um 1235)[32] als auch Heinrich von Renham in Marginalglossen zum ersten Buch der *Physik* (vor 1253?)[33] weisen die wissenschaftliche

31. Robert Kilwardby, *De ortu scientiarum* 10.57, ed. JUDY, p. 27 l. 20-31: "Scio tamen quod aliqui dicunt quod est tertia scientia de corpore intellectivo, scilicet medicina, quae est de humano corpore ex parte ea qua sanatur et infirmatur. Huic non videtur mihi consentiendum, tum quia licet medicina, ut dictum est, sit de humano corpore ex parte ea qua sanatur et infirmatur, quod quidem corpus est intellectivum, non tamen operatur in eo medicina proprie secundum quod intellectivum est, sed secundum quod sensitivum et vegetativum. Medicinae enim ad hoc valent primo ut iuventur vegetativa potentia et sensitiva in operibus suis. Accidit autem aliquando ut inde iuvetur intellectiva, quia sedatis doloribus liberius vacat sibi intellectiva, quia tunc minus distrahitur eius intentio ad alia per adiunctas sibi potentias quae miscentur corpori."

32. Zur Datierung und zu Richards Kommentar insgesamt: R. WOOD, "Richard Rufus of Cornwall on Creation: The Reception of Aristotelian Physics in the West", *Medieval Philosophy & Theology* 2 (1992), 1-30, hier: 3; eadem, "Richard Rufus: Physics at Paris before 1240", *Documenti e studi sulla tradizione filosofica medievale* 5 (1994), 85-127, hier: 92-96.

33. Zur Datierung C. BURNETT, "The Introduction of Aristotle's Natural Philosophy into Great Britain: A Preliminary Survey of the Manuscript Evidence", in *Aristotle in Britain during the Middle Ages*, ed. J. MARENBON, Rencontres de Philosophie Médiévale 5 (Turnhout, 1996), pp. 21-50, hier: 40.

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Behandlung des Menschen unter körperlichem Gesichtspunkt der Medizin, in seelischer Hinsicht der Wissenschaft von der Seele zu.[34] Später geht Johannes Duns Scotus im Prolog der Ordinatio auf eine ähnliche Zuordnung ein. Diese zielt allerdings nicht auf die Medizin und die Wissenschaft von der Seele, sondern auf die Medizin und die Moralwissenschaft. Scotus hält eine solche Zuordnung, wie er kurz bemerkt, für möglich.[35]

Ich fasse zusammen: Die Quellenzeugnisse zur formellen Erörterung der Frage nach einer eigenen Wissenschaft vom Menschen als solchem bzw. einer eigenen Wissenschaft vom menschlichen, vernunftbeseelten Leib zeigen, daß in der Tat zu den philosophischen Disziplinen, die im Untersuchungszeitraum formell als *scientia de homine* diskutiert wurden, maßgeblich die Wissenschaft von den Sinnenwesen gehörte. Petrus Hispanus (Medicus) stufte sie dabei im Sinne des "beabsichtigten Zweckes" ausdrücklich als Wissenschaft vom Menschen ein, Robert Kilwardby als Ort philosophischer Erörterung über den vernunftbeseelten, menschlichen Leib. Beiden Sichtweisen liegt die Überzeugung zugrunde, daß der Mensch aufgrund seiner konstitutionellen Gemeinsamkeit mit den Tieren mit diesen zusammen in ein und derselben Wissenschaft zu behandeln sei. Beide wissenschaftstheoretischen Positionen erfuhren allerdings auch Widerspruch, sei es daß die philosophisch-wissenschaftliche Befassung mit dem Menschen ganz der Medizin, sei es daß sie teilweise der Medizin und der Wissenschaft von der Seele oder auch der Moralwissenschaft überantwortet wurde.

34. Richard Rufus von Cornwall, *Sententia libri physicorum cum questionibus* Prol. (Erfurt, Wissenschaftliche Allgemeinbibliothek, CA 4° 312, fol. 1va): "Mobile autem dictum secundum proporcionem duplex est; quoddam sensibile, quoddam intelligibile. De sensibili agitur in libro de animalibus. De intelligibili duplex est sciencia. Intelligibile enim, de quo nos loquimur, est homo. [...] De homine ergo propter sui nobilitatem una est sciencia ex parte corporis, et est medicina, alia ex parte anime, que traditur in libro de anima, cui famulantur alii parvi libri 2, quorum continuacio cum illo patet." Heinrich von Renham, *Glosa Oxoniensis*, ed. BURNETT, *The Introduction*, p. 46: "[...] aut est animatum anima vegetabili, sensibili et rationabili, cuiusmodi est homo; et de hoc est duplex perscrutatio, quia aut secundum proprietates et passiones que accidunt ei ex parte corporis – et hoc modo perscrutatur de eo in medicina – aut secundum proprietates et passiones que accidunt ei ex parte anime, et secundum hoc est perscrutatio in libro de anima et in ceteris parvis libris."

35. Johannes Duns Scotus, *Ordinatio* Prol. 5.2.262, ed. C. BALIC et al., *Ioannis Duns Scoti ... opera omnia*, 1 (Città del Vaticano, 1950), p. 177 l. 11-13: "[...] homo enim forte est subiectum tam moralis scientiae quam medicinae – non autem felicitas vel sanitas – quia utriusque finis ratio includitur in ratione illius circa quod est praxis."

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III.

Wenn wir sodann diejenigen Quellentexte in unsere Überlegungen einbeziehen, in denen sich die Autoren explizit mit der Gegenstandsbestimmung der Wissenschaft von den Sinnenwesen bzw. des aristotelischen Textbuches *De animalibus* befassen, bestätigen diese das bisher gewonnene Bild in wesentlichen Zügen und ergänzen es zugleich. Alle stimmen zunächst darin überein, daß Gegenstand der Wissenschaft von den Sinnenwesen (Tieren) generell der sensitiv beseelte Körper sei. Ein Teil der Autoren spezifiziert indes diese generelle Gegenstandsbestimmung. Daraus erwachsen wichtige Nuancen in der Auffassung vom genauen Gegenstand dieser Wissenschaft sowie ihrer wissenschaftstheoretischen Rolle. Es ergibt sich ein facettenreiches Bild.

(1) Zumindest einige Magister heben hervor, daß der sensitiv beseelte Leib nicht allein des Tieres, sondern auch des Menschen den Gegenstand der Wissenschaft von den Sinnenwesen bilde. Sie unterstreichen damit erneut die Bedeutung der Wissenschaft von den Sinnenwesen für die philosophische Untersuchung des Menschen. Von Petrus Hispanus (Medicus) wissen wir bereits, daß er als Gegenstand der Wissenschaft von den Sinnenwesen im Sinne des "beabsichtigten Zweckes" den Menschen und im Sinne des "unmittelbaren Handlungszieles" allgemein das Sinnenwesen bestimmt hatte.[36] Bei seiner Einteilung der Wissenschaften bezeichnet er die sensitive Seele bzw. das sensitiv Beseelte als das, worum es direkt (im Sinne des unmittelbaren Handlungszieles) in der Wissenschaft von den Sinnenwesen gehe.[37] Ähnlich äußert sich der Verfasser der *Sententia cum questionibus*. Wiederholt weist er darauf hin, daß der sensitiv beseelte Körper des Tieres gemeinsam mit dem des Menschen Gegenstand der Wissenschaft von den Sinnenwesen sei.[38] Mit Nachdruck hatte Robert Kilwardby unterstrichen, daß die durch *De animalibus* repräsentierte naturphilosophische Disziplin die für den tierischen und für den menschlichen sensiti-

36. Cf. n. 16.

37. Petrus Hispanus (Medicus), *Questiones super libro de animalibus* Prol. (*M*, fol. 256ra): "Si autem sit de anima sensibili vel animato (-tum *Va*) anima sensibili, sic est sciencia, quam pro manibus habemus, que dicitur sciencia de animalibus sive de naturis animalium." Cf. Petrus Hispanus, *Sententia cum questionibus in libros de anima* 2.7, ed. ALONSO, p. 93 l. 10-12.

38. Petrus Hispanus, *Sententia cum questionibus in libros de anima* 1.14, ed. ALONSO, p. 83 l. 4-5 u. 30-32: "In libro autem de animalibus de corpore animato anima sensibili. [...] Set in libro animalium determinatur hoc modo de omni corpore sensibili tam bruti quam hominis.". Cf. *ibid.* 2.3, p. 90 l. 16-18 u. 26; p. 91 l. 2-3 u. 12-13.

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ven Körper gemeinsame Wissenschaft darstelle.[39] Dies ist auch die Ansicht des Ps.-Adam von Bocfeld,[40] in dessen Wissenschaftseinteilung sich ohnehin auffallende Parallelen zu den Überlegungen Robert Kilwardbys finden.

Albert der Große und Gerhard von Breuil setzen in den Einleitungen ihrer Kommentare zu *De animalibus*, von denen Alberts sechsundzwanzig Bücher umfassendes Werk *De animalibus* wohl 1256/58-1260/62,[41] der Kommentar Gerhards jedenfalls nach 1260[42] entstanden ist, ohne weitere Erörterungen voraus, daß die Wissenschaft von den Sinnenwesen die für den tierischen wie für den menschlichen sensitiven Körper gleicherweise zuständige Disziplin ist. So sieht Albert als ersten Untersuchungsschritt in seiner Tierkunde vor, die Anatomie des

39. Cf. nn. 31-32 sowie Robert Kilwardby, *De ortu scientiarum* 63.632, ed. JUDY, p. 215 l. 27-31.

40. Ps.-Adam von Bocfeld, *Scriptum super librum de causis* Proh. (Firenze, Bibl. Naz. Cent., MS Conv.soppr. G.4.355, fol. 95ra-rb): "Scientia vero de corpore mobili ad formam habentem potentiam ab essentia differentem et eius perfectione et motore dividitur secundum triplicem reductionem in tres partes essentiales. [...] Est enim pars essentialis philosophie naturalis, sicut scribitur in prohemio translationis. Que vero est de perfectibili ab anima sensitiva, est scientia de animalibus. [...] Alia vero est pars anime, que nec perficit nec movet nec dat vivere, quod est esse, ratione sue substantie, quia licet super corpus oriatur, non tamen ex principiis eius; ideo non mutatur ratione sue substantie nec dat actum primum ratione sue substantie, qui in viventibus est esse, sed habet propriam vitam preter vitam corporis sicut intellectus. Ideo non unitur primo sicut motor nec est in semine sicut artifex in artificio. Quare non organizat, in quibus est ultimum complementum, ut in hominibus, et ita organizatio de his est a principio sensitive (-ve *corr.ex* -vo). Propter quod ista speculatio de generatione hominis a consideratione, que est de generatione animalium per propagationem generantium animalia non ovantium. Unde in VIII de animalibus fit sermo et inquisitio de generatione hominis, nec est scientia alia separata de eius generatione, quia quemadmodum referuntur omnia frusta ad frustum auri, ut dictum est, ita et cetera, nec indigemus ipsa separata."

41. Zur nicht völlig einheitlichen Datierung u.a. C. HÜNEMÖRDER, "Die Zoologie des Albertus Magnus", in *Albertus Magnus, Doctor Universalis: 1280/1980*, ed. G. MEYER und A. ZIMMERMANN, Walberberger Studien 6 (Mainz, 1980), pp. 235-248, hier: 242; J.A. WEISHEIPL, "Albert's Works on Natural Science (libri naturales) in Probable Chronological Order", in *Albertus Magnus and the Sciences*, ed. idem, Studies and Texts 49 (Toronto, 1980), pp. 565-577, hier: 572-573; B.B. PRICE, "Albert the Great (Albertus Magnus)", in *Medieval Philosophers*, ed. J. HACKETT, Dictionary of Literary Biography 115 (Detroit und London, 1992), pp. 15-23, hier: 16.

42. GOLDSTEIN-PRÉAUD, "Albert le Grand", p. 63.

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"vollkommensten Sinnenwesens, des Menschen" darzustellen.[43] Freilich geht er inhaltlich weit darüber hinaus. Das zeigt nicht nur ein Blick auf den tatsächlich behandelten Stoff,[44] sondern es wird auch von Albert selbst so gesehen: In seinem im Kölner Autograph erhaltenen und dort nicht getilgten ursprünglichen Einleitungskapitel zu Buch XX *De animalibus* geht er kritisch alles das durch, was er in den voranstehenden Büchern bereits bearbeitet hat und was es im folgenden noch zu bearbeiten gilt.[45] Diese Zwischenbilanz macht deutlich, wie vieles er in diesem Werk über den ganzen Menschen, einschließlich der Vernunftseele als solcher, ausführt oder auszuführen vorhatte. Der Gedanke, daß *De animalibus* besonders auch ein Ort philosophischer Aussagen über den Menschen ist, war Albert sichtlich wichtig. Für Gerhard von Breuil steht fest, daß in dieser Wissenschaft von den sensitiv beseelten Körpern, die er – wohl beeinflußt durch Dominicus Gundissalinus' Aufgliederung der Naturphilosophie in acht Teile[46] – als achten Teil der Naturphilosophie einordnet, zusammen mit den Tieren gleicherweise auch über den Menschen gehandelt wird: *cum illis determinatur de homine*, wie er hervorhebt.[47]

43. Albertus, *De animalibus*, I, § 2-4, 2, 11-25: "[...] oportet nos praemittere scientiam de partibus et membris animalium scientiae, quae est de toto simul animalis corpore. [...] Oportet enim primum maxime membra perfectissimi determinare animalis, quod homo est, secundum divisionem membrorum suorum, quae anathomia a Graecis dicitur, et secundum significationes physonomiae et secundum figuras suorum membrorum: et deinde considerare comparationes aliorum animalium ad membra hominis secundum convenientiam et differentiam." Für eine allgemeine Bestimmung: idem, *Physica* 1.1.4, ed. Paulus HOSSFELD, *Alberti Magni ... opera omnia*, 4/1 (Münster, 1987), p.7 l. 59-64; idem, *Liber de anima* 1.1, ed. Clemens STROICK, *Alberti Magni ... opera omnia*, 7/1 (Münster, 1968), p. 3 l. 19-20.

44. Für einen Gesamtüberblick und die quellenmäßige Aufschlüsselung des gebotenen Stoffes siehe DE ASÚA, *The Organization*, pp. 130-157.

45. Albertus, *De animalibus* 20.1.1, ed. Bernardus GEYER, *Alberti Magni ... opera omnia*, 12 (Münster, 1955), p.1-2. Zu diesem Einleitungskapitel vgl. B. GEYER, "Die ursprüngliche Form der Schrift Alberts des Großen De animalibus nach dem Kölner Autograph", in *Aus der Geisteswelt des Mittelalters*, ed. A. LANG, J. LECHNER, M. SCHMAUS, Beiträge zur Geschichte der Philosophie des Mittelalters Suppl.-Bd. 3/1 (Münster, 1935), pp. 578-590.

46. Cf. BURNETT, *The Introduction*, p. 42.

47. Gerhard von Breuil, *Scripta supra librum de animalibus* Prol. (Paris, Bibl. Nat., MS lat. 16166, fol. 1va): "Octava pars est de corporibus animatis anima sensitiva; cuiusmodi sunt animalia irracionalia. Et simul cum illis determinatur de homine, cuius perfeccio est anima racionalis. Et hec est sciencia de animalibus."

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(2) Andere Autoren nennen als Gegenstand nur allgemein den sensitiv beseelten Körper. Hier sind insbesondere zu nennen: Johannes Pagus im *Scriptum super Porphyrium* aus den Jahren um 1231/1235,[48] das *Compendium examinatorium Parisiense* (1230/1240),[49] Richard Rufus von Cornwall (um 1235),[50] Nikolaus von Paris in seiner um 1240 redigierten *Philosophia,*[51] die *Divisio sciencie* aus Clm 14460 (vor 1250),[52] die *Lectura in librum de anima* (um 1245/1250),[53] die

48. Johannes Pagus, *Scriptum super Porphyrium* (Biblioteca Apostolica Vaticana, MS Vat.lat. 5988, fol. 63va): "Si vero sit organica et animata, aut est animata anima vegetativa tantum aut sensibili aut intellectiva. Si primo modo, sic est liber de plantis, secundo modo liber de animalibus, tertio modo liber de anima." Zur Datierung und Zuweisung an Johannes Pagus: Michael DUNNE, *Magistri Petri de Ybernia expositio et quaestiones in Aristotelis librum de longitudine et brevitate vitae*, Philosophes Médiévaux 30 (Louvain-la-Neuve, 1993), pp. 4-5.

49. *Compendium examinatorium Parisiense* 67, ed. LAFLEUR, p. 49: "Est aliud corpus compositum ex materia et forma que est substantia et motor. Hec autem substantia est anima, cuius sunt tres species: [...] alia est anima sensibilis, de qua et suo perfectibili agitur in libro De animalibus, in quo sunt .X. et .VIII. libri partiales. Tertia species est anima rationalis, de qua et suis operationibus agitur in libro De anima. [...] De complexione vero illius corporis [...] agit proprie medicina."

50. Cf. n. 35.

51. Nikolaus von Paris, *Philosophia* (München, Bayerische Staatsbibliothek, Clm 14460, fol. 150vb): "Si sit animatum, aut est animatum anima vegetabili tantum, et tunc est scientia de vegetabilibus, aut anima sensibili, et tunc est scientia de animalibus, [....]." Die Version der *Notulae super Porphyrium* in der Handschrift Vat.lat. 3011, fol. 1ra weist keine wesentlichen Varianten auf. Zur Datierung vgl. R. IMBACH, "Einführungen in die Philosophie aus dem XIII. Jahrhundert. Marginalien, Materialien und Hinweise im Zusammenhang mit einer Studie von Claude Lafleur", *Freiburger Zeitschrift für Philosophie und Theologie* 38 (1991), 471-493, hier: 482; C. LAFLEUR, "La Philosophia d'Hervé le Breton (alias Henri le Breton) et le recueil d'introductions à la philosophie du Ms. Oxford, Corpus Christi College 283 (Première partie)", *Archives d'Histoire Doctrinale et Littéraire du Moyen Age* 61 (1994), 149-226, hier: 203.

52. *Divisio sciencie*, ed. R.A. GAUTHIER, "Notes sur Siger de Brabant, II. Siger en 1272-1275, Aubry de Reims et la scission des Normands", *Revue des Sciences Philosophiques et Théologiques* 68 (1984), 3-49, hier: 14: "Corpus autem animatum aut est animatum anima uegetabili, de quo agitur in libro De uegetabilibus; aut anima sensibili, de quo agitur in libro De animalibus; aut rationali, et hoc traditur in sciencia que dicitur medicina, que considerat corpus humanum."

53. *Lectura in librum de anima* 1.1 (Prol.), ed. R.A. GAUTHIER, Spicilegium Bonaventurianum 24 (Grottaferrata, 1985), p. 3 l. 71-77: "Si uero corpus mobile generabile et corruptibile compositum sit animatum, aut ergo anima uegetabili, et de tali determinatur in libro De plantis; aut ergo anima sensibili, et de tali determinatur in libro <De> animalibus; aut anima rationali, et de tali in medicina Aristotilis, qua utuntur Greci, et hec nobis deest. Solet tamen dici quod in libro De anima determinatur de corpore generabili et corruptibili animato anima rationali, set hoc non est uerum, [...]."

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Compilatio de libris naturalibus Aristotilis (nach 1243/44),[54] Oliver Brito in seiner *Philosophia* (nach 1246/47 oder 1260)[55], Adenulf von Anagni im *Topik*-Kommentar (um 1250),[56] die wohl um 1260 zu datierenden Admonter Quaestionen zu *De anima,*[57] die *Divisio scienciarum* aus Vat.lat. 3022 (nach 1260?),[58] Aubricus von Reims in seiner *Philosophia* (um 1265),[59] die Reimser Einteilung der Philosophie (nach 1266),[60] der *De anima*-Kommentar im Parisinus lat. 16609 (nach

54. *Compilatio de libris naturalibus Aristotilis* Prol., ed. M. DE BOÜARD, *Une nouvelle encyclopédie médiévale: Le Compendium philosophiae* (Paris, 1936), p. 123: "Aut erit corpus animatum anima sensitiva tantum, et sic de eo determinatur in libro de Animalibus. Aut item erit corpus animatum anima rationali, et sic de eo determinatur in libro de Anima qui continet tres libros."

55. Oliver Brito, *Philosophia* (Oxford, Corpus Christi College, MS 243, fol. 4ra): "Si sit de corpore animato, aut animato anima vegetativa, et sic est liber de plantis, aut sensitiva, et sic est liber de animalibus, aut anima intellectiva, et sic est liber de anima."

56. Adenulf von Anagni, *Scriptum super librum Topicorum* (München, BSB, Clm 12707, fol. 136ra; Cambridge, Peterhouse Library, MS 205, fol. 117va): "Si sit animatum anima sensitiva, sic de ipso determinatur in libro de animalibus; si anima rationali, sic de ipso determinatur in libro de anima." Zur Wissenschaftslehre Adenulfs und ihrer zeitlichen Einordnung vgl. L. OTT, "Die Wissenschaftslehre des Adenulf von Anagni", in *Mélanges offerts à Étienne Gilson* (Toronto und Paris, 1959), pp. 465-490.

57. *Quaestiones in tres libros de anima* 1.3[2], ed. J. VENNEBUSCH, *Ein anonymer Aristoteleskommentar des XIII. Jahrhunderts* (Paderborn, 1963), p. 99 l. 52-53: "[...] sicut ex opposito sciencia de plantis <et> de animalibus dicuntur principaliter de corpore sensibili." Zur Datierung *ibid.* p. 86.

58. *Divisio scienciarum* (Biblioteca Apostolica Vaticana, MS Vat.lat. 3022, fol. 84vb): "Si animati, aut est animatum anima vegetativa aut anima sencitiva aut anima intellectiva aut contrahitur ad proprietates istas animas consequentes. Si sit animatum anima vegetativa, sic est liber de plantis, quia plante habent animam vegetativam. Si anima sensitiva (animam sensitivam *cod.*), sic est liber de animalibus, in quo XIX libri continentur. Si anima intellectiva, sic est liber de anima." Ein vager Anhaltspunkt für die ungefähre zeitliche Einordnung könnte die Erwähnung von *De motibus animalium* sein. Zur Schrift als solcher L.M. DE RIJK, "On the Genuine Text of Peter of Spain's Summule logicales", *Vivarium* 7 (1969), 120-162, hier: 123-124.

59. Aubricus von Reims, *Philosophia*, ed. GAUTHIER, "Notes sur Siger", p. 48 l.393-397: "[...] aut enim est consideratio de isto corpore animato in quantum perfectum uel perfectibile anima uegetatiua, uel sensitiua, uel intellectiua. Primo modo liber de plantis; secundo modo liber de animalibus, [...] tercio modo [...] in tota medicina."

60. *Liber de divisione philosophie* (Reims, Bibliothèque municipale, MS lat. 864, fol. 282rb): "[...] alia vero sunt de hiis, que tamquam animata (animaata *cod.*) et sensibilia, ut de animalibus omnia sua negocia. Scire vero ipsa animalia consequntur. Alia vero sicut totum, alia vero sicut partem ipsorum consequntur. De consequentibus ergo sicut totum alia comprehenditur in eo libro, qui de animalium consideratione inscribitur." Der Autor scheint die *De animalibus*-Übersetzung des Wilhelm von Moerbeke zu kennen.

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1277),[61] Aegidius von Rom in der *Expositio super artem veterem,*[62] das Werk *De divisione scientie et libris Aristotilis* in einer Basler Handschrift (nach 1278)[63] und Petrus de Alvernia.[64]

Von diesen schränkt jedoch außer Richard Rufus und Heinrich von Renham auch der Verfasser der *Divisio sciencie* aus Clm 14460 den Gegenstand der Wissenschaft von den Sinnenwesen auf den tierischen sensitiven Körper ein, indem er den menschlichen Leib ausdrücklich dem Gegenstandsbereich der Medizin zuweist.[65] Vermutlich denken der Kompilator des *Compendium examinatorium Parisiense*, der Verfasser der *Lectura in librum de anima* und Aubricus von Reims ebenso; denn auch sie halten, wie wir sahen, für die wissenschaftliche Betrachtung des "vernunftbeseelten Leibes" die Medizin für zuständig. Analog rechnen Johannes Pagus, Nikolaus von Paris, Oliver Brito, Adenulf von Anagni, der Verfasser der *Compilatio de libris naturalibus*

61. *Commentum in de anima* Prol. (Paris, Bibl. Nat., MS lat. 16609, fol. 41rb): "Si sit de ente mobili contracto ad formam perfecti mixti animati, hoc est dupliciter: Aut illud animatum consideratur ex parte anime vel ex parte corporis aut ex parte anime et corporis insimul. Si secundo modo, sic est liber de anima [...]. Si ex parte corporis per adplicacionem ad species diversas [...], sic sunt parvi libri naturales. Si ex parte anime, hoc est dupliciter: Aut est de animato (aut *add. cod.*) anima vegetativa, et sic est liber de plantis, aut anima sensitiva, et sic est liber de animalibus; et iste est ultimus inter naturales libros."

62. Aegidius von Rom, *Expositio super artem veterem* (Venedig, 1507), fol. 3ra: "Si autem contrahatur ad formam corporis animati, aut anima intellectiva aut sensitiva aut vegetativa. Si anima intellectiva, sic est liber de anima; sed si ad formam corporis animati anima sensitiva, sic est liber de animalibus; si anima vegetativa, sic est liber de plantis."

63. *De divisione scientie et libris Aristotilis* (Basel, Universitätsbibliothek, MS F.VIII.9, fol. 43v): "Si vero animatum, hoc est tripliciter: vel enim consideratur ratione anime vel ratione corporis vel ratione communium operationum et passionum corporis. Si primo modo, sic determinatur de eo in libro de anima. Si secundo modo, hoc est dupliciter: vel quia consideratur de eo ut est animatum anima vegetativa vel sensitiva. Primo modo determinatur de eo in libro de vegetabilibus et plantis, secundo modo in libro de animalibus."

64. Petrus de Alvernia, *Questiones super librum de celo et mundo* Prol. (Wien, Dominikanerkonvent, MS 150/120, fol. 47vb; Paris, Bibliothèque Mazarine, MS 3493, fol. 96rb): "Consideratur nihilominus quinto corpus mobile inquantum determinatur ad formam animati; et hoc contingit multis modis, quoniam aut hoc est absolute considerando vel quantum ad passiones consequentes ipsam animam. Si absolute, sic necessarium est de ea alicubi esse determinatum [...]. Et ista scientia datur de ipso in libro de anima. [...] Considerando autem animatum quantum ad potentias anime [...] quantum ad potentiam sensitivam determinatur in libro de animalibus [...]." Herzlichen Dank sage ich Frau G. Galle, die mir liebenswürdigerweise ihre Transkription zur Verfügung stellte.

65. Cf. n. 53.

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Aristotilis, der Verfasser der *Divisio scienciarum* aus Vat.lat. 3022, Aegidius von Rom, der Anonymus der Basler Handschrift und indirekt der Autor des *De anima*-Kommentars im Parisinus lat. 16609 den "vernunftbeseelten Leib" zum Gegenstand der Wissenschaft von der Seele. Auch in ihrem Fall wäre also nicht auszuschließen, daß sie allein den tierischen sensitiv beseelten Körper als Gegenstand der Wissenschaft von den Sinnenwesen ansehen. Im einzelnen hängt es freilich von der jeweiligen Seelenkonzeption dieser Magister ab, ob ihre Zuweisung der philosophischen Betrachtung des "vernunftbeseelten Leibes" an die Medizin bzw. an die Seelenlehre tatsächlich in dieser Weise auszulegen ist.

(3) Eine dritte Gruppe von Autoren wiederum spricht sich dafür aus, den menschlichen Leib nicht allein im Hinblick auf das Sensitive, also als sensitiv beseelten, sondern ebenso auch im Hinblick auf das Intellektive, insofern er vernunftbeseelt ist, dem Gegenstandsbereich der Wissenschaft von den Sinnenwesen zuzurechnen. In diesem Sinn wies die *Philosophica disciplina* (um 1245) zwar primär die Medizin als Ort philosophischer Behandlung des vernunftbeseelten Leibes aus, hielt aber zugleich auch *De animalibus* für einen geeigneten Ort.[66] Besonders klar vertrat diese Auffassung Arnulf von der Provence. In seiner um 1250 anzusetzenden *Divisio scientiarum* nannte er als Gegenstand von *De animalibus* den "durch die sensitive oder intellektive Seele vervollkommneten Körper".[67] Ähnlich äußerte sich später auch Radulfus Brito im Prolog zu seinen *Questiones supra librum de anima.*[68] Wahr-

66. *Philosophica disciplina*, ed. C. LAFLEUR, *Quatre Introductions à la philosophie au XIIIe siècle: Textes critiques et étude historique* (Montréal, 1988), p. 264 l.155 – p. 265 l.159: "Si uero sit scientia de corpore participante animam: aut animam uegetatiuam, sic est liber De plantis; aut sensitiuam, sic est liber De animalibus; aut intellectiuam, sic est Medicina proprie aut satis conuenienter potest dici liber De animalibus, cum in illo libro, ut patet inspicienti, multa determinet de corpore humano, [...]."

67. Arnulf von der Provence, *Divisio scientiarum*, ed. LAFLEUR, *Quatre Introductions*, p. 332 l.496 – p. 333 l.497: "Si sit de corpore perfectibili sensitiua uel intellectiua, sic de eo est liber De animalibus."

68. Radulfus Brito, *Questiones supra librum de anima* Prol. (Paris, Bibl. Nat., MS lat. 12971, fol. 1va): "Si autem sit mobile ad formam mixti in speciali, hoc est dupliciter: Aut enim est animatum anima vegetativa, et sic de eo determinatur in libro de plantis, in quo determinatur de omni diversitate plantarum, foliorum, florum; aut est anima sensitiva aut intellectiva, et sic de eo determinatur in libro de animalibus, in quo est finis totius scientie naturalis, et ibi consideratio medicinalis incipit." Zu Person, Lebensdaten, Werküberlieferung vgl. W. FAUSER, *Der Kommentar des Radulphus Brito zu Buch III De anima. Kritische Edition und philosophisch-historische Einleitung*, Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters N.F. 12 (Münster, 1974), pp. 3-41.

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scheinlich ist auch der Verfasser des Kommentars zu *De sensu et sensato* aus Vat.lat. 2170 (nach 1268/70?), eventuell auch derjenige des mit diesem verwandten Kommentars aus Vat.lat. 3061 zu dieser dritten Gruppe zu zählen.[69] – Zur Erleichterung der Übersicht sind die unterschiedlichen Positionen und ihre Vertreter in einer Tabelle im Anhang aufgelistet.

Ich fasse auch hier zusammen: Bei der Gegenstandsbestimmung von *De animalibus* bzw. der Wissenschaft von den Sinnenwesen nannte eine beträchtliche Anzahl von Magistern den menschlichen Leib als Gegenstand. Sie sahen insofern das Textbuch bzw. die Wissenschaft *De animalibus* als wissenschaftssystematischen Ort für philosophische Aussagen über den Menschen unter dem Gesichtspunkt seiner sensitiven Körperstruktur und der Seele-Leib-Verbindung an. Ihnen steht eine ungefähr gleich starke Gruppe von Magistern gegenüber, die ausdrücklich oder mutmaßlich eine andere Auffassung vertraten und die Medizin oder die Wissenschaft von der Seele als wissenschaftssystematischen Ort dieser philosophischen Erörterung betrachteten.

Insgesamt dokumentieren die hier mitgeteilten Befunde, daß der

69. *Commentarium et questiones in de sensu et sensato* Prol. (Biblioteca Apostolica Vaticana, MS Vat.lat. 2170, fol. 117va): "[...] aut animati, et sic potest esse tripliciter consideracio, quia operaciones corporis animati et dependent ex parte corporis et ex parte anime, et ideo isto duplici modo possunt considerari: aut quantum ad ea, ad que applicantur, scilicet in quibus sunt, ex parte anime, sic est liber de anima, quia ibi fit (sit *cod.*) absolute consideracio quantum ad animam determinando quid est et de eius partibus et potenciis, ut de vegetativo, sensitivo, motivo et intellectivo; si applicando ad corpus magis considerando eas ex parte corporis, sic sunt parvi libri naturales; si autem applicantur ad illa, in quibus sunt, <sic sunt> libri de plantis et de animalibus. Unde in libro de animalibus terminatur consideracio naturalis." Der terminus post quem ergibt sich, sofern der Hinweis fol. 117va-vb "Et ideo si sit alius liber de intellectu a libro de anima, ille non est naturalis sed methaphisicus, quia aliqui de hoc libros fecerunt, ut Albertus, Alpharabius (Alyhar. *cod.*), Alexander". Bezug nimmt auf Thomas von Aquin, *Sentencia libri de sensu et sensato* Proh., Editio Leonina 45/2, p. 5 l.76-79: "[...] uel, si fecisset, non pertineret ad scienciam naturalem, set magis ad methaphisicam [...]." Vgl. die anonymen *Questiones super de sensu et sensato* Prol. (Vat.lat. 3061, fol. 145rb): "Si considerantur (si c.] sicut *cod.*) operationes anime misti (muste *cod.*) animati, que se tenent ex parte anime, sic determinatur de ipsis in libro de anima. Si autem considera<n>tur operationes, que se tenent magis a parte corporis (corporis] communis *cod.*), si<c> considera<n>tur in parvis libris naturalibus, sicut in de sompno et vigilia <et> in multis aliis. Si autem considera<n>tur applicando illa ad illa, in quibus inve<n>i<un>tur, si<c> determinatur in libro de animalibus et considera<n>tur operationes a<nimal>ium et passiones secundum (secundum] vel *cod.*) quod in differentibus (differentiis *cod.*) animalibus inve<n>i<un>tur."

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Wissenschaft von den Sinnenwesen im Rahmen der wissenschaftssystematischen Neuorientierung im Verlauf des 13. Jahrhunderts beträchtliches Gewicht als Ort philosophischer Erkenntnisbemühung um den Menschen beigemessen wurde. Die Befunde gestatten darüber hinaus erste Rückschlüsse auf eine grundlegende Perspektive spezifisch philosophischer Erkenntnisbemühung um den Menschen im 13. Jahrhundert. Diese ist wesentlich eine naturphilosophische. Philosophische Erkenntnisbemühung um den Menschen stellt sich dar als ein systematisches Bedenken des Menschen unter der Prämisse seiner Gemeinsamkeiten mit den Naturdingen, insbesondere den belebten Naturdingen und hier speziell den Tieren. Die Wissenschaftsbereiche, welche die Autoren innerhalb des Gesamtgebietes der Philosophie schwerpunktmäßig im Blick haben, wenn sie explizit vom wissenschaftssystematischen Ort philosophischer Erörterung über den Menschen als solchen sprechen – also die Wissenschaft von den Sinnenwesen, die Wissenschaft von der Seele zusammen mit den ihr untergeordneten kleineren naturphilosophischen Disziplinen und die Medizin – sind im engeren oder weiteren Sinn sämtlich Teile der Naturphilosophie. Die Magister des 13. Jahrhunderts führten jene im 12. Jahrhundert verstärkt einsetzende philosophische Erkenntnisbemühung um den Menschen weiter, der Wilhelm von Conches in seiner *Philosophia* (um 1130) maßgeblich die Richtung gewiesen hatte, als er den Aussagenbereich über den Menschen programmatisch mit dem Satz einleitete: "Da wir die Erschaffung des ersten Menschen und der Frau, wie der Mensch aus dem Lehm der Erde geformt wurde, im ersten Buch dargelegt haben, wollen wir nunmehr über die tägliche Erschaffung des Menschen, seine Formung und Geburt, seine Altersstufen und Körperteile sowie deren Aufgaben und Nutzen sprechen."[70]

Ich schließe mit einer summarischen Bemerkung zur wissenschaftstheoretisch-methodologischen Bedeutung der Rezeption von *De animalibus*. Verschiedene Indizien deuten darauf hin, daß neben der Ent-

70. Wilhelm von Conches, *Philosophia* 4.7.15, ed. G. MAURACH, *Wilhelm von Conches, Philosophia* (Pretoria, 1980), p. 95: "Sed quoniam de compositione primi hominis et feminae, qualiter ex limo terrae homo factus sit, in primo volumine docuimus, de cotidiana hominis creatione, formatione, nativitate, aetatibus, membris, de officiis et utilitatibus membrorum dicamus." Cf. *Quaestiones Salernitanae* 3, ed. B. LAWN, *The Prose Salernitan Questions: An Anonymous Collection dealing with Science and Medicine written by an Englishman c.1200*, Auctores Britannici Medii Aevi 5 (London, 1979), p. 2 l. 25-28.

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wicklung der Medizin und dem Bekanntwerden der *Nikomachischen Ethik* insbesondere die Bekanntschaft mit *De animalibus* zu wissenschaftstheoretischer Reflexion Anlaß gab. Wenn ich recht sehe, waren die mit diesem Werk verbundenen wissenschaftstheoretischen Probleme zweifacher Art: Erstens, wie ist der Wissenschaftscharakter (*ratio scientie*) in dem durch *De animalibus* repräsentierten philosophischen Gegenstandsbereich zu bestimmen bzw. zu rechtfertigen, und zweitens, wie ließ sich ein derartiges Sachgebiet wie die Tierkunde wissenschaftlich erfassen, das (a) bislang in der Hauptsache durch die Bestiarien und darüber hinaus durch einschlägige Teile in den enzyklopädischen Schriften repäsentiert war, das sich (b) nunmehr in der von Aristoteles aufbereiteten Weise darbot und in dem (c) ein kompetenter Autor überlieferte Lehraussagen relativ leicht mit Eigenbeobachtungen vergleichen, gegebenenfalls berichtigen oder erweitern konnte?

Bei den hierzu einsetzenden Überlegungen fällt Albert dem Großen neben Petrus Hispanus (Medicus) eine führende Rolle zu. Alberts Gedanken zum *processus narrativus*[71] und sein Konzept der *scientia perfecta*[72] sind Ausdruck seines Bemühens, einen adäquaten wissenschaftlichen Umgang mit dem Gegenstandsbereich *De animalibus* theoretisch zu konzipieren, der einerseits von anderer Struktur war als der einer streng beweisend verfahrenden Wissenschaft, andererseits aber gleichwohl klar definierte Methodenstandards vorgab. Seine Überlegungen sind Teil einer allgemeinen Wissenschaftsentwicklung im 13. und besonders im 14. Jahrhundert. Diese tritt bereits in der ersten Hälfte des 13. Jahrhunderts in der Methodik Robert Grossetestes markant zutage, für die Richard W. Southern folgende Merkmale herausgearbeitet hat: Gewinnung neuer Erkenntnisse, Betonung der Erfahrung gegenüber der Fundierung auf Autoritäten und tentativer Antworten gegenüber apodiktischem Wissen.[73] Charles Lohr sieht diese Wissenschaftsentwicklung generell dadurch gekennzeichnet, daß der "Bereich der Erfahrung und der Kontingenz" gegenüber dem der "deduktiven ratio" immer stärker in den Blickpunkt rückte.[74]

71. Hierzu Th.W. KÖHLER, "'Processus narrativus'".

72. Hierzu idem, "'Scientia perfecta'".

73. Cf. R.W. SOUTHERN, *Robert Grosseteste: The Growth of an English Mind in Medieval Europe*, 2. Aufl. (Oxford, 1992), besonders pp. 32-37; 45; 168-169; 208-209.

74. C.H. LOHR, "Die mittelalterliche Aristotelesdeutung in ihrem gesellschaftlichen Kontext", *Theologie und Philosophie* 51 (1976), 481-495, hier: 494.

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Anhang

Gegenstandsbestimmung für die Wissenschaft von den Sinnenwesen
(Bei den durch '?' gekennzeichneten Autoren ist die Einordnung nur vermutet)

Gegenstand ist der sensitive Körper sowohl des Tieres als auch des Menschen

- im Hinblick auf das Sensitive
Petrus Hispanus (Medicus)
Petrus Hispanus, *Sententia cum questionibus*
Robert Kilwardby
Ps.-Adam von Bocfeld, *Scriptum super librum de causis*
Albert der Große
Gerhard von Breuil

- im Hinblick auch auf das Intellektive
Anonymus, *Philosophica disciplina*
Arnulf von der Provence
Anonymus, *In de sensu et sensato* (Vat.lat. 2170)?
Anonymus, *Super de sensu et sensato* (Vat.lat. 3061)?
Radulfus Brito

Gegenstand ist der sensitive Körper ausschließlich des Tieres

Anonymus, *Divisio sciencie (Clm 14460)*
Anonymus, *Lectura in librum de anima*
Richard Rufus von Cornwall
Heinrich von Renham
Johannes Pagus?
Anonymus, *Compendium examinatorium Parisiense*?
Nikolaus von Paris?
Anonymus, *Compilatio de libris naturalibus Aristotilis*?
Oliver Brito?
Adenulf von Anagni?
Anonymus, *Divisio scienciarum* (Vat.lat. 3022)
Aubricus von Reims?
Aegidius von Rom, *Expositio super artem veterem*?
Anonymus, *Commentum in de anima* (Parisinus lat. 16609)

Gegenstand ist der sensitive Körper allgemein

Anonymus, *Questiones in III libros de anima* (Admont)

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Anonymus, *Liber de divisione philosophie* (Reims)
Anonymus, *De divisione scientie et libris Aristotilis* (Basel)
Petrus de Alvernia

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GUY GULDENTOPS

THE SAGACITY OF THE BEES

An Aristotelian topos in thirteenth-century philosophy

Introduction

From Homer's *Iliad* to Waldemar Bonsels's *Die Biene Maja und ihre Abenteuer*, from Aristotle's zoological treatises to the *Journal of Apicultural Research*, from Virgil's *Georgics* to François Mitterrand's *L'abeille et l'architecte*, bees are omnipresent in European culture. At all times these tiny buzzing animals have been depicted as prudent, busy beings.[1]

In this paper I shall examine only one topic, namely the sagacity of the bees, and more precisely I shall focus on the manner in which some thirteenth-century philosophers have used this Aristotelian topos. Riveting issues, such as the production of honey and beekeeping, will thus not be discussed. The reason for this restriction is the fact that Aristotle's elaborate theory of the bees has exercised an immense influence on the cultural life of the Middle Ages. (Scrutinizing all medieval books in which Aristotle's melittology has somehow penetrated would indeed take too long. For as Thomas Aquinas remarks when pointing out the intellectual feebleness of man, 'one philosopher remained in solitude during thirty years in order to know the nature of the bee.'[2])

That the theme of the sagacious bee is very broad, appears from Manfred Misch's study *Apis est animal - apis est ecclesia*.[3] However, whereas Misch sketches in his general survey how the speculations on bees have changed from the third to the fourteenth century, and how this development is connected with the varying relations between natural science and theology, I shall concentrate on some representative texts of the most important thirteenth-century authors who were

1. Cf. C. HÜNEMÖRDER, "Bienen," in *Lexikon des Mittelalters*, 2 (Munich and Zurich, 1981-1982), col. 133-135; L. KOEP (H. GOSSEN†, T. SCHNEIDER), "Biene," in *Reallexikon für Antike und Christentum*, 2 (Stuttgart, 1954), col. 274-282; X.R. MARIÑO FERRO, *Symboles animaux. Un dictionnaire des représentations et croyances en Occident*. Traduit de l'espagnol par C. GIRARD et G. GRENET (Paris, 1996), pp. 11-15.

2. Thomas, *In Symbolum Apostolorum Expositio*, prologus, ed. R.M. SPIAZZI (Turin and Rome, 1954), § 864.

3. M. MISCH, *Apis est animal-apis est ecclesia. Ein Beitrag zum Verhältnis von Naturkunde und Theologie in spätantiker und mittelalterlicher Literatur* (Bern and Frankfurt, 1974).

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dependent on Aristotle's account of the bees. Thus, attention will be paid to Thomas of Cantimpré, Bartholomaeus Anglicus, Vincent of Beauvais, Albertus Magnus, Thomas Aquinas, and (last but not least) Henry Bate.[4] Albert and Aquinas are the principal exponents of scholastic Aristotelianism; the other authors are also to be considered philosophers, insofar as they frame their encyclopaedias as rational expositions of wisdom concerning the whole of reality.[5] Before glancing at their conceptions of the bee's prudence, I shall determine the place which Aristotle's zoology occupies in their works. So it will become clear how even scholastic philosophers could assume different attitudes toward Aristotle's *Books on Animals*.

1. Thomas of Cantimpré

Undoubtedly, Thomas of Cantimpré is nowadays the most renowned thirteenth-century writer on bees. Yet, when he compiled his *Liber de natura rerum*, he concealed his authorship. The motive for the anonymous dissemination of his encyclopaedia has been sought in the ecclesiastical hostility toward Aristotelianism.[6] Although this explanation is not improbable, it is one-sided. For the humble character of the Dominican, who did not expect any worldly fame, was certainly another reason, and besides, his work contains no pagan quotations which could question the Christian orthodoxy of the author.[7]

4. Although Arnoldus Saxo wrote about the bees in his *De floribus rerum naturalium*, he did not dwell on their sagacity. Therefore his observations on the bees will not be discussed. Nevertheless I thank Mrs. I. Draelants for providing me with the relevant passages of Arnold's encyclopaedia.

5. *Pace* J. HAMESSE, "Le dossier Aristote dans l'oeuvre de Vincent de Beauvais. À propos de l'*Éthique*," in *Vincent de Beauvais. Intentions et réceptions d'une oeuvre encyclopédique au Moyen Âge* (Cahiers d'études médiévales. Cahier spécial 4), (St. Laurent, 1990), pp. 196-217, esp. p. 214, and M.C. SEYMOUR, *Bartholomaeus Anglicus and his Encyclopedia* (Aldershot and Brookfield, 1992), p. 12. They claim respectively that Vincent and Bartholomew do not represent the philosophical life of their time. Philosophy, however, is not confined to the philosophical style of the Universities.

6. Cf. C.M. STUTVOET-JOANKNECHT, *Der Byen Boeck. De Middelnederlandse vertalingen van Bonum universale de apibus van Thomas van Cantimpré en hun achtergrond* (Amsterdam, 1990), pp. 19*-20*.

7. Cf. Thomae Cantipratani S. Theol. Doctoris, Ordinis Praedicatorum et Episcopi Suffraganei Cameracensis, *Bonum Universale De Apibus*. (...) Ad exemplaria complura cum mss., tum antiqua excusa collatum, a mendis typographicis expurgatum, & notis amplioribus illustratum. Operâ Georgii Colvenerii (...) Duaci (...) Anno 1627 [= *BUA*], p. 1. See also: C. HÜNEMÖRDER, "Antike und mittelalterliche Enzyklopädien und die Popularisierung naturkundlichen Wissens," *Sudhoffs Archiv* 65 (1981), 339-365, esp. 357-358.

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Like many of his contemporaries, Thomas tried to integrate Aristotle's natural science into his Christian world-view. This openness to Aristotelianism is clearly expressed in the Prologue of his *Liber de natura rerum*. After Augustine, the 'incomparable doctor', Aristotle is the most outstanding author, who surpasses in every philosophical discipline all other ancient and Christian scholars.[8] Further in the proem, Thomas paraphrases Aristotle's protreptic to the study of animals.[9] The manner in which this famous chapter of *De partibus animalium* is introduced intimates that the encyclopaedia was primarily intended for Dominican fathers, and thus that the author too belonged to the Ordo Praedicatorum.[10] Thomas, indeed, presents Aristotle's argument with the intention of showing that only a person to whom Divine Wisdom has given insight into the deeper layers of reality is able to comprehend the utility of his compilation for preachers of God's Word. Accordingly, it is not surprising that Thomas adds a Christian touch to the Aristotelian text. On the one hand, he omits the references to the ungenerated substances and to Heraclitus' gods; on the other hand, he exhorts the reader to be delighted in the Artificer who created noble as well as vile beings. Since not only Aristotle but also Augustine acknowledges the value of zoology, Thomas judges it legitimate to devote the core of his encyclopaedia to the study of animals.[11] This enterprise was certainly promoted by the appearance of Michael Scot's translation of Aristotle' *Books on Animals*, which have largely determined the contents of the *Liber de natura rerum*.

Hence, it is strange that Aristotle's immediate influence on Thomas' account of the bees is minimal. In comparison with the quotations from Pliny, Ambrose, Palladius and Basil, the only explicit citation from Aristotle is unimportant (it is said that if a bee loses a wing, it never grows again).[12] Moreover, Thomas contradicts Aristotle on some

8. Cf. Thomas Cantimpratensis, *Liber de natura rerum*, ed. H. BOESE (Berlin and New York, 1973), p. 3, ll. 8-9; ll. 17-19.

9. *O.c.*, p. 4, ll. 63-74; cf. Aristotle, *Part. An.*, I, 5, 644b23-645a27.

10. *Pace* C.M. STUTVOET-JOANKNECHT (*o.c.*, p. 20*); she overlooks the connexion between science and predication, which has been clearly analysed by F.J. TALAVERA ESTESO, "Ciencia y predicación en el siglo XIII: El *Liber de natura rerum* de Tomás de Cantimpré," *Ciencia Tomista* 104 (1977), 407-450.

11. See *Liber de natura rerum*, 19, 7 (p. 414, ll. 8-12); cf. Augustine, *De doctrina christiana*, 2, 39, 59. On this text see: C. HÜNEMÖRDER, "Antike und mittelalterliche Enzyklopädien," 355-356.

12. *O.c.*, 9, 2 (p. 297, ll. 153-154); cf. Aristotle, *Hist. An.*, III, 12, 519a28.

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points. Whereas the Stagirite holds that the king-bee stings very seldom, Thomas goes even further than Pliny, who doubts whether the king has a sting and maintains that if he has a sting, he does not use it.[13] According to Thomas, it is certain that nature has denied a sting to the king-bee, and therefore, he argues, the ruler of a human reign should also be deprived of anything analogous to a sting. Another issue on which Thomas disagrees with Aristotle is the reproduction of the bees. In Aristotle's view, the king-bees generate king-bees and hermaphrodite bees, which in turn generate without copulating drones.[14] Thomas, however, thinks that bees are produced from flowers, or from the paunches of wild oxen covered with mud, or from dead draught-cattle; but the bees that spring from oxen or draught-cattle are not real bees and copulate just as flies do.[15]

In short, we may say that Thomas neglected Aristotle's diverse accounts on the bees. Nevertheless, the Aristotelian idea that bees are sagacious animals is presupposed in his rather anthropomorphic depiction. As is well known, this depiction constitutes the basis of his *Bonum universale de apibus*, which Misch rightly regards as 'das bedeutendste literarische Zeugnis mittelalterlicher Bienenallogerese'.[16] In his *Book of Bees*, dedicated to Humbertus, the General of the Dominican order, Thomas ventures to represent the life of bees as a model for humanity, especially for monastic communities. Bearing this goal in mind, he expounds the moral meaning of several ideas expressed in his encyclopaedia, and illustrates this moralization with many contemporary *exempla*.[17] His method may be clarified by an example which will also unveil the indirect influence of Aristotle.

In the second part of the *Bonum universale de apibus* Thomas outlines the good life for the so-called subjects, i.e. for the laity and for the

13. *O.c.*, 9, 2 (p. 294, ll. 33-35); cf. Aristotle, *Hist. An.*, VIII(IX), 40, 626a23; *Gen. An.*, III, 10, 760a22-23; Pliny, *Naturalis historia*, XI, 17, 51. Following Basil (*Homilia VIII in Hexaemeron*, PG 29:173A), Ambrose (*Exameron*, V, 21, 68, ed. C. SCHENKL (Vienna, 1896), p. 190, ll. 22-23) holds that the king-bee does not employ its sting for vengeance.

14. Cf. *Gen. An.*, III, 10, 759b28-760a4.

15. *O.c.*, 9, 2 (p. 296, ll. 98-99; p. 297, l. 174 - p. 298, l. 179); cf. Pliny, *Naturalis historia*, XI, 16, 46; 23, 70.

16. Cf. M. MISCH, *o.c.*, p. 70. See also: H. PLATELLE, *Thomas de Cantimpré. Les exemples du «Livre des abeilles». Une vision médiévale* (Turnhout, 1997), pp. 17-24.

17. Cf. *BUA*, p. 1.

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religious who have no leading functions in the Church. One of the principles that guide monastic life is demonstrated by means of the idea that all bees engage in a common work: 'Apibus igitur communis omnibus est labor'.[18] Thomas' statement can be traced back to Aristotle. The Philosopher, indeed, reckons the bees among social animals, which are defined as beings that share in one work. This idea was indirectly transmitted to Virgil and Basil, who in turn influenced Ambrose; from Ambrose it entered in Thomas' writings.[19] With the sociality of the bees Thomas connects two precepts of Augustine and Benedict. The former orders the monks to do everything for the service of the community and to work with more zeal for the community than if they were merely working for themselves.[20] The latter teaches that since idleness is the enemy of the soul, the brothers should have specified periods for manual work as well as for divine reading.[21] Thomas concludes that at all times charity must prevail, and tells the example of a blessed chaplain who had been serving his monastery during his whole life and was honoured by God after his death with many miracles.[22] Thomas thus combines the concept of the bees' sociality with the idea of their sedulity. This latter idea, which has its sources in Aristotle and in the Bible, is unfolded in the subsequent chapters of the *Bonum universale de apibus*.[23]

If one surveys Thomas' use of ancient doctrines on bees, it is obvious that he is mostly influenced by Pliny and Ambrose, and through their mediations by Aristotle. Nevertheless, he looks upon Aristotle as his primary source, both in his *Liber de natura rerum* and in his *Bonum*

18. *BUA*, II, 8, pp. 152-153; cf. *Liber de natura rerum*, 9, 2 (p. 293, l. 3).

19. Cf. Aristotle, *Hist. An.*, I, 1, 488a7-10; Virgil, *Georgica*, IV, 184; Basil, *Hom. VIII in Hex.*, 172D-173A; Ambrose, *Exameron*, V, 21, 66 (p. 189, l. 19). Cf. J. LÉVIE, "Les sources de la Septième et de la Huitième Homélie de saint Basile sur l'Hexaméron," *Le Musée Belge* 18 (1920), 113-149, esp. 136.

20. Cf. Augustine, *Praeceptum*, ed. L. VERHEIJEN, in *La règle de saint Augustin* (Paris, 1967), 1:417-437, esp. p. 429, l. 153 - p. 430, l. 160. See also: *The rule of Saint Augustine*. Masculine and Feminine Versions with Introduction and Commentary by T.J. VAN BAVEL OSA. Translated by R. CANNING OSA (London, 1984), pp. 19-20.

21. Cf. Benedict, *Regula monachorum*, c. 48; T. FRY, O.S.B. (and others), *The Rule of St. Benedict* (Collegeville, Minn., 1981), pp. 248-249.

22. Cf. *BUA*, II, 8, pp. 153-154.

23. Cf. *BUA*, II, 9-10, pp. 154-188; cf. Aristotle, *Hist. An.*, VIII(IX), 38, 622b19-21; *Proverbs* 6.8. In *Proverbs* the ant is a symbol of sedulity, but early Christian writers already transferred the idea to the bee (cf. L. KOEP, *art. cit.*, col. 275 & 279-280).

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universale de apibus.[24] This puzzling reference to Aristotle can be accounted for in two complementary ways: first, nurtured by thirteenth-century scholasticism, Thomas employed the authority of the Philosopher to reinforce his own ideas; second, he must have noticed that Aristotle's scattered and sometimes obscure expositions on the bees were brilliantly summarized and amplified in the humanistic and Christian books of Pliny and Ambrose. As he inherited from an old tradition, especially from Basil and Ambrose, the basic conviction that bees symbolize an harmonious ideal of humanity, he was fully prepared to compose his *magnum opus*.[25]

2. Bartholomaeus Anglicus

The second author who should be discussed briefly is Bartholomew of England, the author of the *De proprietatibus rerum*. Notwithstanding the theological scope of his work, allegorical interpretations of nature are absent. As a matter of fact, his *De proprietatibus rerum* is a scientific encyclopaedia. However impressive his book may be, only a restricted place is assigned to zoology.[26] Moreover, his theory of the bees is far from being original.

Bartholomew classifies the bees under the flying animals ('volatilia') as well as under the walking animals ('gressibilia'), because they also use their feet.[27] Consequently, he deals with the bees in book XII, which is devoted to the creatures of the air, and in book XVIII, in which land-animals are treated. Although he quotes extensive passages from Aristotle's *Books on Animals*, he borrows the topos of the bees' sagacity from other authors, viz. from Pliny, Ambrose, Isidore, and Avicenna.[28] The most interesting ideas that clearly reflect an Aristotelian background are culled from Avicenna's *Books on the Nature of Animals*. Following the Arabic philosopher, Bartholomew holds that insects such as bees (and ants) have sharp, albeit hidden, senses

24. Cf. *Liber de natura rerum*, p. 3, l. 17; *BUA*, p. 1.

25. Cf. *Liber de natura rerum*, 9, 2 (p. 297, ll. 164-164); Basil, *Hom. VIII in Hex.*, 173B; Ambrose, *Exameron*, V, 21, 70 (p. 192, ll. 19-20).

26. Cf. C. HÜNEMÖRDER, "Antike und mittelalterliche Enzyklopädien," 360.

27. Bartholomaei Anglici *De genuinis rerum coelestium, terrestrium et inferarum Proprietatibus Libri XVIII. Opus incomparabile* (...) cui accessit Liber XIX *De variarum rerum accidentibus*, Procurante D. Georgio Bartholdo Pontano (...), Francofurti (...) Anno 1601 [= *DPR*], XVIII, 40, p. 1013.

28. Cf. M.C. SEYMOUR and Colleagues, *Bartholomaeus Anglicus and his Encyclopedia* (Aldershot and Brookfield, 1992), pp. 140 & 215.

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whereby they can hear and smell from a long distance.[29] This idea originates from *De sensu et sensato*.[30] Aristotle, however, doubts whether bees can really hear, and therefore he is sceptical about the theory that bees are attracted by rattling noises.[31] That bees are thought to be prudent, also appears from another observation which Bartholomew copied from Avicenna. Two days before the king leaves the hive, the other bees 'reasonably' know what he is going to do, and so they are prepared to obey him.[32] This idea is based upon a passage of the *History of Animals*. There, however, it is only said that when the flight of a swarm is imminent, a monotonous sound is heard for several days, and that for two or three days in advance a few bees are seen flying round the hive; that the other bees 'reasonably' foresee the king's plans, is not said by Aristotle.[33]

Unlike Thomas of Cantimpré, Bartholomew of England does not moralize the theory of the bees; instead, he merely endeavours to synthesize the biological knowledge. Yet, even in such a scientific compilation the idea of the bees' sagacity is essential.

3. Vincent of Beauvais

Next, Vincent of Beauvais is to be considered. For even though Vincent has been influenced by Albertus Magnus, he was an encyclopaedist rather than a scientist; therefore, it is allowed to group him together with Thomas of Cantimpré and Bartholomew of England.[34]

The intention with which Vincent wrote his encyclopaedia resembles that of his Belgian confriar. In the general preface of his *Speculum maius*, Vincent indeed claims that his work is useful not only to know and to love God and His creatures, but also to preach and to teach.[35]

29. *DPR*, XVIII, Prooemium, pp. 976-977; cf. Avicenna, *De natura animalium* (Venice, 1508 [= Louvain, 1961]), IV, 2, fol. 33rb.

30. Cf. Aristotle, *Sens.*, 5, 449b9-15.

31. Cf. *Hist. An.*, VIII(IX), 40, 627a15-27. Following Pliny, Thomas of Cantimpré believes that bees like such noises (*De natura rerum*, 9, 2, p. 297, ll. 168-169; *BUA*, II, 49, pp. 441-442; cf. Pliny, *Naturalis historia*, XI, 20, 68).

32. *DPR*, XVIII, 40, p. 1018; cf. Avicenna, *De natura animalium*, VIII, 6, fol. 40ra.

33. *Hist. An.*, VIII(IX), 40, 625b8-12; cf. Albertus, *De animalibus*, VIII, tr. 4, c. 3, p. 639, ll. 20-25.

34. Cf. L. THORNDIKE, *A History of Magic and Experimental Science*, 2 (New York, 1943), p. 461.

35. Vincentii Burgundi (...) *Speculum quadruplex, naturale, doctrinale, morale, historiale* (...) Opera & studio Theologorum Benedictinorum (...), Duaci (...) Anno 1624, Generalis Prologus, c. 4, col. 3-4.

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Just as Thomas of Cantimpré, Vincent aims at a didactic goal that ultimately serves a religious and homiletic end. In contrast to Thomas' *De natura rerum*, however, Vincent's encyclopaedia really encompasses all sciences. His *Speculum naturale*, which even exceeds Bartholomew's voluminous *De proprietatibus rerum*, has been characterized as 'a sort of over-grown *Hexaemeron*', 'a great storehouse of medieval lore'.[36] Hence, it is not strange that animals are treated at full length. The zoological sections of the *Speculum* contain abundant extracts from Aristotle.[37]

In Vincent's zoology, bees play an important role, since the treatise on the bees is spread over thirty-five chapters (or twenty-one columns) in book XX of the *Speculum naturale*.[38] Vincent juxtaposes in this treatise several authorities: besides Aristotle and Pliny, Virgil, Seneca, Palladius, Ambrose, Isidore, Avicenna, and Thomas' *Liber de natura rerum* are cited. Although the various excerpts are loosely connected, the overall structure of his exposition displays more logical coherence than the accounts given by Thomas and Bartholomew.

In the chapter on the cleverness of the bees ('De Solertia earum'), Vincent inserts some fragments from Aristotle between passages from Ambrose and Pliny.[39] Like Ambrose's and Pliny's texts, Aristotle's arguments are compiled in a disordered manner. First, Vincent writes that bees, owing to their fine sense, perceive things from a distance.[40] Next, the routine of the bees is recorded (some go out to work at dawn, others rest until they are awakened; then they all fly to work; when they return, they at first are noisy, afterwards the noise gradually decreases until one single bee keeps flying around, as if it signifies that it is time to sleep; at last all bees rest).[41] This regularity in the bees' life is explained on account of their intelligence, which is more subtle than

36. See L. THORNDIKE, *o.c.*, pp. 461 & 475.

37. Cf. B. VAN DEN ABEELE, "Vincent de Beauvais naturaliste: les sources des livres d'animaux du *Speculum naturale*," in *Lector et compilator. Vincent de Beauvais, frère prêcheur*, ed. S. LUSIGNAN e.a. (Nancy and Montreal, 1997), pp. 127-151.

38. Six chapters (or three columns) are devoted to the spider, and only four chapters (or three columns) to the ant.

39. *Speculum naturale*, XX, c. 79, col. 1505; cf. Ambrose, *Exameron*, V, 21, 70, p. 193, l. 1-2; 21, 69, p. 191, l. 18- 192, 1; Pliny, *Naturalis historia*, XI, 4, 12 - 5, 14; 10, 24-26; 4, 11-12 (quoted in this order).

40. Cf. Aristotle, *Sens.*, 5, 444b9-10.

41. Cf. *Hist. An.*, VIII(IX), 40, 627a24-28.

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that of many blooded animals.[42] Furthermore, Vincent notes that bees do not fly away when they foresee a storm, but that when they hang inside the hive clustering to each other, this means that they are going to leave the hive.[43] Last, the cleanliness of the bees is illustrated by the fact that they void their excrements while flying or discharge them into little private combs.[44]

Whereas these ideas are not explicitly connected in the *Corpus Aristotelicum*, Vincent links them under one heading, and so he invigorates Aristotle's thought without innovating it. The only new idea is found in a citation which is taken according to the Benedictine edition of the *Speculum* from the *Liber de natura rerum*. In this quotation it is said that 'bees excel all other animals in dignity and utility, by their splendid gifts and nobleness, they are vigorous by their fleetness, nimbleness, courage, and keen ingenuity'. Whether or not this phrase is a quotation from Thomas of Cantimpré, is uncertain, because it does not appear in Helmut Boese's edition of the *Liber de natura rerum*. One can imagine that it was the editor of the *Speculum* who wrongly ascribed the sentence to the *Liber de natura rerum*. If, however, the reference is authentic, it is possible that Vincent was mistaken and actually borrowed the passage from the anonymous *Liber rerum*; or perhaps it was interpolated in his copy of Thomas' encyclopaedia. Anyway, the idea cited by Vincent is an amplification of the Aristotelian topos of the bees' prudence.

4. Albertus Magnus

While the aforementioned authors actually use the *Books on Animals* as encyclopaedists, Albertus Magnus approaches Aristotle's zoology as a scientist and philosopher. In his *De animalibus*, which comprises a large paraphrase of Aristotle's *Books on Animals*, based on Scot's translation, he approves 'the saying of the poet Eradytes'. Sitting in front of Jupiter's temple at Delos, Eradytes claimed that all things are full of Jupiter and that one could not learn anything about nature except from someone who had penetrated into the divine causes of natural things, just as if he had entered a temple of natural beings.[45]

42. Cf. *Part. An.*, II, 2, 648a4-7.
43. Cf. *Hist. An.*, VIII(IX), 40, 627b10-15.
44. Cf. *Hist. An.*, VIII(IX), 40, 626a25-26; 627a10-11.
45. Cf. Albertus Magnus, *De animalibus libri XXVI*, nach der Cölner Urschrift (...) herausgegeben von H. STADLER (Münster, 1916-1920) (= *Beiträge zur Geschichte der Philosophie des Mittelalters*, Bd. XV-XVI), XI, §§85-86, 793, 20 - 794, 5. 'Eradytes' is a deformation of 'Heraclitus' (cf. Aristotle, *Part. An.*, I, 5, 645a16-23).

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Unlike Thomas of Cantimpré, Albert does not Christianize Aristotle's exhortation to the study of animals; on the contrary, he augments the polytheistic or pantheistic elements. From this, however, one may not infer that Albert adopts paganism; for, as he writes at the end of his *De animalibus*, his primary intention does not consist in developing his own views but rather in interpreting the words of the Peripatetics.[46]

In his *Quaestiones super de animalibus*, Albert admits that a moderate knowledge of superior beings offers a greater pleasure than a wide knowledge of inferior beings, but he adds that 'we can mount from the knowledge of those vile animals toward the knowledge of the first cause, proceeding from the effect to the cause, although this knowledge <of the first cause> concerns the fact that it is, not what it is'.[47] This passage shows that Albert does not completely separate science and religion, but is convinced that the exact knowledge of natural phenomena can strengthen faith.[48] Accordingly, he regards zoology not as a superfluous or second-rate science, but rather as the science in which 'the whole work about natural beings is fulfilled'. As animals, which are endowed with a vegetative and a sensitive soul, are the most complex mobile beings, zoology constitutes 'the end of natural science' and is located 'at the finish of natural philosophy'.[49] In the proem of his *Liber de natura et origine animae*, Albert sketches his zoological project and emphasizes that 'there are many things which still remain to be investigated in this science'.[50] Such texts testify the scientific enthusiasm of the Doctor Universalis, whose critical and experimental curiosity becomes most manifest in his zoology.[51]

46. *O.c.*, XXVI, §36, 1598, 8-13.

47. *Quaestiones super de animalibus*, XI, q. 9, ed. E. FILTHAUT (Münster, 1955), p. 223, ll. 58-68; cf. Aristotle, *Part. An.*, I, 5, 644b34-645a30.

48. Cf. C. HÜNEMÖRDER, "Die Zoologie des Albertus Magnus," in *Albertus Magnus. Doctor Universalis*, ed. G. MEYER, A. ZIMMERMANN and P.B. LÜTTRINGHAUS (Mainz, 1980), pp. 235-248, esp. p. 236. H. BALSS (*Albertus Magnus als Biologe. Werk und Ursprung* (Stuttgart, 1947), p. 273) and M. MISCH (*o.c.*, pp. 127 & 130) overstate the distinction Albert draws between science and faith.

49. Cf. *Physica*, I, tr. 1, c. 4, ed. P. HOSSFELD (Münster, 1987), p. 7, ll. 59-64; *De vegetabilibus*, I, tr. 1, c. 1, ed. C. JESSEN (Berlin, 1867 [= Frankfurt, 1982]) p. 3 ; *De animalibus*, I, §1, 1, 1-14 ('...in huius nostrae naturalis philosophiae calce...'); XXVI, §36, 1598, 7-8.

50. *De natura et origine animae*, tr. 1, c. 1, ed. B. GEYER (Münster, 1955), p. 1, ll. 9-28; p. 2, ll. 98-100.

51. Cf. L. THORNDIKE, *o.c.*, p. 541; G. PETIT - J. THÉODORIDÈS, *Histoire de la zoologie des origines à Linné* (Paris, 1962), pp. 157-164; M.I. GERHARDT, "Zoologie médiévale: préoccupations et procédés," in *Methoden in Wissenschaft und Kunst des Mittelalters* (*Miscellanea Mediaevalia*, 7), ed. A. ZIMMERMANN and R. HOFFMANN (Berlin, 1970), pp. 231-248, esp. p. 248.

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Since Albert is, like Aristotle, a philosopher and at the same time a biologist, it is normal that he thoroughly reflects on the sagacity of the bees. His discussions of the Aristotelian topic may be divided into two parts. Firstly, I shall describe the psychophysiological structure which in Albert's view makes the bee a prudent animal; secondly, Albert's ethological observations will be considered. In general, animals are more or less perfect according as their activities approximate more or less those of human beings. Using Platonic terminology, Albert maintains that irrational animals participate to different degrees in the perfection of man, who is the supreme animal, and so imitate man's rational way of living.[52] This zoological anthropocentrism was not alien to Aristotle.[53] Yet Albert develops more systematically the idea that man is 'the principle of all animals', and argues that man differs from the other animals not merely by a specific difference, but also by generic differences, because the vegetative and the sensitive powers of the human soul also participate in reason.[54] That man's qualities are somehow adumbrated in irrational animals, holds true in particular for bees.

In Book XXI (chapter 8) of *De animalibus* Albert gives his most synthetic exposition on the perfection of insects, and especially of bees. Since they are externally hard and chiefly composed of the element earth, they participate in all sensory faculties, and since the spirit that is generated by a subtle fluid circulates in their body, they are very sagacious; however, they cannot learn anything because they do not perceive sounds as words, which signify things through intellectual concepts.[55] This compact argument needs some elucidation.

First, the earthy structure of insects is not only needed for their sense-organs, which are basically made of earthy material, but has still another function, which is probably even more important for the bees' sagacity: their earthy body enwraps their spirit and fluid. Second, the fluid that is analogous to the blood of other animals is a subtle phlegm (or 'fleuma', as Albert usually calls it), a cold fluid, which is so watery

52. Cf. Albert, *De animalibus*, I, §54, 21, 16-17; XXI, §1, 1321, 14-19; §3, 1323, 6-9.

53. Cf. Aristotle, *Hist. An.*, VIII(IX), 1, 608b4-7; *Gen. An.*, II, 4, 737b26-27; Albert, *De animalibus*, VIII, §6, 573, 20-22; XVI, §76, 1102, 29-32.

54. Cf. *De animalibus*, XXI, §4, 1323, 26-33.

55. Cf. *De animalibus*, XXI, §45, 1345, 3-9; *Metaphysica*, I, tr. 1, c. 6, ed. B. GEYER (Münster, 1960) p. 9, ll. 79-85. An exception is made for flies, which do not have memory (cf. *De animalibus*, XXI, §9, 1326, 34-35).

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that it is not boiled down by the low natural heat of insects.[56] The phlegm produces a fine inborn spirit, which conversely makes the fluid airy.[57] It is due to the subtility of the phlegm and the spirit that insects, and particularly bees, have extremely refined sensations and activities. This is a genuinely Aristotelian idea.[58] The psychical operations of the bees are not limited to the perceptions of the exterior senses. As all animals which have one or more exterior senses, they are also endowed with common sense, phantasy and estimation.[59] That bees have phantasy, is a problematic thesis. For in *De anima* it is argued that if sense-perception and imagination were identical in actuality, all beasts could have imagination. Aristotle, then, continues, at least according to the preserved manuscripts, by saying: 'and it seems that this is not so, e.g. the ant or the bee, and the grub'.[60] Albert's comment on this passage, which has been discussed at large by ancient and modern commentators, is worth quoting: 'Aristotle seems to say that ants and bees do not have phantasy. Yet, this is absolutely false, since such animals skilfully build houses, make provisions for their future, and work together. I think, however, that this <statement> is not due to a mistake of the Philosopher, but to a mistake of the translator; because he did not understand the names of the animals which according to Aristotle do not have phantasy, he rendered "ants and bees" instead of those names, and corrupted the truth with his bad translation'.[61]

Further, the phantasy of the bees is a necessary condition for their memory and estimative faculty. In Albert's view, bees obviously possess memory, since they return to absent sensible things because of a previous sense-impression. Their memory, though it is powerful, has a smaller capacity than that of lions and deers. As in children and old men, the relative weakness of the bees' memory is caused by the abun-

56. Cf. Albert, *De animalibus*, III, §101, 321, 27-28; §105, 323, 6-9; XX, §59, 1304, 13-15.

57. Cf. Albert, *De animalibus*, XX, §15, 1280, 31-36; *De spiritu et respiratione*, ed. A. BORGNET (Paris, 1891), p. 243.

58. Cf. Aristotle, *Part. An.*, II, 2, 648a3-6; Albert, *De animalibus*, XII, §30, 809, 25-32.

59. Cf. Albert, *De anima*, III, tr. 1, c. 23, ed. C. STROICK (Münster, 1968), p. 167, ll. 74-77.

60. Aristotle, *De anima*, III, 5, 428a9-11. For a survey of interpretations see: D. ROSS, ed., *Aristotle. De Anima* (Oxford, 1961), pp. 286-287.

61. Albert, *De anima*, III, tr. 1, c. 7, p. 173, ll. 36-45.

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dance of cold fluid, which obliterates the impressions.[62] Finally, bees have estimation, which is a sensory power to judge by combining particular notions. This practical faculty of assessing things, which is also due to the clearness of their spirit, enables the bees to perform ingenious activities.[63]

Now that the exterior and interior senses of bees have been described, we are able to understand the ordered character of their life. According to Albert, bees participate in a 'rule of life' ('regimen vite'), yet they do not do so freely, but by a natural impulse.[64] Hence, the sagacity which they display in their activities is ambivalent: on the one hand, it resembles man's prudence; on the other hand, it is imperfect and amoral. The ambiguity of the bees' sagacity may be illustrated with some positive and negative examples, which show the similarities as well as the dissimilarities between man and the bees.

Albert explains why bees are called 'argumentose et operose': 'intelligent', because they ingeniously transform dew-drops which have fallen on flowers into honey and wax; 'laborious', because they improve by their work the things they have collected, and thus make products that are convenient for their nature.[65] They imitate man's economic management by building houses and filling them with stocks, and they imitate man's political life by sharing one habitat and obeying their king.[66]

Albert, however, also underlines the essential differences between the community of bees and human society. Bees do not act in view of happiness. They do not show any dutiful love towards their parents, nor do they communicate with other swarms. Moreover, Albert recognizes the brutality of the bees. If they can, they kill without any mercy all

62. Cf. Albert, *De animalibus*, I, §58, 22, 35-37; VIII, §234, 670, 1-9; XXI, §9, 1326, 27-29; §10, 1327, 24; *De memoria et reminiscentia*, ed. A. BORGNET (Paris, 1891), p. 103.

63. Cf. Albert, *De animalibus*, VII, §2, 496, 25-31; VIII, §233, 669, 24-31.

64. Cf. Albert, *De animalibus*, I, §58, 22, 33-34.

65. Cf. Albert, *De animalibus*, VIII, §146, 633, 8-11; XXVI, §4, 1580, 20-26. According to R.E. LATHAM (*Dictionary of Medieval Latin from British Sources*, 1 (Oxford, 1975), p. 124) and J.W. FUCHS - O. WEIJERS (*Lexicon Latinitatis Nederlandicae Medii Aevi*, 1 (Leyden, 1977), col. 544) 'argumentosus', used as an epithet of the bees, means 'assiduous, busy'. Albert's explanation, however, proves that the epithet preserved its etymological meaning.

66. Cf. Albert, *De animalibus*, I, §55, 21, 31-33; 21, 42; §56, 22, 15-18.

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animals which they attack.[67] Lastly, it must be noted that not all bees live cleanly in community. Besides the three kinds of solitary bees which Aristotle distinguishes, Albert mentions the so-called swine-bees, which are asocial and only like stinking excrements.[68]

If one compares Albert's theory concerning the bees' sagacity with Aristotle's remarks, it is evident that Albert has not merely copied the Philosopher. Perhaps my exposition of Albert's ideas has rendered them more consistent than they actually are. Nevertheless, in his digressions on the perfection of the bees, Albert himself has elaborated the Aristotelian topos. He explains why bees have all senses, and how this fact is the basis of their prudent life. At the same time, his anthropocentric perspective on nature leads him to distinguish sharply between the intelligence of man and the sagacity of bees. Although Albert admires their ordered activities, they are in his view far from being a pattern for man; rather, the life of the bees is fashioned after the example of humanity. In sum, Albert presents a fairly realistic painting of the bees. However, even if he has inspected the bees more minutely than other thirteenth-century authors, he remains preponderatingly 'ein "literarischer" Naturwissenschaftler', who draws more on Aristotle's texts than on personal observations.[69]

5. Thomas Aquinas

As compared with Albert, Thomas Aquinas is scarcely interested in animals, and his zoological knowledge is rather restricted.[70] In the whole of Thomas' thought, zoology is relegated to an inferior level.

67. Albert, *De animalibus*, VIII, §169, 642, 4-19; cf. Aristotle, *Hist. An.*, VIII(IX), 40, 626a21-22. Especially, the prickings of the big yellow bee, which actually is a hornet, are harmful: 'According to a proverb of country people and herdsmen, nine big yellow bees kill a horse, if it is not soon protected against them'. Compare: 'Sieben Wespen stechen ein Ross todt'; 'Viel Bienlein zerstechen einen Reiter' (K.F.W. WANDER, *Deutsches Sprichwörterlexikon* (Aalen, 1963), 1, col. 374; 5, col. 206).

68. Cf. Albert, *De animalibus*, IV, §88, 397, 2-6; VIII, §143, 631, 39; Aristotle, *Hist. An.*, VIII(IX), 40, 623b10-13. Actually, the swine-bee is the '*κώνωψ*', the 'vinegar-fly', which according to Aristotle (*Hist. An.*, IV, 8, 535a3) settles only on acid things.

69. See: P. HOSSFELD, *Albertus Magnus als Naturphilosoph und Naturwissenschaftler* (Bonn, 1983), p. 95; cf. J.B. FRIEDMAN, "Albert the Great's Topoi of Direct Observation and his Debt to Thomas of Cantimpré," in *Pre-Modern Encyclopaedic Texts*, ed. P. BINKLEY (Leiden/New York/Köln, 1997), pp. 379-392.

70. Cf. C. HÜNEMÖRDER, "Thomas von Aquin und die Tiere," in *Thomas von Aquin. Werk und Wirkung im Licht neuerer Forschungen*, ed. A. ZIMMERMANN and C. KOPP, (Berlin and New York, 1988), pp. 192-210, esp. p. 210.

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Since it is a subdivision of natural science, it is a subordinate science.[71] This, however, is not a sufficient reason to neglect zoology; for Albert too could agree with the thesis that the science of animals is a subdivision of the philosophy of nature.[72] A more decisive reason appears in the prologue of the Commentary on *De anima*. There, Aquinas refers to the famous chapter of *De partibus animalium* I, which Thomas of Cantimpré and Albert correctly understood as a praise of zoology. Aquinas, contrariwise, claims that even if we can reach only some probable knowledge about the highest beings, we desire to know a little bit about them rather than to have copious knowledge about less noble things.[73] By thus stressing one element of Aristotle's argument, Aquinas metamorphoses the original protreptic into a depreciation of biology.

Nevertheless, Aquinas often employs the topos of the sagacious bee. In general, he remarks that all animals somehow participate in prudence and reason according to their natural estimation.[74] The power of assessing things is especially present in bees: for although they are imperfect with regard to the distinctness of the limbs, the mode of generation and the degree of life, they excel land-animals in some traits of cleverness.[75] Aquinas does not explain what is meant by 'traits of cleverness' ('sagacitates'), but his scattered remarks make it clear. Bees smell their food from afar; they have a kind of phantasy and memory; they produce 'works of prudence', such as honey-combs; their tasks are well distributed; and they obey their kings.[76] Since all these ideas

71. Cf. Thomas, *In Libros Posteriorum Analyticorum Expositio*, I, l. 25, ed. T.F. ZIGLIARA (Rome, 1882), p. 237, §2; C. HÜNEMÖRDER, *art. cit.*, p. 193.

72. Cf. Albert, *Posteriora Analytica*, I, tr. 5, c. 5, ed. A. BORGNET (Paris, 1890), p. 139-140; *Quaestiones super de animalibus*, I, q. 1, p. 78, ll. 6-25.

73. Cf. Thomas, *Sentencia Libri De Anima*, I, c. 1, ed. R.A. GAUTHIER (Rome and Paris, 1984), p. 5, ll. 78-92; Aristotle, *Part. An.*, I, 5, 644b33-645a1.

74. Cf. *Summa theologiae*, I, q. 96, art. 1, corpus. See also: M.F. MANZANEDO, "Poseen inteligencia los animales?", *Ciencia Tomista* 116 (1989), 99-128, esp. 102-117.

75. Cf. *Summa theologiae*, I, q. 72, ad 1.

76. Cf. *Sentencia Libri De sensu et sensato*, c. 13 (Rome and Paris, 1985), p. 72, ll. 1-25; *Sentencia Libri De anima*, II, c. 29, p. 194, ll. 100-115; *In Libros Metaphysicorum Expositio*, I, l. 1, ed. M.-R. CATHALA and R.M. SPIAZZI, §§12-13; *Quaest. disp. De veritate*, XXIV, art. 1, ed. A. DONDAINE (Rome, 1976), p. 681, ll. 271-279; *Summa contra Gentiles*, III, c. 134, ed. C. PERA, P. MARC and P. CARAMELLO (Turin and Rome, 1961), §3069; *Summa theol.*, I, q. 96, art. 1, ad 4.

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are derived from the *Corpus Aristotelicum*,[77] one could presume that Aquinas' view on the bees' sagacity does not differ from Albert's doctrine on the same subject. However, if one looks closer at Aquinas' texts, some very notable differences become apparent.

To begin with, Aquinas minimizes the capacities of the bees. Unlike his master, he simply denies that bees hear sounds: when they are frightened by loud sounds, this is not due to some auditive perception, but to the fact that they are struck by a movement of the air which conducts sound. Consequently, they are incapable of being habituated to doing or avoiding something, because such instruction is received chiefly by means of hearing.[78] Moreover, in Aquinas' opinion, the bees' phantasy is not distinct from their senses, since they imagine something only when they are moved by something sensible. It happens that they act in view of a goal, as if they are provident for the future, but factually, they imagine only present acts, which are ordered toward a goal in virtue of a natural inclination, rather than by some cognitive act.[79] By so restricting their phantasy to the present, Aquinas actually rejects the view that bees have phantasy.

Besides this material disagreement between Albert and Aquinas, there is a formal difference in the manner in which both authors use the idea of the bees' sagacity. In contrast to Albert, Aquinas touches upon the Aristotelian topos *en passant*, and mostly alludes to it when it is opportune for his anthropology or theology. This may be evidenced by an example. In his *Summa contra Gentiles* Aquinas discusses several arguments which William of St. Amour and his companions put forth in their antimendicant polemics. In one of these arguments it is observed that natural appetite requires every animal to provide for itself in regard to the necessities of its life. Thus, animals that can not obtain what they need to survive during every period of the year, such as bees and ants, gather by a certain natural instinct the things needed for life during the season when they can be found. This biological observation serves as a premiss to prove that voluntary poverty is contrary to nature. For since human beings need for the preservation of life

77. Cf. Aristotle, *Sens.*, 5, 444b10; *An.*, III, 5, 428a9-11; *Metaph.*, I, 1, 980b2-4; *Hist. An.*, IX, 40, 624a5; 625b18-20.

78. Cf. *In Metaph.*, I, l. 1, §12-13. This interpretation is probably more correct than Albert's comment; cf. W.D. ROSS, ed., *Aristotle's Metaphysics*, 1 (Oxford, 1958), pp. 115-116.

79. Cf. *Sentencia Libri De Anima*, II, c. 29, p. 194, ll. 100-115.

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many things that are not always available, it is natural for them to store such natural things. 'Ergo, it is contrary to natural law to throw away, for the sake of poverty, all that one has gathered.'[80] In response to this argument, Aquinas replies that although man naturally desires to gather the things necessary for life, not every man must be occupied with this work. 'For not even among the bees do all have the same function; rather some gather honey, others build their homes out of wax, while the rulers are not occupied with these works. And the same is necessary in the case of man. (...) Since the life of man requires not only corporeal but, even more, spiritual goods, it is also necessary for some men to devote their time to spiritual things in order to better others; and these must be freed from concern over temporal matters.'[81]

In his reaction against the antimendicants, Aquinas, like Thomas of Cantimpré,[82] utilizes the topos of the sagacious bee so as to defend the religious life of the mendicants. In this respect, Thomas of Cantimpré and Thomas Aquinas differ from Vincent of Beauvais and Albertus Magnus, who describe the bees' cleverness principally with scientific or encyclopaedic intentions. Upon the whole, however, Aquinas espouses Albert's philosophical realism, and therefore he is mostly reluctant to regard the bees as a symbolic example for humanity.

6. Henry Bate

The last philosopher whose ideas on bees I shall discuss, is Henry Bate, the author of the *Speculum divinorum et quorundam naturalium*. Like other thirteenth-century encyclopaedists, Bate insists that he has picked up many insights and arguments from other writers. However, in contrast with other compilers, he has composed a philosophical *summa*, in which biblical quotations or reminiscences are almost

80. *Summa contra Gent.*, III, c. 131, §3027; cf. William of St. Amour, *Tractatus brevis De periculis novissimorum temporum ex Scripturis sumptus*, c. XII, p. 49 (in: Magistri Guillielmi de Sancto Amore...*Opera omnia*..., Constantiae..., Anno 1632). William did not mention the bees, but probably not all arguments that were used in the debate are developed in William's treatise (cf. J.A. WEISHEIPL, *Friar Thomas d'Aquino. His Life, Thought, and Work* (New York, 1974), pp. 80-92, esp. p. 89).

81. *Summa contra Gent.*, III, c. 134, §3069 (translation based on V.J. BOURKE, *St. Thomas Aquinas. Summa contra Gentiles*, 3:II (Notre Dame and London, 1975), pp. 179-180); cf. Aristotle, *Hist. An.*, VIII(IX), 40, 625b18-20; *Gen. An.*, III, 10, 759b10;b24; 760b8.

82. Cf. *BUA*, II, 10, p. 155 & pp. 173-176. Thomas of Cantimpré speaks of 'quidam dictus magister Willelmus' and mentions *De periculis novissimorum temporum.*

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entirely absent. In his encyclopaedia he presents his Aristotelian-Platonic world-picture. According to Bate, Plato and the Platonists search the remote, divine causes of reality, while Aristotle and his commentators remain closer to natural phenomena. Following Albertus Magnus, Bate holds that both philosophical tendencies must be united in order to bring philosophy to its perfection.[83] This basic conviction has also shaped, as we shall see, Bate's zoological thought.

Even though Bate's *Speculum* is a real encyclopaedia, he deals for the most part with so-called divine subject-matters, that is, psychology, cosmology, and metaphysics. In principle, biology does not fall under the main theme of the *Speculum*. That Bate attaches a limited value to the study of animals, is evident from his use of Aristotle's protreptic to zoology. In his Proem, Bate cites it in support of the view that the study of divine substances is the most perfect and delightful activity of man.[84] Near the end of his encyclopaedia, he again quotes the famous passage from *De partibus animalium* in the context of his theodicy. He argues that, owing to God's goodness and because of the perfection of the universe, there is no degree lacking in nature. In simple elements, the composites of the elements, minerals, plants, in living beings which spontaneously spring from a process of putrefaction, in animals, in all things there is something good.[85] This metaphysical optimism conjoins the scholastic adage 'everything that exists, is, insofar as it is, good'[86] with the Aristotelian idea that nature is a gradational continuum, which would be designated in the modern era by the metaphor of the *scala naturae*.[87] In defence of his optimistic world-view, Bate then cites Aristotle's protreptic to zoology.[88]

83. Cf. *Speculum*, XXIII, 17, ed. C. STEEL and G. GULDENTOPS (Louvain, 1996), p. 465, ll. 69-76; Albert, *Metaphysica*, I, tr. 5, c. 15, p. 89, ll. 85-87. See also: G. GULDENTOPS, "Henry Bate's Encyclopaedism," in *Pre-Modern Encyclopaedic Texts*, ed. P. BINKLEY (Leiden/New York/Köln, 1997), pp. 227-237.

84. *Speculum*, Prooemium III, ed. E. VAN DE VYVER (Louvain and Paris, 1960) p. 69, ll. 21-39; cf. Aristotle, *Part. An.*, I, 5, 644b24-35.

85. Cf. *Speculum*, XXIII, 22, p. 495, ll. 6-13.

86. *Speculum*, XXIII, 16, p. 456, l. 18; cf. Augustine, *De diversis quaestionibus 83*, q. 24; Boethius, *De hebdomadibus*, PL 64:1312A.

87. Cf. *Speculum*, VI, 13, ed. C. STEEL and E. VAN DE VYVER (Louvain, 1994), p. 55, ll. 149-151; XI, 9, ed. H. BOESE and C. STEEL (Louvain, 1990), p. 29, ll. 12-20; Aristotle, *Hist. An.*, VII(VIII), 1, 588b4-12. See also: C. HÜNEMÖRDER, "Thomas von Aquin und die Tiere," pp. 199-200.

88. *Speculum*, XXIII, 22, p. 495, l. 14 - p. 496, l. 39; here Bate gives a longer quotation (*Part. An.*, I, 5, 645a5-30).

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Although Bate is less engaged in zoology than contemporaneous encyclopaedists, he focuses on several zoological issues. In Part I of the *Speculum*, he treats the psychophysiology of the senses; in Parts VIII-X he develops his embryology; in Part XVII he describes the movement of animals. These zoological sections are intended as 'incidental digressions' that should shed some light on the more elevated subjects of his speculative encyclopaedia.[89] Moreover, Bate outlines in Parts XX-XXII a cosmology that is based upon a zoological paradigm: in his view, indeed, the 'caelum' is a 'divine animal', or a 'spiritual body animated by an intellect'.[90]

Bate's exposition on the bees is not found in any of the biological sections, but in Part XIX, which is devoted to diverse kinds of 'mirabilia', such as the influence of celestial bodies, apparitions and necromancy. At first sight, this context may seem to be surprising. However, by bringing forth the 'secrets of nature',[91] Bate designs a naturalistic framework in which paranormal phenomena can be situated. Therefore he again cites Aristotle's protreptic to zoology, and where Aristotle asserts that all natural things have something wonderful ('mirabile'), Bate adds: 'That is, something divine.'[92] Thus, his account of the generation and of the prudent activities of some insects, and especially of the bees, is meant as a long empirical proof of the thesis that nature is provident.

This proof, however, is not grounded on Bate's own observations, but merely consists in a *cento* of extracts from the *History of Animals*.[93] To these *verbatim* citations almost nothing is added. Sometimes, Bate inserts a variant reading or juxtaposes Moerbeke's and Michael Scot's versions. At 554a16, for instance, he writes: 'Spadones (alias: scadones) autem optimos faciunt quando mel operantur' ('They produce the best impotent bees - elsewhere: the best grubs -, when they are working at the honey').[94] And at 624a27-29, Bate writes: 'Aiunt

89. Cf. *Speculum*, Prooemium I, p. 47, ll. 13-18.

90. Cf. *Speculum*, XXI, 10, p. 235, ll. 154-158.

91. Cf. *Speculum*, XIX, 2.

92. *Speculum*, XIX, 2; cf. *Part. An.*, I, 5, 645a16-19; a24-26. Here Bate writes 'in omnibus enim animalibus naturaliter...'; in XXII, 22 (p. 496, l. 24) 'in omnibus enim animalibus naturalibus...'.

93. In XIX, 2 he quotes V, 21-22, 553a17-554b8; in XIX, 3 he cites VIII(IX), 38-40, 622b19-627b27.

94. At this place, Moerbeke writes 'spadones', but elsewhere he transliterates 'scado' (e.g., at 624a8: 'scadonum'). It is not clear how the medieval reader understood

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autem cum aberraverit ipsorum examen egressum, transcurrere donec inveniant ducem odore. In alia vero translatione, que scilicet ex Arabico, sic habetur: Et aliqui dicunt quod quando pullus amittitur in aliquo loco, rector subito queret ipsum quousque inveniat eum, quoniam cognoscit ipsum ex eius odore.'[95] By quoting the two translations, Bate offers his reader an alternative: either the swarm that has gone astray, flies around until it finds its leader by the aid of scent; or the leader seeks his offspring, when they are lost. Such passages, which are numerous in the *Speculum*, show that Bate was well aware of the errors made by translators and copyists.

That Bate was an erudite compiler also appears from his remark on 624a18. Aristotle there describes the so-called pitch-wax, which has a less pungent odour and is less medicinal than *μίτυς*, a black by-product of wax. Bate notes that 'this is perhaps what physicians call *mum*'.[96] Since he hesitates to identify pitch-wax and *mum*, it seems likely that he based this identification on some oral information. On the other hand, Bate was acquainted with Avicenna's *Canon*, to which he often referred,[97] and thus it is possible that he once read Avicenna's chapter on *mum*, but forgot that this word is synonymous with *micoz*, the Arabico-Latin transliteration of *μίτυς*.[98]

these two words: did he consider them orthographical variants, or did he make a semantic distinction? Anyway, the ancient connotations of 'spado' were probably preserved.

95. Moerbeke's text was: 'Aiunt autem cum aberraverit ipsorum examen, egressum transcurrere donec inveniat ducem odore'; in *Dp* (Cambridge, Peterhouse 121) the reading 'inveniant' is attested. Bate, however, did not use *Dp*, which has 'egressos', nor did he know *Tz* (Toletanus Bibl. Cap. 47.10), which has 'inveniat'; his source was a manuscript of the universitarian tradition. I thank Prof. F. Bossier and P. Beullens for this information. - On a related problem in the Greek text see: *Aristotle. History of Animals*, Books VII-X, ed. D.M. BALME and A. GOTTHELF (Cambridge, Mass., and London, 1991), p. 341, note a.

96. Cf. Avicenne *Liber Canonis medicine*. Cum castigationibus Andree Bellunensis (Venice, 1527 [=Brussels, 1971]), II, 2, 470, fol. 110ra.

97. Cf. *Speculum*, I, 28, p. 190, l. 58-59 (cf. *Canon*, III, 1, 4, 12, fol. 149ra); I, 31, p. 202, l. 22 (cf. *Canon*, I, 1, 5, 2, fol. 9rb); II, 31, ed. E. VAN DE VYVER (Louvain and Paris, 1967) p. 124, l. 69 (cf. *Canon*, III, 3, 1, 1, fol. 162rb).

98. *Micoz* is used, for instance, by Albert (*De animalibus*, VIII, § 14 , 635, 8); Vincent (*Speculum naturale*, XX, c. 109, col. 1523) seems to be the only author who quotes Avicenna's chapter on *mum*; he links it with Aristotle's observations on *micoz* and Pliny's remarks on *propolis* (*Naturalis historia*, XI, 6, 16; XXII, 24, 50). Since Bate does not use *micoz* or *propolis*, and since he in general does not quote the *Speculum naturale*, it is improbable that his allusion to *mum* is derived from Vincent.

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Finally, after citing extensive chapters from the *History of Animals*, Bate concludes:

> These behaviours and the activities of similar contempted animals are wonderfully ordered toward a goal that is foreseen, and especially the movements of the bees, which possess prudence without learning, as it is stated in the first book on First Philosophy. From all this it is clear that they necessarily have a cause that orders them in this direction: this cause, which orders them to a determinate goal, is necessarily referred to an active intellectual principle, which somehow takes care of such things that are thus ordered. (...) For the material cause is in itself a cause of confusion and lack of determination; however, it is not in itself a cause of determination and ordering, but only accidentally, namely insofar as it has above itself some providential intellectual cause - I mean, a cause that directs matter through some order toward a foreseen goal. Indeed, even in the most ignoble beings, in the imperfect animate as well as inanimate beings, some order of causes, which are proportionate to the singular beings, emanates from there in accordance with certain degrees.[99]

The order of causes at which Bate hints, consists of proximate and remote causes. The proximate causes are the form, the matter, and the efficient and final causes, which immediately generate an animal and determine its life. The remote causes are the heavenly bodies, which are united to their intellectual movers. Following Averroes, Bate maintains that while terrestrial animals furnish only the corporeal instruments of procreation, the celestial bodies are the artificer which 'informs' the psychical forces of sublunary animals.[100] The intellectual causes are the immaterial substances that have gradually proceeded from God, who is the Prime Mover of the universe.[101]

Bate thus manages in his *Speculum divinorum et quorundam naturalium* to marry the natural (or proximate) causality of Aristotle's biology with the divine (or remote) causality of Proclus' theology. He establishes the connexion between the Platonic and the Aristotelian perspectives most vigorously in his noetics and cosmology. In short, Bate writes about bees as an encyclopaedic philosopher whose speciality is located at the intersection of metaphysics and astronomy (or astrology).

99. *Speculum*, XIX, 3; cf. Aristotle, *Metaph.*, I, 1, 980b2-4.

100. Cf. *Speculum*, XX, 30, p. 155, ll. 128-140; Averroes, *Phys.* VIII, 47 (fol. 388H-K); Aristotle, *Gen. An.*, II, 3, 736b29-737a1.

101. Cf. *Speculum*, XXIII, 10-25.

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Conclusion

The topos examined in this paper is a complex of ideas that figure not only in Aristotle's zoology, but also in his treatise *On the Soul*, in his *Politics*, and in his *Metaphysics*; it is a theme according to which bees are endowed with fine senses and perform prudent social activities. In different contexts variations on this motif were composed by later authors who relied directly or indirectly on Aristotle, whether they were scientists, literary writers, philosophers or theologians.

Notwithstanding the subtle differences in viewpoint, all thirteenth-century philosophers looked upon the sagacity of the bees as an outstanding example of the divine world-order, and all of them borrowed this topos from classical texts. For them, zoology, and in general natural science, was not a value-free exploration of nature, but rather a faithful study of ancient scientific authorities who taught them to contemplate the wonderfulness of Being.

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STEFANO PERFETTI

THREE DIFFERENT WAYS OF INTERPRETING ARISTOTLE'S *DE PARTIBUS ANIMALIUM*: PIETRO POMPONAZZI, NICCOLÒ LEONICO TOMEO AND AGOSTINO NIFO

Let me begin by justifying the choice of these three commentators. Firstly Pomponazzi, Tomeo and Nifo represent three different sides of sixteenth century Aristotelian scholarship, each one sharply characterised by its own distinctive features and idiosyncrasies. Moreover, though in the last decades of the *Quattrocento* the new humanist translations of the Aristotelian zoological corpus made by Theodore Gaza were available (the *editio princeps* dates back to 1476),[1] only the following century would have produced a wave of commentaries directly devoted to the *Historia*, *De partibus* and *De generatione animalium*. And Pomponazzi holds here an unquestionable primacy: to our knowledge, in the years 1521-24 he worked on the very first Renaissance commentary on the *De partibus animalium*. The other two commentators followed within the subsequent decade and a half. So the line Pomponazzi – Leonico Tomeo – Nifo may be considered as a sort of first Renaissance genealogy of the exegetes of the *De partibus*.

Of course I shall not be dealing with the general view of Aristotle's natural philosophy, neither with the whole interpretation of his biology given by the three forementioned scholars. My aim will be rather to evaluate the *expositiones* they made on the *De partibus animalium*, in order to throw light on some *tesserae* of the history of the reception of this text.

In the course of the discussion I shall consider the following parameters: (a) the institutional context and the literary genre; (b) the role of the *auctoritates* and the position towards Arabic and Latin medieval exegesis (not only the one exhibited in *praefationes* and *accessus*, but mainly the actual relation with medieval authors shown in the rest of the commentaries); (c) the use of humanist instruments in order to gain a deeper insight into the problems of the text; (d) the strategies adopted

1. Further information and observations about the history and features of Gaza's translation may be found in S. PERFETTI, "Cultius atque integrius. Teodoro Gaza traduttore umanistico del *De partibus animalium*," *Rinascimento* 35 (1995), 253-286; J. MONFASANI, "The Pseudo-Aristotelian *Problemata* and Aristotle's *De animalibus* in the Renaissance," in N. SIRAISI-A. GRAFTON (eds.), *Natural Particulars. Nature and the Disciplines in Renaissance Europe*, Chicago (forthcoming).

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in commenting the text; (e) the general philosophical attitude towards Aristotle's zoology and its epistemology. Finally I shall try to understand if the various facets of these Renaissance commentaries do actually entail a new hermeneutical paradigm in the comprehension of these texts.

1. Institutional context and literary genre

To begin with, let us take a brief overall look at the institutional context and at the literary genre of each individual commentary. Pomponazzi's lectures on the *De partibus*, held at the University of Bologna between 1521 and 1524, belong to the last phase of his career and survive in two unpublished *reportationes*.[2] They cover our treatise up to III.4 (666a21), as the course was interrupted because of a serious attack of kidney stone in 1524 (Pomponazzi died the following year). These lectures, delivered in a rather outspoken and un-refined *stylus parisiensis*, have the typical scholastic form of a *commentum cum quaestionibus*. The magister offers the incipits of the lemmata of the Latin text of the *De partibus* in the translation by Gaza (thus implying a certain *divisio textus*); he then resumes the *sententia* and afterwards explains in detail all that is remarkable from a philosophical point of view. The most important matters are then fully developed in extended *quaestiones*.

Niccolò Leonico Tomeo, who was widely renowned as a Greek *conoisseur* and a translator of the *Parva naturalia* (1523), began his enterprise of translating and commenting the *De partibus animalium* in the late twenties, as a sequel of the work left interrupted by Pomponazzi. The link between the two scholars was the common patronage of Ercole Gonzaga. In a letter addressed to Cardinal Gonzaga, contained in the ms. Vaticanus Rossianus 997, Leonico Tomeo states explicitly that he had undertaken this work "in order, at any rate, to offer you what your Pomponazzi, beyond all doubt a very learned man, pre-

2. These two *reportationes* are preserved in two manuscripts (Milano, Biblioteca Ambrosiana MS D 417 inf., fols. 1r-133r and Paris, Bibliothèque Nationale, MS lat. 6537, fols. 1r-127v). The first one, though less accurate, covers the whole course, while the second one, more accurate (almost a *verbatim* record which we owe to Gregorio Frediani), ends off with the second book of *Part. An.*: see B. NARDI, *Studi su Pietro Pomponazzi* (Florence, 1965), pp. 81-82, 205-206. I suggest elsewhere that the Ambrosian manuscript might be considered something like an *ordinatio*, probably made by a group of Pomponazzi's disciples after the master's death: S. PERFETTI, "Docebo vos dubitare. Il commento inedito di Pietro Pomponazzi al *De partibus animalium* (Bologna 1521-24)," in *Documenti e studi sulla tradizione del pensiero medievale*, 10 (1999), 439-466, 444 and 466.

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vented by death could not accomplish": "ut quod Pomponatius tuus, vir sine controversia eruditissimus, morte preventus prestare non potuit, id utcumque a me nunc tibi tribueretur".[3] Unfortunately Leonico too, who died in 1531, left his work unfinished. Only the *Conversio atque explanatio primi libri* is known, and was published posthumously by his nephew Magnus Leonicus in 1540.[4] This commentary, as we shall see, shows peculiar characteristics of stylistic elegance and theoretical penetration, so that it seems not to be a simple outcome of university lectures.[5] Leonico does not use either the scholastic jargon, or its fixed formulas of textual exposition. He explains the Aristotelian treatise mainly paraphrasing it and giving back its contents in a fluid speech, which aims at showing the theoretical coherence of the text. Only occasionally does Leonico indulge in explicit textual remarks. In addition, the translation by Gaza, widely transformed and castigated, is printed in large portions before the relative exposition.

One of the most talked about and self-confident philosophers of the Renaissance was Agostino Nifo. The man was not ashamed of introducing himself, on the frontispiece of his books, as the "monarcha sive princeps philosophorum". However, this self-confidence paid back, and quite literally: he was in fact without any doubt one of the best paid professors of his time and many Universities contended his services.[6] His long career ended at the *Studium* of Salerno.[7] Closely related to the

3. MS. Vat. Ross. 997, fol. 8v. This letter has been expounded by D. DE BELLIS, "Niccolò Leonico Tomeo interprete di Aristotele naturalista," *Physis* 17 (1975), 71-93, 89-90.

4. Nicolai Leonici Thomaei *Conversio atque explanatio primi libri Aristotelis De partibus animalium* (Venice, 1540).

5. We know that Leonico, after being professor at the University of Padua (1497-1509) and also in Venice (1504-1506), from 1521 taught privately in Padua. Cf. C.H. LOHR, *Latin Aristotle Commentaries, II. Renaissance Authors* (Florence, 1988), pp. 453-454. For the biography of Leonico Tomeo see D. DE BELLIS, "La vita e l'ambiente di Niccolò Leonico Tomeo," *Quaderni per la storia dell'Università di Padova* 13 (1980), 37-73 and D.J. GEANAKOPLOS, "The Career of the Little-Known Greek Scholar Nicholas Leonicus Tomaeus," *Byzantina* 13 (1985), 355-372.

6. For a biographical outline of Nifo, see P. TUOZZI, "Agostino Nifo e le sue opere," *Atti e Memorie della Regia Accademia di Scienze Lettere e Arti di Padova* n.s. 20 (1903-1904), 63-86. E.P. MAHONEY, "Agostino Nifo," in *Dictionary of Scientific Biography*, 10 (New York, 1974), pp. 122-124 .

7. Agostino Nifo held a prestigious position in the *Collegium Salernitanum* as a *promotor* of degree. Cf. P.O. KRISTELLER, "The School of Salerno. Its Development and its Contribution to the History of Learning," in *Studies in Renaissance Thought and Letters*, (Rome, 1956), pp. 495-551, 545, 549-550. Cf. also L. CASSESE, "Agostino Nifo a Salerno," *Rassegna storica salernitana* 19 (1958), 'Appendice', 3-17.

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courses at Salerno are the *Expositiones in libros De historia animalium* (...) *De partibus animalium* (...) *ac De generatione animalium*,[8] finished, according to the *explicit*, in 1534.[9] Although more eloquent and acquainted with the humanist modes, Nifo also follows, and even more strictly than Pomponazzi at that, the scholastic schemes of *commentum cum quaestionibus*. He minces up the Aristotelian text into small pieces of which he explains every single expression,[10] and develops the most significant problems into articulated *quaestiones*, *digressiones* and *dubitationes*. The comment displays Nifo's extensive and eclectic knowledge: each *auctoritas* and each source, even the most odd, is mentioned, so that the comprehension of the Aristotelian text is often compromised by the encumbering weight of the erudition. Nifo makes also a revision of the Latin translation (printed at full length), but it is a curious one, since he inserts various passages from the *antiqua translatio* by William of Moerbeke into Gaza's humanist translation, in order to tread more faithfully in Aristotle's footsteps.[11]

Therefore we have to consider that we are dealing with three different kinds of works: only this last one has been completed and prepared, presumably by the author himself, to be printed. Moreover Nifo's *Expositiones* cover all the major zoological treatises of Aristotle, so that the commentary on the *De partibus* shows an organic relationship with a wider exegetical enterprise actually carried out.[12] We cannot say the same about Pomponazzi and Leonico Tomeo, whose works bear the marks of incompleteness. Especially Pomponazzi's commentary, and particularly the most faithful of the two extant *reportationes*, goes

8. Augustini Niphi Medicis philosophi suessani *Expositiones in omnes Aristotelis libros: De historia animalium libri IX, De partibus animalium et earum causis libri IIII ac De generatione animalium libri V* (Venice, 1546).

9. The *explicit* to the last treatise reads: "Salerni XIII Iunii MDXXXIIII" *EGen.*, p. 216b (each *expositio* has an independent numbering of pages and each page has two columns).

10. It is worth noting that Nifo, drawn by his exegetical impetus, sometimes gives full literal explanation even to the interpolations inserted in the Latin text by Theodore Gaza, yet absent from the Greek of Aristotle.

11. The kind of philology practised by Nifo and his revision of Gaza's translation are investigated at length in S. PERFETTI, "Metamorfosi di una traduzione. Agostino Nifo revisore dei *De animalibus* gaziani," *Medioevo* 22 (1996), 259-301.

12. While these *Expositiones* include *Hist. An.*, *Part. An.* and *Gen. An.*, Nifo had previously commented the *Parva naturalia* and the *De motu animalium*, both in *Parva naturalia* Augustini Niphi (Venice, 1550 [51]). Cf. LOHR, *Latin Aristotle Commentaries*, pp. 282-287.

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through long phases of typical oral free digressions, exhausting specifications, witty observations and spicy anecdotes, that not rarely can make us lose the thread of what is said. So we have to be careful to identify the deep structures under these extemporary meanderings.

2. The role of the auctoritates *and the use of humanist instruments*

A macroscopic feature, common to the whole of Renaissance Aristotelianism, is the insistent reference to the exegetical tradition *secundum Graecos*. The process of systematically translating many Greek commentators nearly unknown to the Western Middle Ages, was accompanied by its theoretic justification: it was imperative to refer to them, because they were prior to the Arabic culture, therefore closer to Aristotle's mind. The awareness of having dug up a long-buried treasure, an indispensable instrument to reach the determination of the *mens Aristotelis*, is a trait shared by many Renaissance interpreters and is often exhibited as a *manifesto*.

From the very first pages of their commentaries both Pomponazzi and Nifo make this point explicit. Pomponazzi says:

> Latini et ante eos Arabes uno modo dicunt, alio modo Graeci dixerunt. Unde si vellemus dicta Latinorum referre, multum tempus consumeremus et ingenium confunderemus. Nam nihil recte dicunt. Quare, relictis eorum involutionibus, dicemus quae dicuntur a Graecis.[13]

Later on Pomponazzi scornfully adds: "quod dicunt Avicenna, Commentator et Albertus mihi potius videtur impedimentum quam iuvamentum".[14]

We can perceive the same accents, although in a more complex outline, in the 'Praefatio' of Nifo's *Expositiones*. He divides the *auctoritates* into "nostri" (i.e. Latins), "externi" (i.e. Greeks) and "barbari" (i.e. Arabs) and, after asserting that he will accept only Aristotle as a guide, he declares himself willing to follow the Greek commentators (like John Philoponus and Michael of Ephesus) and says that he will also take into account Averroes, "who paraphrased the books *On the parts* and *the generation of animals*, although, in my opinion, wrongly. Nevertheless I have followed him when he was right": "qui paraphrastice libros *De partibus* et *de generatione animalium*, licet meo iudicio perperam, exposuit. Tamen in quibus recte dixit secuti sumus".

13. BN lat. 6537, fol. 1r.
14. Ibid., fol. 3v.

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Besides, one might consider the various passages in which Nifo's arrogant contempt strikes out at the same time and in the same respect at the Arabic and the Latin sources, like the explicit to the *De partibus*: "Ex Averrois paraphrasi et Alberti commentationibus nihil boni hausimus".[15] In the previous commentary on the *Historia animalium* Nifo made it clear that Albert's mistake had been to rely on the Arabic-Latin tradition: "Albertus versatus est tot in erroribus, quia non legit verba Aristotelis, sed verba barbari translatoris, qui transtulit ex Arabico, non autem ex Graeco".[16]

But we all know that, when facing Renaissance commentators (and medieval as well), one should pay attention to what actually happens in the course of the exegesis and not blindly believe in such programmatic statements. So when one explores these commentaries in depth, a quite different *scenario* may appear. We have to wonder whether all these humanist warnings are nothing but mere declarations of intent or whether they are actually carried out.

At first glance both Nifo's and Pomponazzi's expositions seem to be over-crowded by the names of almost all the previous commentators, the Greek, the Arabic and the Latin, while in Leonico Tomeo's, all these *auctoritates* seem to disappear. So let us consider the first two.

It is well known that Pomponazzi, though unable to express his philosophical thought other than in the scholastic jargon in which he had been brought up,[17] was an open-minded man and showed no little interest in many sources that were all but conventional. Unlike Nifo, he never succeeded in learning Greek. Nonetheless he asked his humanist friends to interpret for him Greek commentators not yet translated, such as, in this case, Michael of Ephesus. And Pomponazzi frankly declares to his listeners how he obtained this information:

> Sed quod verba istorum, scil. Commentatoris et Alberti, non dicant conveniens ostendo vobis. Nam dominus Albertus, dominus Carpi, habet expositorem Graecum istius libri *De partibus*, qui dicitur nomine

15. *EPart.*, p. 169b.

16. *EHist.*, p. 93a.

17. The famous *Tractatus de immortalitate animae*, with its more refined style, is almost an *unicum* in Pomponazzi's works and should probably have benefited from an humanistic revision due to a member of Pietro Bembo's circle. This hypothesis has been suggested by P. ZAMBELLI, "Pomponazzi, i Greci e Ferrara," in M. BERTOZZI (ed.), *Alla corte degli Estensi. Filosofia, arte e cultura a Ferrara nei secoli XV e XVI*, (Atti del Convegno, 5-7 marzo 1992) (Ferrara, 1994), pp. 41-64, 45-46.

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> Michael Ephesius, et feci ad me mittere, et Carpum unum certum hominem misi ut ad me portaret, et feci mihi interpretari istam partem ab illis qui intelligunt litteras Graecas, et dicunt mihi isti quod iste Graecus expositor nihil addit vel diminuit ab eo quod dicit littera Aristotelis interpretata a The<o>doro Gaza. Et ita auditis in quanto labore sumus.[18]

Later on Pomponazzi often relates Michael's position, for instance when dealing with the extension of the *scientia naturalis de anima* (*Part. An.* I.1, 641a32-b10), the definition of "res abstractae a materia" (641b10-11) or with regard to the difficult chapters 3-4 of the first book (the ones dealing with the criticism on Platonic dichotomy). And in these passages Michael's authority is almost always placed in sharp contrast with the traditional medieval interpretations, both Arabic and Latin. Albert the Great in particular is often an object of derision for Pomponazzi, as he will be later for Nifo[19] (and we should not forget that Albert's works were not considered mere 'medieval junk', being, as they were, still published and largely used in sixteenth century universities).[20] On the contrary Averroes is said to deserve more appreciation:

> Avicenna, Averrois et Albertus conati sunt facere parafrasim et non expositiones et secundum illas nihil nunquam intelligeretis et credo quod multa falsa dicant ad mentem Philosophi, ut audistis. Inter istos tamen melius est Averrois. [21]

From a careful reading of Pomponazzi's lectures we can notice that he regularly refers to many of the Averroistic commentaries and, particularly, to the *Paraphrasis* of *De partibus animalium*. Sometimes Pomponazzi agrees with his Arabic predecessor. In most cases there

18. BN lat. 6537, fol. 16v.

19. If Pomponazzi says "Albertus aliquando facit mihi stomachari, aliquando facit mihi risum, aliquando misericordiam" (BN lat 6537, fol. 5v), Nifo indulges in expressions of the following tenor: "Albertus vero multa blaterizat (...) quae cum sint vana, silentio potius digna sunt" (*EHist.*, p. 2a), "Albertus hic delirat, cuius deliramenta brevitatis causa praetermitto" (*EHist.*, p. 93b).

20. In the years 1517-19 Marcantonio Zimara edited many works of Albert the Great, including the twenty-six books *De animalibus* (Venice, 1519). Cf. A. ANTONACI, *Ricerche sull'aristotelismo padovano: Marcantonio Zimara*, vol. 1, (Lecce-Galatina, 1971), pp. 33-35, pp. 434-435. See also E.P. MAHONEY, "Albert the Great and the 'Studio Patavino' in the Late Fifteenth and Early Sixteenth Century," in J.A. WEISHEIPL (ed.), *Albertus Magnus and the Sciences. Commemorative Essays* (Toronto, 1980), pp. 537-563.

21. BN lat. 6537, fol. 3r.

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can be some kind of discrepancy. But this is not the point. Pomponazzi himself, in the first lesson, tells that he had begun to study the *De partibus* twenty-six years earlier ("Iam acti sunt viginti sex anni ex quo incepi studere huic libro, et quotannis et singulo anno studiis"[22]). What is the reason which drove Pomponazzi to come out of this private study and hold public lessons on this treatise in 1521? In my opinion, the main 'motivational trigger', as a psychologist would say, could have been the recent publication of a Latin translation of Averroes' *Paraphrasis*,[23] a precious tool, an essential one in fact for an expositor who was used to commenting Aristotle with the counterpoint of the Commentator *par excellence.*

I turn now to Nifo. We know that Agostino Nifo, in close relationship with his master Nicoletto Vernia, formed an Averroistic wing in the University of Padua, in the last years of the fifteenth century, and maintained the *unitas intellectus* as being the genuine teaching of Aristotle. But in 1492 Pietro Barozzi, the bishop of Padua, forbade public discussion of the unity of the intellect and accused Vernia directly.[24] Vernia and soon after Nifo then wrote retractions of their primitive Averroism.[25] Nifo's *De intellectu* (1503) "contains a complete abandonment of the Commentator as a reliable guide to Aristotle on the

22. Ibid., fol. 19r. Twenty-six years before 1521. It leads us back to the three years 1496-1499, that Pomponazzi, after leaving Padova, spent in Ferrara, in the household of Alberto Pio, prince of Carpi. Probably it was in this period that Pomponazzi enlarged the canon of his readings, opening his mind to the Greek commentators that were part of the humanistic interests of his patron. Cf. C.B. SCHMITT, "Alberto Pio and the Aristotelian Studies," in *The Aristotelian Tradition and Renaissance Universities* (London, 1984), 6, pp. 46-50.

23. The *editio princeps* is *Paraphrasis* Averrois Cordubensis (...) *de partibus et de generatione animalium* (...) ex hebraico in latinum translata per (...) Iacob Mantinum, (Rome, 1521), and was published July, 3. Cf. A. TINTO, *Gli annali tipografici di Eucario e Marcello Silber (1501-1527)* (Florence, 1968), p. 155.

24. For this last point, see J. MONFASANI, "Aristotelians, Platonists, and the Missing Ockhamists: Philosophical Liberty in Pre-Reformation Italy," *Renaissance Quarterly* 46 (1993), 247-276, 250-251 and n. 21.

25. This debate on doctrine of unity of intellect has been investigated in careful detail by E.P. MAHONEY in many papers. See "Nicoletto Vernia and Agostino Nifo on Alexander of Aphrodisias: an Unnoticed Dispute," *Rivista critica di storia della filosofia* 3 (1968), 268-296; "Agostino Nifo's Early Views on Immortality," *Journal of the History of Philosophy* 8 (1970), 451-460; "Philosophy and Science in Nicoletto Vernia and Agostino Nifo," in A. POPPI (ed.), *Scienza e filosofia all' Università di Padova nel Quattrocento* (Trieste-Padua, 1983), pp. 135-202.

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nature of soul and the intellect".[26] Nonetheless Nifo, despite his palinode, continued to use, even in the following years, many hermeneutic materials taken from the Arabic commentator. The same attitude also operates in our *expositio* on the *De partibus*. Although in the 'Praefatio' Nifo had declared his reservations on Averroes, later he widely uses him in three ways: (a) as a guide in the architectural scansion of the text, (b) as a guide in defining Aristotelian concepts, (c) as a depositary of Aristotelian orthodoxy in the majority of doctrinal dilemmas between *via medicorum* (i.e. the Galenic position) and *via philosophorum* (i.e. the Aristotelian position). To have just one example of the last type, we might examine two passages where Nifo, after the 'pneumological section' of the *De partibus* (III, 6), develops two *quaestiones* ("de motu cordis" and "de motu pulmonis") in which a sharp opposition between the *via medicorum* and the *via philosophorum* is outlined.

> Dixit Galenus cor ipsum nutriri aere ingredienti ad ipsum per eventationem, quam efficit pulmo; et falsum est, ut Averroes inquit, quoniam aer est simplex, et ipsemet fatetur simplex non nutrire.
>
> Sed utrum ille motus pulmonis, quo aer intrat et exit, insit pulmoni per se, an sequatur motus pectoris, Galenus putat motus pulmonis sequi motum pectoris, quia impossibile est dari vacuum: nam cum pectus movetur motu diastolis, impletur ipse pulmo aere, et cum movetur motu systolis, egreditur aer, ut follis fabrorum; cuius rei indicatio est, quia si pectus vulneratur et perforatur, tollitur motus pulmonis. Verum, ut recte Averroes inquit, haec ratio est nulla. Nam ideo motus pulmonis cessat, si est verum ut cesset, quia pulmo refrigeratur propter aerem et sic privatur sua operatione.[27]

It is immediately evident that Nifo refers to Averroes, in no uncertain terms, as a genuine and outstanding representative of the Aristotelian tradition. But what should be stressed even more is the fact that here, and elsewhere in many places, Nifo quotes literally Averroes' *Paraphrasis* in the Latin translation made by Iacob Mantino:

> Illud vero quod dicit Galenus cor nutriri aere ingredienti ad ipsum per eventationem (...) videtur esse de se manifeste falsum quia aer est simplex, et ipsemet fatetur simplex non nutrire.

26. E.P. MAHONEY, "Agostino Nifo and Saint Thomas Aquinas," *Memorie Domenicane*, n.s. 7 (1976), 196-226, 202.

27. *EPart.*, p. 105b.

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> Galenus tamen putat motus pulmoni insequi motum pectoris, quia impossibile est dari vacuum (...). Nam quando pectus movetur motu diastolis, impletur ipse pulmo aere, et cum movetur motu systolis, egreditur aer, ut follis fabrorum; cuius rei indicatio est, quia, si pectus vulneratur et perforatur, tollitur motus pulmonis. Et haec ratio est nulla. Nam ideo illud fit, quia pulmo infrigidatur propter aerem et privatur eius operatione.[28]

Of course this does not prove that Nifo should still be considered a 'plain' Averroist in the thirties of the sixteenth century. What I want to emphasize is that in this *locus*, and in many others of the same tenor [29], in spite of all the anti-Averroistic retractions and of all the humanist and philhellene learning, the Arabic Commentator is still considered as a safe guide to the *mens Aristotelis*.[30] Surely, in Nifo's opinion, this re-employment of such a medieval and Arabic source like Averroes was not inconsistent with the use of Greek commentators[31] and with the use of humanist instruments of textual criticism.[32] From this last point of view, Nifo not only revised the Latin text in the way mentioned above (fitting phrases from the *antiqua translatio* made by William of Moerbeke in Gaza's humanist version), but also ventures into philological observations supported by a certain knowledge of Greek.[33] These observations range from the basic grammar to paleographic conjec-

28. Averrois *Paraphrasis*, ad loc. I read from the 1562 Venetian Giunta edition, *Aristotelis* (...) *Opera cum Averrois Commentariis*, vol. VI, pt. I, fol.166rb.

29. E.g. similar passages in *EPart.*, pp. 52a-b, 57a-58a and so on.

30. However one may find places where Nifo rejects Averroes' position as being unaristotelian. E.g. *EPart.*, p. 57b where Nifo says that Averroes "manifeste recedit ab opinione Aristotelis".

31. Throughout the *Expositio* Nifo is constantly referring to Michael of Ephesus, although he quotes his *Scholia* in a rather free and paraphrased form, so that one may ask which were the sources for his knowledge of the Byzantine commentator or if he deliberately manipulated them.

32. For a similar conclusion, though on a larger scale, see C.B. SCHMITT, *Aristotle and the Renaissance* (Cambridge, Mass., and London, 1983), pp. 100-101.

33. Though educated in a Latin Scholastic tradition, Nifo, unlike many of his colleagues, had learned Greek in the second phase of his career, so that his later commentaries take advantage of this new tool. On this point see P. ZAMBELLI, "I problemi metodologici del necromante Agostino Nifo," *Medioevo* 1 (1975), 129-171, 134-135; MAHONEY, "Agostino Nifo and Saint Thomas Aquinas," p. 202, n. 38; Id., "Neoplatonism, the Greek Commentators, and Renaissance Aristotelianism," in D.J. O'MEARA (ed.), *Neoplatonism and Christian Thought*, (Albany, 1982), pp. 169-177 and 264-282, 267 n.5; PERFETTI, "Metamorfosi di una traduzione", cit.

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tures, passing through tables of zoological and anatomical terminology and through attempts at explaining the different readings one may find in Moerbeke's and Gaza's translations. The majority of these observations and conjectures, however, though akin to the modes of humanist medical philology,[34] were directly suggested by the simple comparison between the Latin versions then available and were not the outcome of a *ruminatio* of the Greek text.[35]

The *Explanatio* of Leonico Tomeo is quite dissimilar, because this author seems to have decided from the very start to abolish the tedious doxographic gallery of the *auctoritates* and to deal directly with the philosophical problems raised by the Aristotelian text. His method had already been expounded in his outstanding edition of the *Parva naturalia*. [36] There, in the preface addressed to Richard Pace "potentissimi Regis Britanniae a secretis primario", Leonico recalled the condition of ancient Greek commentators who were not prevented by the earlier peripatetic authority of Alexander of Aphrodisias "ab interpretandi propositum", that is, translating very freely, from elaborating brand new and stimulating interpretations of Aristotle. Afterwards the Arabs and the Latins came, but they knew the Greek exegetes only through vestiges ("vestigiis"). "Why at all -Leonico wonders- should I seek out mere rivulets, when I can lay bare plentiful springs?" ("Sed quid ego nunc rivulos consector, cum fontes aperire largissimos possim?").[37] Therefore Niccolò's method is not that of accumulating the positions of the previous interpreters, but rather that of behaving like an ancient commentator who is primarily concerned with providing the philo-

34. For the notion of 'humanist medical philology', see W.F. EDWARDS, "Niccolò Leoniceno and the Origins of the Humanist Discussions of Method", in E.P. MAHONEY (ed.) *Philosophy and Humanism* (Leiden, 1976), pp. 283-305, D. MUGNAI CARRARA, "La polemica *De cane rabido* di Nicolò Leoniceno, Nicolò Zocca e Scipione Carteromaco: un episodio di filologia medico-umanistica," *Interpres* 9 (1989), 196-236 and V. NUTTON, "The Rise of Medical Humanism: Ferrara, 1464-1555," *Renaissance Studies* 11 (1997), 2-19.

35. I give the evidence for these conclusions in my "Metamorfosi di una traduzione", especially pp. 269-274, 283-301.

36. *Editio princeps*: Aristotelis Stagiritae *Parva quae vocant Naturalia* (...) omnia in latinum conversa et antiquorum more explicata a Nicolao Leonico Thomaeo (Venice, 1523). I quote from the subsequent edition, same title, (Paris, 1530).

37. Leonico is merging two *loci* of Cicero: *Acad.*, I.2.8 "meos amicos (...) ad Graecos ire iubeo, ut ea *a fontibus* potius haurient quam *rivulos consectentur*" and *Tusc.*, I.3.6 "si aliquid oratoriae laudis nostra attulimus industria, multo studiosius philosophiae *fontes aperiemus*".

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sophical interpretation of the text. If we run over his commentary on the *De partibus animalium*, we can see that the greater part of it is devoted to a pure philosophical analysis of Aristotle's arguments (which we shall discuss later). Of course we can assume that this analysis has benefitted from the previous commentators, but the fact is that in these pages only Theodore Gaza and Michael of Ephesus are mentioned from time to time (and once or twice Averroes, Themistius and Philoponus).[38] The others are just evoked through rather general expressions like "recentiores philosophi" or "veteres", but nothing else.

The intensive humanist philological revision of the Latin translation based on the examination of alternate readings, including the ones witnessed by Michael, is almost always implied, not exhibited. Only in some cases Leonico makes explicit textual remarks.

So Niccolò Leonico Tomeo shows a much deeper adherence to the perspective *secundum Graecos*. In his opinion, the knowledge of the Greek commentators is not a program to display, but rather an acquired practice.

3. Philosophical strategies of interpretation

When we read Pomponazzi's lessons we immediately feel we are dealing with an acute and deep thinker, yet completely accustomed to medieval scholastic language and manner of facing philosophical texts and problems. Long chains of *considerationes verborum*, i.e. semantic analyses of terms, then *distinctiones*, *dubitationes* or *quaestiones*, *responsiones* and so on. But, on careful consideration, many unconventional and, I would say, modern traits may be found. Pomponazzi's lectures are inspired by two different attitudes, which at first sight seem to be in contrast. On the one hand he often admits his own hermeneutical weakness when facing such a difficult text:

> Et sciatis quod libri *De partibus* inter omnes partes est difficillima et precipue primus liber *De partibus animalium*, qui mihi videtur adeo difficilis, immo difficilior omnibus aliis libris quos composuit Aristoteles, sive libr<is> *Posteriorum*, sive *Priorum*, sive *De anima*.[39]

38. Of course Leonico, when commenting the Aristotelian criticism of Platonic dichotomy as a method of classification of animals (*Part. An.*, I. 2-3), carefully takes into account also the positions of Plato. And the same happens with the various Presocratics and Atomists whom Aristotle refers to in polemical terms.

39. BN lat. 6537, fols. 3r-v.

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And later, dealing with *Part. An.*, II, 13:

> Istud capitulum nunquam intellexi, nec intelligo. Nescio an in futurum intelligam. Sed ideo lego ut vobis viam aperiam.[40]

Thus he introduces himself to his students not as a master but as a *condiscipulus*, a fellow disciple, a classmate:

> Sed vos statim dicetis me valde temerarium esse professorem exponere hunc librum cum nullus exposuerit. Et ego respondeo quod non temeritate facio hoc, nec praesumo me exponere et in hoc nolo vos docere, sed volo esse comes vester. Et non ut doctior huc accessi, sed quia senior. Et amor scientiae me compulit ad hoc, et ideo volo me subicere ferule, et volo a vobis doceri.[41]

> Ut dixi multotiens, non proposui declarare vobis hunc librum. Quodammodo proposui habere sermonem vobiscum, ac si essem vester condiscipulus, de his quae dicuntur in isto libro.[42]

In other words, instead of *lectiones ex cathedra*, these lectures seem to take the form of a workshop or a seminar, although monodic. But, on the other hand, this 'hermeneutical openness' is counterbalanced by a kind of philosophical independence of many Aristotelian solutions. Pomponazzi, after doing his duty as an exegete, cannot help pointing out Aristotle's inconsistencies. In doing so he scrutinizes the text by various means, both *a priori* and *a posteriori*. The analysis is *a priori* when Pomponazzi singles out Aristotelian logical fallacies or examples of incoherence in zoological reasoning.

A beautiful example of this first type may be found in the eighth lesson on the first book, where Pomponazzi develops a minute counteranalysis of the arguments and the conclusion reached by Aristotle (in *Part. An.*, I, 1, 641a32-b12) about the extension of the natural knowledge of the soul.[43] An incoherence in zoological reasoning is pointed out with regard to the twelfth chapter of the second book. Aristotle suggested that "birds have auditory passages only" and not ears "because they have feathers instead of hairs, which means that they

40. Ibidem, fol. 116r.
41. Ibidem, fol. 3r.
42. Ibidem, fol. 19r.
43. Ibidem, fols. 14v-16r. The discussion is particularly complex nor can it be outlined here. I give a critical edition of the relevant section of it in my "*An anima nostra sit mortalis.* Una *quaestio* inedita discussa da Pietro Pomponazzi nel 1521," *Rinascimento*, 38 (1998).

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have not the right material for forming ears".[44] But our commentator objects that:

> aves habent oculos et palpebras. Quare, sicut natura fecit palpebras, non potuit, ex ea materia scilicet, facere aures?[45]

We come across an *a posteriori* analysis when Pomponazzi refers to experience or even to experiments in order to contrast a particular textual claim. For instance, when dealing with that membrane which allows the birds to blink or, more properly, to nictitate (*σκαρδαμύττειν*, cf. *Part. An.*, II, 13), he tries to invalidate, by means of a domestic anatomical experiment, an observation made by Albert the Great:

> Sed Albertus videtur dicere quod gallina habet palpebram et post illam est alia pellicula alba. Ego feci anatomiam de gallina, <sed> non inveni hoc. *Ho guastato la mia gallina* [I have wasted my hen] et non inveni aliquid.[46]

I hope that these few examples give some idea of the various strategies used in this work. However, it should be clear that the lively commentary of Pomponazzi goes beyond the mere attempt to establish doctrinal orthodoxy *ad mentem Aristotelis* and offers manifold occasions of philosophically unconventional deepenings. We may say that Pomponazzi's own thoughts and perplexities run like a continuous counterpoint which entangles Aristotle's main lines.

The same does not occur with Agostino Nifo, who, although from time to time shows himself as being more intrusive than one would expect from an *expositor*, yet hardly attempts to contrast Aristotle's views. There are many passages in which Nifo refers to personal data of observation, often very odd and always interesting, but, in almost all cases, he does it merely in order to confirm what Aristotle had already asserted. This general tendency to re-state Aristotelian assertions may also be found in passages like the following. We have just seen how Pomponazzi contrasts the Aristotelian reasons about the lack of ears in birds. When facing the same chapter (*Part. An.*, II, 12), Nifo, after explaining the *littera* (that gives only a material reason), develops an Averroistic suggestion into an auxiliary final cause:

44. *Part. An.*, II, 12, 657a17-20: Aristotle, *Parts of animals*, trans. A.L. PECK, (Cambridge, Mass., and London, 1933).

45. BN lat. 6537, fol. 116r.

46. Ibidem, fol. 116v. Cf. Albertus Magnus, *De animalibus*, XII, 3, 872-873, passim.

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> Alia causa, ut Averroes inquit, ex fine esse potest, quia videlicet natura instituit debilem auditum generi avium, cum pro earum conservatione non maiore auditu egeant, nec insuper pro regimine vitae. Praeterea fieret ex volatus impetu tantus in auriculis sonitus, ut earum cerebrum corrumperetur. Quare avibus meatus praebuit tantum.[47]

In other words, while Pomponazzi criticized an inconsistent application of material causality, Nifo overinterprets the Aristotelian text in teleological terms, thus proving to be *plus royaliste que le roi*.

Taking into more general consideration the philosophical strategies of explanation, one may notice that Nifo, who had taken upon himself the task of commenting all the *Historia animalium* before the *De partibus* (and the *De generatione*), adopts a peculiar method in accordance with the nature of each treatise. While facing the *Historia* he tried to 'cooperate' with the encyclopedic character of this work (thus integrating the original data with naturalistic information drawn from the main Greek and Roman authors), on the other hand, facing the *De partibus* (and the *De generatione* as well), Nifo displays more articulate patterns: on the whole, he takes care to lay stress on the various levels of discussion one may find in the Aristotelian text. The first level is labelled as "declarare naturam", i.e. to show the main features of a phenomenon, while the second level is "exponere/assignare causas" or "reddere rationes", i.e. to go into an aetiological analysis of that particular phenomenon. While working on this second level, Nifo aims at disclosing the latent demonstrative architecture and making explicit a hidden syllogistic structure. In other words, he tends to read the *De partibus* through the lens of the *Analytics*. Of course these procedures, namely the syllogistic reconstruction and the stressing of the two levels (*φαινόμενα* and explanation *δι' αἰτίας*), are often at work together in the same passage (and Nifo is prompt to supply the missing parts to develop syllogisms of which only elliptic vestiges may be found in the text).[48] But even a simple passage may be reshaped into a complex syllogistic architecture, as in the following example. Dealing with the relation between *πέψις*, *μεταβολή* and heat, Aristotle said:

47. *EPart.*, p. 70a. Cf. Averrois *Paraphrasis*, fol. 144ra-b: "alia vero causa est quia natura instituit debilem auditum huic animali: cum non indigeat ad conservationem eius et regimen vitae bono auditu, inde est quod non habet vim auditivam". It is noteworthy that Nifo's second remark is taken almost literally, if tacitly, from Albert the Great: "fieret etiam ex impetu volatus tantus in auribus sonus, quod necesse esset corrumpi cerebrum", *De animalibus*, XII, 3, 868, 28-29.

48. Cf. e.g. *EPart.*, pp. 29a, 98a.

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> Everything that grows must of necessity take food. This food is always supplied by fluid and solid matter, and the concoction (πέψις) and transformation (μεταβολή) of these is effected by the agency of the heat. Hence, apart from other reasons, this would be a sufficient one for holding that of necessity all animals and plants must have in them a natural source of heat.[49]

This very simple text is developed on by Nifo "per artem prioristicam" (i.e. "through the principles of *Analytica priora*") [50] into a chain of five syllogisms, of which I give an outline:

(a) Everything that grows takes food; animals and plants grow; *ergo* animals and plants take food.

(b) Food is supplied by fluid and solid matter; animals and plants take food; *ergo* fluid and solid matter are food for animals and plants.

(c) Everything that takes fluid and solid matter as food must effect the concoction, i.e. transform these matters through heat; animals and plants take fluid and solid matter as food; *ergo* they must of necessity digest, i.e. transform these matters by the agency of heat.

(d) Everything that digests (i.e. transforms fluid and solid matter by the agency of heat) must have a natural source of heat; animals and plants digest; *ergo* animals and plants must have a natural source of heat.[51]

In the same way Nifo reshapes many arguments of the *De partibus* in accordance with the demonstrative criteria of the *Analytics*. This assumption surely gives the zoological discourse the appearance of a severe grounding in a 'strong epistemology' and seems to embody the apodeictic zoology supported by Averroes who, against the anatomical counterevidence given by the Galenists on the role of the brain, defends the Aristotelian position with these words:

> Quicquid per anatomiam vidit Galenus (...) potius approbat et perficit verba Aristotelis, quam contradicat vel inconveniat dictis Aristotelis, ut Galenus putat. Nam dicta Aristotelis sunt demonstrationes universales, sumptae a propositionibus naturalibus primis et universalibus atque essentialibus. De proprietatibus autem huiusmodi demonstrationum est ut nullus sensus contradicat unquam.[52]

49. *Part. An.*, II, 3, 650a2-7 (trans. PECK).

50. This interpretation of the syntagm "ars prioristica" was suggested to me by Prof. Alfonso MAIERÙ in a private communication.

51. *EPart.*, p. 43a.

52. Averrois *Paraphrasis*, o.c. fol. 139rb. The continuity of method between *Analytics* and biological works has been under debate in contemporary Aristotelian scholarship. See: J. BARNES, "Aristotle's Theory of Demonstration," *Phronesis* 14

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On the contrary, Niccolò Leonico Tomeo argues from the very start, in the 'Praefatio', that the method of demonstration in the *De partibus* is not that prescribed by the *Analytics*:

> In iis libellis [scil. *Part. An.*] non exactae illae et primae immediataeque explicantur causae, de quibus in *Analyticis* plenius ipse nos docuit, neque demonstrationum ea sane exercetur ratio quae in primo certitudinis, ut aiunt, gradu esse censetur. Naturalia enim eum non admittunt doctrinae modum, et quo minus etiam id fieri possit, varians plerunque et inconstans natura et corruptibilium rerum nonnihil fragilis obstat conditio.[53]

Zoology, dealing with things that happen 'for the most part', will rather follow the method of natural sciences, i.e. to proceed "a notioribus (...) nobis, id est a rebus ipsis quae aliquo percipi possunt sensu, ad ignotiora nobis et eadem natura cognita magis, id est ad causas ipsas". [54] So, neither the vigourous counterpoint of personal thought, nor strong apodeictic assumptions interlaced with erudite digressions find a place in his *Explanatio*, which is primarily concerned with a reliable reconstruction of Aristotle's own line of thought and which does not aim at enriching it with any unnecessary exegetical accretion. The Aristotelian text is spread through a fluent paraphrasis that re-exposes it, fills the gaps, solves compressed reasoning and makes the articulation of the arguments explicit. And the principle of economy already seen with regard to the sources, is also at work in the philosophical exposition proper. Only when necessary, Leonico provides us with lexical and

(1969), 123-152 (rev. version in J.BARNES, M. SCHOFIELD & R. SORABJI (eds.), *Articles on Aristotle: 1, Science* (London, 1975), pp. 69-73); M. VEGETTI, "I fondamenti teorici della biologia aristotelica nel *De partibus animalium*," in *Opere biologiche di Aristotele* a cura di D. LANZA e M. VEGETTI, (Turin, 1971), pp. 510-519; A. GOTTHELF, "First Principles in Aristotle's *Parts of Animals*," in A. GOTTHELF & J.G. LENNOX (eds.), *Philosophical Issues in Aristotle's Biology* (Cambridge, Eng., 1987), pp. 167-198; R.D. MCKIRAHAN jr., *Principles and Proofs, Aristotle's Theory of Demonstrative Science* (Princeton, 1992), pp. 117-121, 288-289; J.G. LENNOX, "Aristotelian Problems," *Ancient Philosophy*, 14 (1994), 53-77, 69 and n. 31; G.E.R. LLOYD, "Aristotle's Zoology and His Metaphysics: a Status Quaestionis," in D. DEVEREUX & P. PELLEGRIN (eds.), *Biologie, logique et métaphysique chez Aristote* (Paris, 1990), pp. 7-35, 31-34.

53. Fol. Aiiiiv.

54. Fol. Aiiiv. Of course here Leonico recalls *Phys.*, I, 1, 184a16-21: *πέφυκε δὲ ἐκ τῶν γνωριμωτέρων ἡμῖν ἡ ὁδὸς καὶ σαφεστέρων ἐπὶ τὰ σαφέστερα τῇ φύσει καὶ γνωριμώτερα κτλ.*

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theoretical digressions.[55] But in most cases he chooses *brevitas*.[56] Such a principle of economy would not have been unwelcome to Aristotle himself, who justifies his project to expose together the attributes that are common to many species by a criterion of economy: otherwise "we shall be obliged to describe the same ones many times over".[57]

Apart from particular interpretations, that cannot be discussed here at length, what is really striking is the general attitude of Leonico, who tries to keep his balance between the philosophical reconstruction of the *mens Aristotelis*, the needs of stylistic *elegantia Latina* and his uncommon and refined erudition.[58] Unfortunately we do not have his commentary on the proper zoological books (i.e. *Part. An.*, II-IV), so that the comparison with Pomponazzi and Nifo is destined to remain imperfect.

Conclusions

We have considered so far the various facets of three commentators who, although provided with a parallel juvenile Aristotelian apprenticeship at the University of Padua, later followed diverging paths in their professional careers. Their commentaries on the *De partibus animalium*, produced within a span of time of less than fifteen years, may give a concrete example of how the "family resemblances" among Aristotelians actually work.[59]

55. See, for instance, the compendium on the doctrine of the four causes at fols. Biiir-iiiir. Interestingly enough, after this compendium written in elegant Latin, Tomeo, as to distinguish himself from certain Scholastic philosophers, adds: "Habent autem et haec causarum genera *a philosophis* alias peculiares et compendiarias denominationes: materialem enim causam vocant in quo, formalem vero quod, efficientem a quo, finalem propter quod".

56. See e.g. fol. Bviiiv: "Exempla a philosopho in litera adducta quia clara et perspicua sunt et omnibus pervia, ideo circa illorum explicationem immorandum esse non duximus", Dvv: "ut Gaza igitur interpretatus est, inutiliter philosophus bis eandem rem profert", Evr-v: "accidit autem (...) idem saepius repeti, quod in vera damnatur methodo, quod certe vicium in *Sophisticis Elenchis* nugacitatem appellat". For the Aristotelian treatment of *nugacitas* (*τὸ ἀδολεσχεῖν*), i.e. saying the same thing over and over again, see *Soph. El.*, 3, 165b15-17; 13; 31.

57. *Part. An.*, I.1, 639a23-24, 27-28. See VEGETTI, cit., p. 498.

58. See e.g. the references to Pythagoreanism (fol. Aiiir), to its doctrine of harmony in musical modes (fols. Aiiiivff.) and to Astronomy (fols. Biiv, Bviiiv).

59. The notion of "family resemblances", drawn from WITTGENSTEIN's *Philosophical Investigations*, has been applied by Charles Schmitt to the authors of the Renaissance Aristotelianism in order to explain the extreme variability of positions within a common frame. See C.B. SCHMITT, *Aristotle and the Renaissance*, (Cambridge, Mass.,

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At first one may be struck by the evident dissimilarities.

Pomponazzi, despite his scholasticism in form and language, develops the Aristotelian text into a lively workshop. Many inconsistencies of the Stagirite are not smoothed out, but soon become the occasions for theoretical deepenings, by no means seldom aporetic. These attitudes of the Mantuan philosopher, tied with his high esteem for experience and with his basic syncretism, though exploited within the Aristotelian frame, seem to explore the very limits of this system, so that its weakest aspects may be shown.

On the contrary Agostino Nifo, even if he proves to be more modern in his stylistic command of Latin and in the use of humanist tools of textual criticism, in fact serves the cause of a systematic interpretation of Aristotle. Very often the virtual openness of the Aristotelian text is neutralized by a hermeneutical feedback in which the theoretically expected results, though not actually present in Aristotle's dictate, reshape the exposition of many passages.

Niccolò Leonico Tomeo's case is radically dissimilar, in that he, both in the formal and in the linguistic respect, bears no relation with the scholastic modes of analysis, but follows the humanist way of the *elegantia Latina* as a vehicle for clarity of thought. Moreover, he recognizes that the specific method of zoology is not that of the apodeictic sciences in the strict sense, but rather a method closer to that of the *Physics*. Therefore he does not embrace an *a priori* epistemological model to be superimposed upon every Aristotelian claim.

But, under this variety of approaches, one may find a common hard core, shared by all of them. First of all, this consists in the assumption of the Aristotelian text as authoritative and still topical. The *quaestio facti* that the works of the Stagirite were prescribed by the academic *curricula* was tacitly transformed into a *quaestio juris*: the Aristotelian texts were taken as if they should give, if not all the solutions, at least the fundamental problems that a science must account for. This attitude may be considered the deeper core, a real *trait d'union* between all the Aristotelians in the universities, from the twelfth to the sixteenth century. And Pomponazzi, Tomeo and Nifo are no exception. A less deep feature, a sign of the changing times indeed, is the interest in humanist

and London, 1983), pp. 111-112. See also J.M.M.H. THIJSSEN, "Some Reflections on Continuity and Transformation of Aristotelianism in Medieval (and Renaissance) Natural Philosophy," *Documenti e studi sulla tradizione del pensiero medievale* 2 (1991), 504-528, 507-508.

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culture, at various levels: from the showing-off of certain mottoes (like the call for the return to the Greeks and for the abandonment of the Arabs) to the actual use of new instruments of textual analysis. These features too are shared by all three commentators, though with different degrees of competence and ostentation. But even the Greekless Pomponazzi feels the need to interpret, if not with the Greek sources at hand, at least not completely without them. Only after taking these elements for granted and around this common core, each commentator feels free to find his own way.

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JAN PAPY[1]

THE ATTITUDE TOWARDS ARISTOTELIAN BIOLOGICAL THOUGHT IN THE LOUVAIN MEDICAL TREATISES DURING THE SIXTEENTH AND EARLY SEVENTEENTH CENTURY: THE CASE OF EMBRYOLOGY

While treating the "remarkable dissension that seems to have flourished among the philosophers and even the physicians of the nations about the formation, conditions and properties of the human body,"[2] Gian Francesco Pico della Mirandola, nephew of Giovanni Pico, emphatically concluded in his *Examen vanitatis doctrinae gentium et veritatis Christianae disciplinae* (1520) that two thousand years of argument had not led to agreement as to how any of these physiological processes actually operate. In Pico's array of diverging ancient authorities, Aristotle was not only representing one strand of ancient teaching, but was also internally inconsistent into the bargain. In order to illustrate this statement, connected with his major goal to show that medicine could not offer certain knowledge, Pico deliberately chose two much debated standard *quaestiones* in thirteenth- to fifteenth-century Latin medical works: how and where is *semen* produced in the body, and secondly, is it produced by both men and women?

Pico's conclusion that "almost all the later crowd of *medici* used to fight over this in the past, and to this day they are still fighting,"[3] not

1. Postdoctoral Research Fellow of the Fund for Scientific Research - Flanders. I would like to thank Prof. Dr. G. Vanpaemel (KULeuven) and Drs. S. Vanden Broecke (KULeuven) for their valuable suggestions, useful corrections and stimulating remarks.

2. Cf. Joannes Franciscus Picus Mirandulanus, *Examen vanitatis doctrinae gentium et veritatis Christianae disciplinae, distinctum in libros sex, quorum tres omnem philosophorum sectam universim reliqui Aristoteleam et Aristoteleis armis particulatim impugnant ubicumque autem Christiana et asseritur et celebratur disciplina* [Mirandola, 1520], I, 16: "In humano corpore constituendo in qua ipsius affectionibus proprietatibusve decernendis inter gentium philosophos etiam medicos miram dissensionem viguisse." See on Pico's critique the remarkable article of N.G. SIRAISI, "Medicine, physiology and anatomy in early sixteenth-century critiques of the arts and sciences," in *New Perspectives on Renaissance Thought. Essays in the history of science, education and philosophy in memory of Charles B. Schmitt*, ed. J. HENRY and S. HUTTON (London, 1990), pp. 214-229, where the passage is quoted and commented upon at length.

3. Cf. Picus, *Examen vanitatis*, I, 16: "Omnisque fere medicorum posterior caterva super hac re decertavit olim et ad hanc diem plane decertat."

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only illustrates the well-known conflicts in the status ascribed to medical knowledge (*scientia - ars*),[4] it also constitutes once more an unmistakable instance of the importance of Aristotle's biological views for this age-old debate.

Not unlike the medieval tradition, Renaissance medical literature thus can offer us an interesting approach for a nuanced study of Aristotle's biological thought, how ever much Renaissance medicine may be distinct from the medieval discipline first by the work of humanists providing important editions and commentaries of Aristotle, Hippocrates and Galen, and secondly by the growth of a relative independent experimental anatomy.[5] For, how much the ever growing autonomy of the *experientia* or the influence of Galen in this field may have been stressed, Andrew Cunningham convincingly argued that Renaissance anatomy at Padua remained committed to Aristotle's particular type of research-programme as well, a programme devoted to the acquisition of true causal knowledge (*scientia*) on certain kinds of topic, such as parts, organs and processes, and employing a thought-through and consistent methodology and epistemology.[6]

This, of course, is not that surprising considering the well-known links in education between medicine and philosophy characteristic of the Middle Ages and of the Renaissance. First, Galen's chief philo-

4. SIRAISI, "Medicine, physiology and anatomy," p. 219.

5. Cf. I. MACLEAN, *The Renaissance Notion of Women. A Study in the Fortunes of Scholasticism and Medical Science in European Intellectual Life*, Cambridge Monographs on the History of Medicine (Cambridge, 1980), pp. 28-29. For the printing history of Aristotle, for instance, see J. KRAYE, "The Printing History of Aristotle in the Fifteenth Century: a Bibliographical Approach to Renaissance Philosophy," *Renaissance Studies* 9 (1995), 189-211, and for Galen, see A. WEAR, "Galen in the Renaissance," in *Galen: Problems and Prospects*, ed. V. NUTTON (London, The Wellcome Institute for the History of Medicine, 1981), pp. 229-262 (p. 230 and note 4).

6. See A. CUNNINGHAM, "Fabricius and the 'Aristotle project' in anatomical teaching and research at Padua," in *The Medical Renaissance of the Sixteenth Century*, ed. A. WEAR - R.K. FRENCH - I.M. LONIE (Cambridge, 1985), pp. 196-198. H. BUTTERFIELD, *The Origins of Modern Science, 1300-1800* (New York, 1957), p. 48 even stated: "To the humanists of the Renaissance, Padua was an object of particular derision because it was the hotbed of Aristotelianism; and it is one of the paradoxes of the scientific revolution that so important a part in it was played by a university in which Aristotle was so much the tradition and for centuries had been so greatly adored." Still, it can be argued that in the case of medicine, as is illustrated by Harvey's manifold interpretation of Aristotle's works, there was no 'uniform' Aristotelian methodology and epistemology.

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sophical source was Aristotle and by that way he established Aristotle's authority among Arab and Western physicians and scholars in later centuries. Secondly, an adequate training in medicine involved theory as well as practice, and that propaedeutic medical training was based on natural philosophy usually on the basis of Aristotle and his commentators.[7] But, next to a gradual move towards a more theoretical, c.q. Aristotelian and Galenic approach to medicine,[8] a very marked continuity of Aristotelianism in university philosophy and science teaching can doubtlessly be discerned.[9] If criticisms from men such as Gian Francesco Pico della Mirandola pointed at a few Aristotelian doctrines to be in error, they could not produce a comprehensive alternative system to replace Aristotelianism as a whole.[10] On the other hand, one must not go to the other extreme by meaning that universities of the Renaissance were static and resistant to change. One of the well-known important innovations – of lasting influence and showing once more the tension between Aristotelian traditionalism and experimental renewal – lies in the field of anatomical teaching.

Whereas detailed studies have been devoted to these Aristotelian influences on the medical teaching at the important medical schools of Padua, Bologna and Pisa and the so-called revolution of Vesalius, little attention has been paid to the anatomical doctrines and teaching prac-

7. See P.O. KRISTELLER, "Philosophy and Medicine in Medieval and Renaissance Italy," in *Organism, Medicine and Metaphysics. Essays in Honor of Hans Jonas on his 75th birthday*, ed. S.F. SPICKER, Philosophy and Medicine 7 (Dordrecht/Boston, 1978), pp. 30-33; P. KIBRE, "Arts and Medicine in the Universities of the Later Middle Ages," in *The Universities in the Late Middle Ages*, ed. J. IJSEWIJN and J. PAQUET, Mediaevalia Lovaniensia I/6 (Leuven, 1978), pp. 213-227.

8. C.B. SCHMITT, "Aristotle among the Physicians," in *The Medical Renaissance of the Sixteenth Century*, ed. A. WEAR - R.K. FRENCH - I.M. LONIE (Cambridge, 1985), p. 3.

9. C.B. SCHMITT, "Philosophy and Science in Sixteenth-Century Universities: Some Preliminary Comments," in *The Cultural Context of Medieval Learning*, ed. J.E. MURDOCH - E.D. SYLLA, Boston Studies in the Philosophy of Science 26 (Dordrecht, 1975), pp. 485-537 (esp. pp. 487-489).

10. Though statutory requirements for teaching tell only a part of the story and a gulf between statutory theory and classroom practice has been demonstrated in more than one case, C. SCHMITT ("Philosophy and Science in Sixteenth-Century Universities," p. 489) emphasized that the scrutiny needed to detect remarkable developments and changes contrasts sharply to the overwhelming evidence one gets from the extent to which Aristotle editions and commentaries continued to be printed throughout the sixteenth century.

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tices at the sixteenth-century Louvain university.[11] Admittedly, general critics from prominent humanists or former students such as Juan Luis Vives[12] and Vesalius[13] are well-known and show their dissatisfaction with Louvain scholastic disputations and inadequate anatomical teaching. Though allowing for the topical character of these (humanist) criticisms, one can state that at the time of Vesalius – so it seems – the quality of medical education in Louvain was not high, and anyone able to do so was well advised to seek his training elsewhere, preferably in Italy. But, how ever much truth this generalization may contain, Aristotelian influences and, more precisely, the status of Aristotle as an authority in Louvain medical treatises still remain to be analysed. Although it is known that every Louvain physician was required to have first graduated in arts and candidates for the licence in arts were expected to have attended lectures on the Aristotelian treatises in natural philosophy and the tracts on animals, their locomotion, parts and generation,[14] only a sincere scrutiny of the tensions between Aristotelian traditionalism and new empiricism in Louvain medical treatises can offer a more nuanced sketch of the Louvain position and – in a next step – provide material for a comparison with the ones of universities such as Bologna, Pisa and Padua.

In venturing into this vast and unexplored area, however, I realize the partial nature of evidence I will be utilizing and the restrictions imposed by a goal-oriented search to Aristotelian influences. This paper is therefore only intended to be a first orientation into this complex subject, so that a start from a limited but thought-through analysis

11. Exception has to be made for some general and panoramic studies, such as C. BROECKX, "Prodrome de l'histoire de la Faculté de Médecine de l'ancienne université de Louvain depuis son origine jusqu'à sa suppression," *Annales de la Société de Médecine d'Anvers* 25 (1865), 289-432; J. TRICOT-ROYER, *Coup d'oeil sur l'ancienne Faculté de Médecine de Louvain* (Louvain, 1927); and F.A. SONDERVORST, "L'histoire de l'ancienne Faculté de Médecine de Louvain," *Louvain médical* 96 (1977), 47-54.

12. Cf. the fifth book of his *De causis corruptarum artium*, in *J.L. Vivis Opera Omnia*, ed. G. MAJANSIUS (Valencia, 1782-1790), 6: 201-203. See also SIRAISI, "Medicine, physiology and anatomy," pp. 227-228.

13. C.D. O'MALLEY, *Andreas Vesalius of Brussels 1514-1564* (Berkeley/Los Angeles, 1965), pp. 32-34.

14. Cf. P.F.X. DE RAM, "Anciens statuts de la faculté de médecine de Louvain," *Bulletin de la Commission royale d'histoire* III, 5 (1863), 391-418. For a general survey, see C.D. O'MALLEY, "Medical Education during the Renaissance," in *The History of Medical Education*, ed. C.D. O'MALLEY, UCLA Forum in Medical Sciences 12 (Berkeley/Los Angeles/London, 1970), pp. 89-102.

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of one late Louvain treatise on embryology by Thomas Fienus, professor in medicine at Louvain University, is not made without reason. First, as mentioned at the beginning of this paper, the topic of embryology impels a serious dialogue with Aristotle's views. Second, since – in contrast to the field of logic and physics[15] – no direct sources such as book inventories of students,[16] commonplace books,[17] and teachers' lecture notes illustrating sixteenth-century Louvain medical teaching have come down to us, whereas several Louvain printed treatises are dealing with the topic of embryology, this choice seemed to be suitable to illustrate the attitude towards Aristotle's biological thoughts just before Cartesianism entered the stage. Third, Thomas Fienus' tract on embryology is a special combination of a scientific debate fit in with the theological-philosophical questioning on when the soul entered the foetus or when the soul was introduced by God, a question which was not considered a medical one until the seventeenth century (with authors such as Jan Batista van Helmont, Daniel Sennert and William Harvey) and which had not even been taken up fully by writers such as Albertus Magnus.[18] In this context, Fienus' treatise is a unique early example of Louvain philosophical-medical thinking at the transition of the sixteenth and seventeenth century incorporating in its fullest sense the tensions between authoritative and innovative thinking.

15. See, for instance, G. VANPAEMEL, *Echo's van een wetenschappelijke revolutie. De mechanistische natuurwetenschap aan de Leuvense Artesfaculteit (1650-1797)*, Verhandelingen Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Wetenschappen 173 (Brussel, 1986), pp. 31-35 and 185-190.

16. See, however, for the fifteenth century A. LOUIS, "Analyse des bibliothèques de deux médecins malinois du 15e siècle," *Janus* 53 (1966), 241-305, and for the seventeenth century J. TRICOT-ROYER, "La bibliothèque de Vopiscus Fortunatus Plempius," *Mémoires de l'Académie Royale de Médecine de Belgique* 22 (1925).

17. Compare with the study of C.B. SCHMITT, "*Auctoritates, repertorium, dicta, sententiae, flores, thesaurus* and *axiomata*: Latin Aristotelian *florilegia* in the Renaissance," in *Aristoteles, Werk und Wirkung. Paul Moraux gewidmet*, 2 vols., ed. J. WIESNER (Berlin, 1987), 2: 515-537.

18. See Ä. BÄUMER, "Das Ei als Instrumentum Dei. Religion und Embryologie im 17. und 18. Jahrhundert," *Annali dell' Istituto Storico Italo-Germanico in Trento* 11 (1985), 79-102 (esp. p. 80). On Albertus, see L. DEMAITRE - Anthony A. TRAVILL, "Human Embryology and Development in the Works of Albertus Magnus," in *Albertus Magnus and the Sciences, Commemorative Essays 1980*, ed. J.A. WEISHEIPL (Toronto, 1980), pp. 405-440 (esp. pp. 424-427).

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Before focussing on Fienus' treatise, however, it is important to give a brief outline of his career, for also in this respect Fienus can be called a rather typical representative of a medical practitioner of his time.[19] Being a son of the successful Antwerp physician Joannes Fienus, Thomas (1567-1631) first received a humanist education at Antwerp, before emigrating to the North where he was matriculated at Leiden University in 1584. There he attended lectures of the famous mathematician Rudolphus Snellius and the great humanist Justus Lipsius. Without taking an arts degree, however, Fienus returned to the university of his native country, Louvain. How ever much Fienus appreciated the basic training by Joannes Viringus, *professor primarius* at the Louvain faculty of medicine, disappointment in the practical realization of the Louvain curriculum – most of the courses were not or inadequately given – prompted him to continue his anatomical studies in Italy, where he visited the univerisities of Bologna, Rome and Padua. From his own letters[20] and works one can already see how deep Fienus' anatomical insights were influenced by his studies under Girolamo Mercuriale (1530-1606), Ulisse Aldrovandi (1522-1605), Giovanni Costeo (†1603), Giulio Cesare Aranzi (1530-1589) and Girolamo Capivaccio († 1589). Once returned to Louvain, Fienus obtained the degree of licentiate immediately in August 1593, and that of doctor in medicine on the 9th of November 1593. He was appointed *professor ordinarius* in that same year. Until his death in 1631 Fienus devoted himself to his professorate, taking up meanwhile his office as semestral rector in 1594, 1599 and 1604, vicarius in 1597 and dean of his faculty in 1594, 1595, 1597, 1598 and 1600. For a short period (1600-1601) he was even called to Bavaria because of his competence by Duke

19. Our account on Fienus' biography and work is based upon BROECKX, "Prodrome de l'histoire de la Faculté de Médecine de l'ancienne université de Louvain," pp. 342-344; A. VANDER MEERSCH, "Feyens (Thomas)," in *Biographie Nationale* (Bruxelles, 1880-1883), 6: 47-49; F.A. SONDERVORST, "Vie et ouvrages des Fyens d'Anvers," *Yperman. Tijdschrift van de Belgische Vereniging voor Geschiedenis der Geneeskunde* 5 (1958), 1-7; G.A. LINDEBOOM, *Dutch medical biography: a biographical dictionary of Dutch physicians and surgeons 1475-1975* (Amsterdam, 1984), pp. 589-590; and the most recent and elaborated study by V. VERMEESCH, *Thomas Fienus, een bio-bibliografische studie (1567-1631)* (Leuven, unpublished diss., 1991).

20. For example his letter to the Magistrate of Louvain (dated 11 August 1593), preserved in manuscript at Louvain, Stadsarchief, nr. 3991, Part 9, in which Fienus states that he attended lectures with great masters "quorum scripta toto orbe leguntur"; cited by VERMEESCH, *Thomas Fienus, een bio-bibliografische studie*, p. 11.

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Maximilian I, but homesickness quickly brought him back to Louvain, where he wrote the most important of his works, his *Libri chirurgici XII* (1602), a very successful textbook on surgery which went through several editions and even was translated twice into Dutch (1659 and 1685) and once in German (1675). In 1608 his first famous treatise on embryology was issued, *De viribus imaginationis*, on the influence of the imagination on the foetus. Sixteen years later, at the very zenith of his career, he dedicated to Franciscus Paz, court physician of Philip IV of Spain and the Archdukes Albert and Isabella, his main work on embryology, *De formatrice foetus liber.*

The innovative character of this work can be discerned from the first pages on, for in no guarded terms, Fienus informs his dedicatee of his motives: "The infelicity and the mistrust of our time, however, is that great that it seems almost a sin to deviate from the opinion of the ancestors, and that someone who should dare to do this anyway, runs into the mouths, teeth and pencils of all. That is the reason, most excellent and erudite Lord, why I did not hesitate to dedicate this book to Your Highness: in order to have a fair judge, because you are powerful by your great erudition and discernment of mind, and in order to have a mighty protector if you support me with your judgment, because you are highly esteemed among all."[21] Obviously well aware of his bold project, Fienus nevertheless was convinced that propagating views opposite not only to Galen and Aristotle, but also to the *communis opinio* of both physicians and philosophers, was impelled by reason (*ratio*) itself. Authority – so Fienus stressed – is only to be esteemed if it is sustained by reason and so leads to the truth (*veritas*), which is the soul of philosophy and all science. Consequently, the truth is warranted not by the accordance to the opinion of some authority, but by reason and experience (*experientia*).[22]

21. T. Fienus, *De formatrice foetus liber* (Antverpiae, 1620), fol. a4-a4v: "Interim tamen ea saeculi nostri infelicitas ac diffidentia est, ut a maiorum opinione dilabi piaculum videatur et qui id facere ausus fuerit omnium ora, dentes, calamosque incurrat. Ea ratio est, Excellentissime atque Eruditissime vir, cur librum hunc Ampl[itudini] Tuae dedicare non dubitaverim: ut quia summa polles eruditione ingenique perspicacitate, aequum iudicem et quia maxima apud omnes vales aestimatione, si iudicio suffrageris, validum habeat protectorem."

22. Fienus, *De formatrice foetus liber*, fol. a2v: "Authoritas aestimanda est, non propter se, sed propter rationem, cui inniti iudicatur; si ea refragetur, nullo loco est habenda. Etenim studium omne consistere debet in indagatione veritatis. Veritas enim Philosophiae ac scientiae omnis anima est; illud autem maxime est veritas, non quod huius vel illius opinioni, sed quod rationi ac experientiae maxime consentaneum est."

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This declaration of the platform, not to be held for a mere literary ornament, Fienus will repeat more than once while trying to prove that seed is not animated before conception, for the opposite view was sustained by Galen[23] and Aristotle. Replying to Aristotle's ambiguous statements in *De generatione animalium* I, 18-19, II, 3 and *Historia animalium* IX, 1 that seed is only the excrement of the last food, Fienus drily states that it would take too much pains and even be useless to interpret and reconcile all passages of Aristotle, for it is not necessary for the defender of a new doctrine to care much for all authorities, but to make his new doctrine firm and prove it by true and strong reasons taken from the nature of things[24]. Likewise, after having given Aristotle's account in *Generation of Animals* (II, 3) on the succession of the vegetative, sensitive and rational soul in the foetus, Fienus concludes that the interpretation of authoritative *medici* such as Fernel, Mercato and Peramato, and philosophers such as Thomas Aquinas and Albertus Magnus that it is the vegetative soul which comes first into the semen after conception, may be useful, but that his own opinion remains: the rational soul is first and alone introduced in the foetus. His reasoning at this point is simple but sound: if a vegetative and sensitive soul should precede the rational soul in the embryo, then this vegetative and sensitive soul should be of a different species as the one in plants or brute creatures. But this argumentation is absurd, because without necessity the number of entities should not be multiplicated. The vegetative soul of plants is also an *ens completum*, a *forma absoluta* and a *forma per se subsistens in suo subiecto*, i.e., it gives no structure to another form and thus it cannot function as vegetative soul in the (human) embryo[25]. Being astonished that even a philosopher such as the Doctor Angelicus followed Aristotle's absurd position, Fienus considers other possible

23. On Galen's views on generation, see P. ACCATTINO, "Galeno e la riproduzione animale. Analisi del 'De semine'," in *Aufstieg und Niedergang der römischen Welt, Teil II: Principat, Band 37: Philosophie, Wissenschaften, Technik*, 2, ed. W. HAASE (Berlin/New York, 1994), pp. 1856-1886; and P. MORAUX, "Galien comme philosophe: la philosophie de la nature," in *Galen: Problems and Prospects*, ed. V. NUTTON (London, The Wellcome Institute for the History of Medicine, 1981), pp. 87-116 (esp. pp. 102-105).

24. Fienus, *De formatrice foetus liber*, pp. 73-74: "Ad loca eius [i.e. Aristotelis] omnia respondere eaque interpretari ac conciliare nimis operosum et longum et meo iudicio plane inutile ac praeter propositum esset; quare id omitto, maxime cum novam et paradoxam statuenti doctrinam non sit necessum multum authoritates curare, quin potius veris et firmis rationibus ex rei natura desumptis ea stabilire ac probare."

25. Fienus, *De formatrice foetus liber*, pp. 164-165.

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explanations of Aristotle's passage stating that the Stagirite is not pointing at the essences of the soul, but at the faculties: the vegetative, sensitive and rational soul are not entering the semen successively, the semen only lives first the plant's life following the vegetative potentiality and so on. Still, Fienus' final conclusion remains sharp. Whoever reads Aristotle's passage carefully can see he is not only talking about the faculties, but also about the substances of the souls, so that to his authority Fienus only wants to answer: "Plato is my friend, Socrates too, Aristotle is my very good friend, but truth is even my better friend."[26]

But, how sincere is Fienus as an anti-authorative physician? And, how does he see himself, how does he present himself in his work ? For it has become a commonplace for commentators on *De anima* and other writers in the Aristotelian tradition – even the most conservative – to introduce arguments from 'anatomical findings' into treatises on the organic soul.[27] Is Fienus thus writing on philosophical and theological problems presenting himself as an independent, anti-Aristotelian embryologist?

In answering these important questions, one has to consider first that Fienus presents himself as a physician and a philosopher,[28] dedicating his work to a physician and supported by two colleagues of the Louvain Faculty of Medicine, Gerardus de Villeers and Petrus Castellanus, and one Louvain professor in philosophy, the theologian and physicist Libertus Fromondus, with whom he wrote his anti-Aristotelian *De cometa anni MDCXVIII* (1619)[29] one year before. At the same time,

26. Fienus, *De formatrice foetus liber*, p. 182: "amicus Plato, amicus Socrates, amicissimus Aristoteles, sed magis amica veritas." On this widely found statement, loosely based on Aristotle (*Eth. Nic.*, 1096a16-17), see L. TARÁN, "Amicus Plato sed magis amica veritas, from Plato and Aristotle to Cervantes," *Antike und Abendland* 30 (1984), 93-124. I want to thank Prof. C. Burnett (London, The Warburg Institute) for kindly drawing my attention to Tarán's study.

27. W. PAGEL, *William Harvey's Biological Ideas* (Basel/New York, 1967), pp. 233-247.

28. Also in his second book Fienus is presenting himself as a philospher-physician; see T. Fienus, *De formatrice foetus liber secundus* (Antverpiae, 1624), p. 112: "Ego sum Medicus et Philosophus, et ut talis, toto meo libro quidquid dixi, probavi argumentis ex illis scientiis desumptis; ipse Medicus quoque est, et credo etiam Philosophum se esse profitebitur, quomodo nescit hoc probare seu ex Medicina seu Philosophia."

29. See P. BOCKSTAELE, "Astrologie te Leuven in de zeventiende eeuw," *De zeventiende eeuw* 5/1 (1989), 172-181.

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just as the famous Hieronymus Fabricius ab Aquapendente (1533-1619) obscured his treatises on embryology by elaborate Aristotelian argumentation,[30] Fienus couched his *De formatrice foetus* in a typical scholastic mode, structuring his argumentation in nine elaborate *quaestiones*, with first the statement of the pros and cons of the thesis, then the solution, and, finally, replies to opposing arguments, the whole liberally interlarded with appeals – meant both as argument or as reference – to authoritative philosophers and physicians.

But, Fienus' demonstration remains basically scholastic and keeps aiming at the refutation of Aristotle's views by the use of sharp syllogisms and argumentations. His studies in Italy, his acquaintance with the works of Paduan Aristotelian philosopher Giacomo Zabarella (1533-1589) and his mathematical interests did not influence his scientific demonstration.[31] It is certainly not the case that Fienus transformed Zabarella's concepts into a radically empirical way of thinking as did William Harvey.[32] Still, some cautious mixture of scholastic reasoning and empirical thinking can already be found in his work, though *experientia* is often nothing more than daily experience with

30. See P. FRANCESCHINI, "Il secolo di Galileo e il problema della generazione," *Physis* 6 (1964), 141-204 (esp. p. 144); J. ROGER, "La situation d'Aristote chez les anatomistes padouans," in *Platon et Aristote à la Renaissance. XVIe Colloque International de Tours*, De Pétrarque à Descartes 32 (Paris, 1976), pp. 217-224.

31. For instance, an attempt to provide medicine with the same reliability as found in the mathematical sciences, lead Zabarella to the use of the concept of the *regressus* which had a considerable influence on the methodology of the Paduan philosopher-physicians. Zabarella insisted that the only true road to scientific knowledge consisted in proceeding from the more known to the less known and from a knowledge of the obvious to that of the obscure. See on this, W.F. EDWARDS, "Paduan Aristotelianism and the Origins of Modern Theories of Method," in *Aristotelismo Veneto e scienza moderna*, 2 vols., ed. L. OLIVIERI (Padua, 1983), 1: 208-215.

32. G.K. PLOCHMANN, "William Harvey and his Methods," *Studies in the Renaissance* 10 (1963), 192-210; J.S. WILKIE, "Harvey's Immediate Debt to Aristotle and to Galen," *History of Science* 4 (1965), 103-124; J. STANNARD, "Aristotelian Influences and References in Harvey's *De motu locali animalium*," in *Studies in the Philosophy and History of Science. Essays in Honour of Max Fisch*, ed. R. TURSMAN (Lawrence, Kansas, 1970), pp. 122-131; C.B. SCHMITT, "William Harvey and Renaissance Aristotelianism. A Consideration of the *Praefatio* to "*De generatione animalium*" (1651)," in *Humanismus und Medizin*, ed. R. SCHMITZ - G. KEIL, Mitteilung der Kommission für Humanismusforschung 11 (Weinheim, 1984), pp. 117-138; Id., "Aristotelianism in the Veneto and the Origins of Modern Science," in *The Aristotelian Tradition and Renaissance Universities*, ed. C.B. SCHMITT, 2 vols. (London, 1984), 1: 118-121.

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natural phenomena such as the incubation time of eggs and the *experientia anatomica* only the common opinion among physicians.[33]

Fienus' use of the scholastic question form, however, can but must not necessarily be regarded as being the reflection of his teaching practice, for his questions are not open at all and his argumentation is tuned to a fixed conclusion.[34] In this respect, Fienus differs radically from his predecessors Jeremias Thriverius (1504-1554), Nicolaus Biesius (1516-1572), and Balduinus Ronssaeus (1525-1597)[35] who are all following the Louvain Galenic tradition. Whereas Fienus is exerting himself in a quasi polemic argumentation, they limited themselves to important explanatory commentaries on the Galenic corpus, mentioning Aristotle and other authorities when needed for the sake of clarity. Thriverius, for instance, being a former student of the Collegium Trilingue, acted in Erasmus' spirit of textual criticism expurgating Galen's and Hippocrates' texts. Though he thus cleared the path to a medical science independent of a slavish imitation of Aristotle or Galen at Louvain,[36] he is not listed among Fienus' sources. This is the more striking since Thriverius already declared himself an 'independent and liberal thinker' in his commentary *In tres libros Galeni de Temperamentis* (1535), about eighty-five years before Fienus. But, obviously, Fienus was looking for another Galen and Aristotle than the Louvain medical tradition had dug up; next to the names of Thriverius, Biesius and Ronssaeus, nowhere in Fienus' work those of Joannes Boscius, Levinus Lemnius or Rembertus Dodonaeus – all commenting upon embryology though – are mentioned. This is in marked contrast with the wide range of medieval as well as contemporary Renaissance Italian and Spanish physicians and commentators on Galen or Aristotle

33. As was the *quotidiana experientia* of Ulisse Aldrovandi; see Ä. BÄUMER-SCHLEINKOFER, "Die Embryologie im Spannungsfeld zwischen Tradition und Empirie," *Berichte zur Wissenschaftsgeschichte* 14 (1991), 107-119 (esp. p. 110).

34. On the use of the *quaestio disputata* in the teaching of medicine, see B. LAWN, *The Rise and Decline of the Scholastic Quaestio Disputata, with special Emphasis on its Use in the Teaching of Medicine and Science* (Leiden, 1993).

35. See L. ELAUT, "Boudewijn Ronsse (Balduinus Ronssaeus): dekadentie van de humanistische geneeskunde tijdens de zestiende eeuw in Noord-Nederland," *Tijdschrift voor Geschiedenis* 85 (1972), 410-417.

36. See G. VAN DER SCHUEREN, "Jeremias de Drivere, een zeventiendeeuwse hoogleraar in de medicijnen aan het Studium Generale Lovaniense," *Verhandelingen Koninklijke Vlaamse Academie voor Geneeskunde* 16 (1954), 183-190.

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that have been taken up in Fienus' argumentations on the animation of the foetus.

Fienus' position in this debate of philosopher-physicians becomes above all apparent in his important fifth *Quaestio*: *An anima seminis sit efficiens Conformationis* (Whether the soul of the semen is efficient in the conformation), where he enters into a profound discussion with Aristotle's view. The main question in this *Quaestio* is whether there is – before conception – a preexistent soul in the semen originating from the testicles of both man and women. By way of short example, I will sketch the outlines of Fienus' argumentation.

After having enumerated the pro's of countless physicians such as Francisco Vallés, Giovanni Argenterio, Christóbal de Vega, Pedro de Peramato and Mercatus, Fienus makes the known comparison with the seeds in the plant world: sometimes a root, a leaf or a broken branch can form a new plant; just as these can produce offspring by force of their own soul, so can the semen[37]. Also Hippocrates, Galen and even Aristotle in various passages of his *De generatione animalium* stated that the semen is animated, while the menstruum is an impure sort of semen without soul. Whereas this view is also followed by numerous physicians of whom, next to those already named, Citadinus, Jacopo da Forlì, Cardano, Capivaccius and Archangelo Piccolomini are cited, and philosophers such as Plato, Themistius, Zimara, Zabarella, Philoponus and Cajetanus, it can also be defended by way of pure reasoning (*ratione*). For, if the seeds of the plants are animated, the semen of the animals will be animated too, because there can be no reason why one should be called more animated than another, or why nature would give rather a soul to the plants than to the animals. Besides, also the eggs of the birds are animated, so that the seed of other animals must be animated too, for the birds have no other substance which can be considered as seed. Just as birds are generated by the albumen and the yolk, so the other animals are generated by the male seed and the female menstruum. Here Fienus appeals twice to Aristotle's authority: a fortiori fertile eggs must be animated, because even wind-eggs have a vegetative soul. Once more, however, Fienus does not confine himself

37. Fienus, *De formatrice foetus liber*, pp. 44-46. On the embryology being a science traditionally rich of comparisons from the world of plants, see C. THOMASSET, "La représentation de la sexualité et de la génération dans la pensée scientifique médiévale," in *Love and Marriage in the Twelfth Century*, ed. W. VAN HOECKE and A. WELKENHUYSEN, Mediaevalia Lovaniensia I/8 (Leuven, 1981), pp. 1-17 (esp. p. 13).

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to Aristotle's opinion, but remains loyal to his own methodological starting point: going the way of reason, (other's!) experience and authority[38].

This becomes the more clear in Fienus' contra-argumentation, when he first answers the authorities cited. To Fienus' opinion, Aristotle's passage is ambiguous and must be clarified by *De generatione animalium* II, 3, where Aristotle *sine dubio* states:

> It is plain that the semen and the embryo, while not yet separate, must be assumed to have the nutritive soul potentially, but not actually, until (like those embryos that are separated from the mother) it absorbs nourishment and performs the function of the nutritive soul,"

and further:

> It has been settled, then, in what sense the embryo and the semen have soul, and in what sense they have not: they have it potentially but not actually. [39]

The same is the case with Aristotle's view on the eggs, for – so Fienus continues his textual analysis – they are animated only potentially just as wind-eggs only have a principle for the vegetative soul, not for the sensitive one. For, if Aristotle had asserted that they have a vegetative soul actually, then the fertile eggs would have a sensitive soul actually, which is certainly not the case and not in accordance with Aristotle's intention. In *De generatione animalium* II, 3 he explicitly declares:

> For this reason, whenever a wind-egg is produced by any animal, the egg so forming has in it the parts of both sexes potentially, but has not the principle in question, so that it does not develop into a living creature, for this is introduced by the semen of the male.[40]

When answering to the *argumentum a ratione* taken from the comparison with the seed of plants and the eggs of the birds, Fienus is still more exerting himself in a subtle argumentation. Indisputably the external parts of the egg such as the cortex and the membranes are a part of the hen as long as they are connected with the hen and feeded by the hen's internal principle and soul. Moreover, these parts also

38. T. Fienus, *De formatrice foetus liber*, p. 128: "Haec conclusio est etiam paradoxa sed verissima. Et probatur triplici via: ratione, experientia et authoritate."

39. Aristotle, *Gen. An.*, II, 3, 736b5-12 and 737a17-18 (transl. A. PLATT); quoted by Fienus, *De formatrice foetus liber*, p. 73.

40. Aristotle, *Gen. An.*, II, 3, 737a29-32 (transl. A. PLATT); quoted by Fienus, *De formatrice foetus liber*, p. 84.

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have a determinate figure, conformation and they are organic. But the internal parts such as the albumen and the yolk, they are essentially the egg, and not the shell which is only covering it and protecting it from putrefaction and loss of *spiritus* or *calor nativus*. So, the chick is generated by the essential parts of the egg, not by those that are left by the hen after birth such as the shell. Thus, the real egg is not a part of the whole egg or of the hen: it has no solidity, no limit or figure for it is fluid. Besides, the albumen and the yolk are substances distinct by their essence: the albumen is the material for the constitution and the yolk for the nutrition of the egg. Therefore, they cannot form one organic entity and neither are they – as Pedro Garcias Carrero, professor of medicine at Alcalá, already demonstrated in his commentary on Avicenna (1611)[41] – a part of the body of the hen, but only the remaining of the useful nutriment secreted by nature for the propagation of the species and stored up in a small box so that it can be preserved for human use or animated by the help of a sitting hen. This animation, however, is not the work of a preexistent soul in the egg or the semen, but impressed by a divine and admirable active force (*vim activam admirabilem ac plane divinam*).[42]

In Fienus' pattern of thought, as illustrated here by a short outline of his argumentation that the embryonal development is but an ever evolving nutrition, the scholastic background of reasoning is manifest. But, what about his third way, the promised *via experientiae*?

As already mentioned, Fienus' *experientia* is often nothing more than daily experience with natural phenomena such as the incubation time of eggs and to him the *experientia* is only the common opinion among physicians. In this way, Fienus equates experiment and experience without any distinction and thus follows the footsteps of Galen who in the beginning of the *Megategni* says that just as experiment without reason is weak, so is reason without the addition of experiment.[43] Nowhere, Fienus mentions experience or experiment in our

41. Fienus, *De formatrice foetus liber*, pp. 87-88, shortly recapitulates Carrero's demonstration.

42. Fienus, *De formatrice foetus liber*, p. 88.

43. For a similar position of Galen in his *De alimentorum facultatibus*, see the (unpublished but xeroxed) paper by F. BOSSIER, "De rol van proef en redenering in de dieetleer van Galenus," in *Mentaliteitsgeschiedenis van de Grieks-Romeinse Oudheid. De relatie jong en oud, man en vrouw. Capita selecta*, ed. E. EYBEN (Leuven, 1994-95), s.p.

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modern meaning of the term which signifies a preconceived experiment or observational procedure devised especially to test a particular hypothesis.[44] He only followed Aristotelian logic in the investigation of medical phenomena and he confined himself to the experiences of classical authors such as Hippocrates, Aristotle, Galen and Avicenna and contemporary physicians from Italy and Spain. In this respect Fienus remains traditional and seems to be sitting comfortably in his scholastic lounge chair: as a 'commentator' he is never forced to leave the classical texts.[45]

Still, even *experientia* with the medieval connotation of exceptional or occult experience[46] remains present in Fienus' medical thought. This, however, is not that surprising for a Renaissance embryologist occupying himself with astronomy, uroscopy and the force of the imagination. In this way, Fienus is even not that different from leading polymath physicians of his time – some already working in the conflict zone between tradition and experience – such as Girolamo Cardano (1501-1576), Johannes Wierius (1515-1588) and the Galenist Levinus Lemnius (1505-1568). For, just as Lemnius, former student of the Collegium Trilingue and the Louvain Faculty of Medicine, Fienus regarded the *ratio* and the *experientia* as being the two pillars of medical science.[47] He also shared an unshakeable belief in some *virtutes occultae* of the imagination working on the foetus. So, following a rich medical tradition with names such as Fracastoro, Fernel, Cardano,

44. Compare with E.A. SYNAN, "Albertus Magnus and the Sciences," in *Albertus Magnus and the Sciences, Commemorative Essays 1980*, ed. J.A. WEISHEIPL (Toronto, 1980), pp. 1-12 (esp. p. 7): "There is more than a hint that Albert's "experience" (he seems to have used *experientia* and *experimentum* interchangeably) shades from brute observation toward a methodical, systematic 'experimentation'." On experience-experiment in general, see L. THORNDIKE, *A History of Magic and Experimental Science*, 8 vols. (New York, 1923-1958).

45. See C.B. SCHMITT, "Experience and Experiment: a Comparison of Zabarella's View with Galileo's in *De Motu*," in *Studies in Renaissance Philosophy and Science*, 8, ed. C.B. SCHMITT (London, 1981), pp. 80-138 (esp. p. 105); B. LAVILLATTE, "Magia naturale e territorio dell' esperienza nel Rinascimento," in *L'Uomo e la Natura nel Rinascimento*, ed. L. ROTONDI SECCHI TARUGI, Istituto di Studi Umanistici F. PETRARCA, Caleidoscopio 6 (Milano, 1996), pp. 47-64.

46. B.P. COPENHAVER, "Translation, Terminology and Style in Philosophical Discourse," in *The Cambridge History of Renaissance Philosophy*, ed. C.B.SCHMITT, Q. SKINNER, E. KESSLER, J. KRAYE (Cambridge, 1988), p. 110.

47. See C.M. VAN HOORN, *Levinus Lemnius, 1505-1568: zestiende-eeuws Zeeuws geneesheer* (Kloosterzande, diss. Univ. Amsterdam, 1978), p. 103.

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Piccolomini, Sylvaticus and Lemnius, Fienus was convinced that imaginative powers could change the foetus with regard to its colour and the form of the limbs.[48] Just as Lemnius, he even upholds the Hippocratic, Galenic and humanist tradition of Vives and Erasmus that the morphological, physiological and psychological condition of the child depends not only on the age and physical conditions of its parents, but also on their state of mind.[49] Still, Fienus remains critical on this subject too. In his discussion of the related question whether animals living in snow-capped mountains are white because of the *imaginatio nivis,* he refers first to Olaus Magnus' account in his *Historia de gentibus septentrionalibus*,[50] a fascinating and richly illustrated encyclopedia of Nordic life, but corrects the presupposed thesis by quoting Abraham Ortelius' description of Livonia, a region where hares change colour according to the season. A similar question on a white woman having a negroid child is raised by Fienus: is this change of colour of the foetus caused by the fact that she saw a picture representing a black person? Fienus' answer here is realistic: he does not believe in the thesis of the humours being corrupted, but appeals to Aristotle's explanation in *Historia animalium*, IX, 6 (586a) of a similar case: parents may pass on resemblance after several generations, as in the case of the woman in Elis, who committed adultery with a negro; in this case it was not the woman's own daughter but the daughter's child that was a negro.

All the same, just as his Galenic Louvain predecessors Thriverius, Biesius and Lemnius, Fienus is not ill-disposed to the *locus classicus*, taken from Aristotle's *Historia animalium*, VIII, 1 (608a21-608b13) and combined with the Galenic theory which relates bodily humours to mental characteristics, and thus explaining why women are thought to be more sensitive to imagination, because cold and moist objects are subject to metamorphosis and mental changeability. But, how different is Fienus from those predecessors, all thoroughgoing Galenists at heart but influenced to different degrees by Aristotle, Avicenna and Hippo-

48. Fienus elaborated this views above all in his *De viribus imaginationis tractatus* (Louvain, 1608).

49. See J.-C. MARGOLIN, "Vertus occultes et effets naturels d'après les *Occulta naturae miracula* de Levinus Lemnius," in *L'Uomo e la Natura nel Rinascimento*, ed. L. ROTONDI SECCHI TARUGI, Istituto di Studi Umanistici F. Petrarca, Caleidoscopio 6 (Milano, 1996), pp. 415-443 (esp. p. 428).

50. Issued at Rome in 1555. Fienus refers to 18, 8.

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crates?[51] For, also to the 'physician' Fienus the general context of medicine remained Galenic,[52] while for the 'philosopher-physician' Fienus the work of Aristotle was in dispute on some neuralgic points. So, it is not only Aristotle but particularly Galen who is responsable for Fienus' thoughts on the *facultas formatrix* ruling the embryonal development. In this respect, he might perhaps seem to be on the same wavelength as Thriverius in his *Commentarii in VII Libros Aphorismorum Hippocratis* (1551),[53] Balduinus Ronssaeus in his *De humanae vitae primordiis* (1559),[54] Nicolaus Biesius in his *In artem medicam Galeni commentarii* (1560),[55] Levinus Lemnius in his *Occulta naturae miracula* (1574),[56] and Rembertus Dodonaeus in his *Medicinalium observationum exempla rara* (1585).[57] But, as a philosopher-physician Fienus wants to get to the very core of the matter: this *facultas formatrix*, is it in the semen, in the procreators or only in the father's semen. And how does it function? Is it perhaps transported by spirits, as is the opinion of the great Fernel? Or, is the soul the architect of its own house (Themistius), the semen being animated *in actu* and provided with life and a *forma substantialis*? With this last view, Fienus leaves Aristotle's succession of souls and goes his way in embryology: with Alexander of Aphrodisias, Themistius and Ficino he maintains that the soul is the principle which organises the body from within, arranging an organ for

51. H.B. ADELMANN, *Marcello Malpighi and the Evolution of Embryology*, 2 (Ithaca, New York, 1966), p. 754; H. DE VOCHT, *History of the Foundation and the Rise of the Collegium Trilingue Lovaniense, 1517-1550*, 4 vols., Humanistica Lovaniensia, 10-13 (Leuven, 1951-1955), 3: 323-329.

52. As for many Renaissance physicians and anatomists; see WEAR, "Galen in the Renaissance," pp. 229-262 (esp. p. 237).

53. *Hieremiae Thriveri Brachelii Commentarii in VII. Libros Aphorismorum Hippocratis* (Lugduni, 1551), pp. 421-424.

54. B. Ronssaeus, *De humanae vitae primordiis, hystericis affectibus, infantilibusque aliquot morbis Centones* (Lovanii, 1559), pp. 40-45, who gives an account of the views of Hippocrates, Galen and Trotula.

55. Nicolaus Biesius, *In artem medicam Galeni commentarii* (Antverpiae, 1560), pp. 99-104.

56. VAN HOORN, *Levinus Lemnius*, p. 57, 145 and 180-184. To Lemnius the soul is not transmitted in the seed but newly created and infused by God on about the 45th day. Earlier foetal development is directed by the formative faculty or *vis vitalis* of the seed, and the *facultas uteri*. See on this L. DEER, *Academic Theories of Generation in the Renaissance: the Contemporaries and Successors of Jean Fernel (1447-1558)* (London, The Warburg Institute, unpublished diss., 1980), p. 461, n. 8.

57. DE VOCHT, *Collegium Trilingue*, 3: 335-345 and 4: 42 and 374.

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each of its faculties and preparing its own residence, not merely consenting to be breathed into a physical being which has already organised itself. The conformation of the foetus is a vital, not a natural, action, for the seed first coagulates the menstrual blood into an amorphous cake, taking three days to do so, after which the rational soul enters to it and begins to give it a shape.[58]

Therefore, it is not surprising at all that Fienus' statements elicited sharp reactions, first from his colleague in Douai, Louis Du Gardin, and secondly from the famous Antonio Ponce de Santacruz, professor at Valladolid and *Protomedicus generalis* of the Spanish king.

In the debate which followed on the publication of Fienus' work, Fienus once more stands into sharp relief against his Louvain predecessors and his Galenic and Aristotelian opponents not only by his arguments but even more by his way of argumentation. For, to Fienus' opinion the *anima rationalis* introduced by God into the foetus on the third day is responsible for all embryonal development;[59] further, there is no division of the soul and the actually animated semen is already a human being. So, the Aristotelian-Galenic position defended by Du Gardin that there is a succession of three souls in the embryo and that the *facultas formatrix* is operating with the help of spirits is ridicule, because according to Fienus there is no *facultas* without a soul. And it is precisely this human soul, Fienus is looking for to strip of its ancient ambiguities without leaving the pure scientific point of view. In contrast to Du Gardin who is holding the debate theologically, Fienus is and wants to remain a 'freethinking' physician and philosopher and as such he wants to prove every statement he makes.[60] This sincere intention to separate both fields and competences – theology and philosophy-medicine – shows us an independent 'modern' spirit: breaking through Aristotle's dominion without breaking up with him, clearing the debate from theological lumber without giving up faith, for one

58. J. NEEDHAM, *A History of Embryology*, 2nd ed. (Cambridge, 1959), pp. 119-120; DEER, *Academic Theories*, p. 441.

59. Levinus Lemnius, for instance, follows the traditional Hippocratic view the soul being introduced by God on the 45th day (the 50th for girls); see VAN HOORN, *Levinus Lemnius*, p. 187, and H. BALSS, "Die Zeugungslehre und Embryologie in der Antike," *Quellen und Studien zur Geschichte der Naturwissenschaft und der Medizin* 5 (1936), 193-274 (esp. p. 235).

60. See J. ROGER, *Les sciences de la vie dans la pensée française du XVIIIe siècle: la génération des animaux de Descartes à l'Encyclopédie*, 2nd ed. (Paris, 1971), pp. 104-105.

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must not forget that without God's particular intervention even Fienus' animism is unthinkable.

Sharing this Christian spiritualism *mutatis mutandis* with van Helmont and Sennert,[61] the anti-authoritative Fienus himself for a short time grew into an authority in the field of embryology,[62] but – still more important – his *libertas philosophandi* even elicited the admiration of Pierre Gassendi who praised Fienus' rare freedom of thought by 'treating philosophy philosophically': his sincere care for religion's majesty prevented him from an intrusion of philosophical questioning in a field where indisputable dogmatics were unmistakably clear, and neither did his faith make philosophy the *ancilla* of theological dogmatism when a margin for reasoning was left.[63] For, to Gassendi as to Fienus this separation of religion and philosophy is not any more the cutting of two sorts of truth covering two heterogeneous fields, but only a practical division between cases in which religion does or does not hold strong views.

Although the philosopher-physician Fienus could not have been complimented in a way more apt and telling, the question remains why Fienus' embryology – though gradually emancipating from Aristotelian biological views – stuck in a Galenism combined mainly with a questioning inspired by Aristotelian-scholastic logic. This Louvain Peripatetic imprisonment is the more striking when compared to the great breakthrough bearing on the main physiological functions at the University of Leiden in the following decades, a breakthrough certainly owned to a better understanding of the high value of experimental research as a basic activity of medical science.[64]

61. W. PAGEL, "The Reaction to Aristotle in Seventeenth-Century Biological Thought," in *Science, Medicine and History: Essays on the Evolution of Scientific Thought and Medical Practice written in honour of Charles Singer*, 2 vols., ed. E.A. UNDERWOOD (London,1953), 1: 489-509; BÄUMER, "Das Ei als Instrumentum Dei," pp. 81-83.

62. ROGER, *Les sciences de la vie*, p. 106.

63. *P. Gassendi Diniensis ... Epistolae*, in Petrus Gassendi, *Opera Omnia*, 6 (Lugduni, 1658 [= Stuttgart - Bad Cannstatt, 1964]), pp. 16-19; the letter to Fienus is dated at Brussels 6 June 1629. See also O.R. BLOCH, *La philosophie de Gassendi: Nominalisme, Matérialisme et Métaphysique*, International Archives of the History of Ideas 38 (La Haye, 1971), pp. 60-61 and 322-323; G. MONCHAMP, *Histoire du Cartésianisme en Belgique* (Bruxelles, 1886), p. 22.

64. G.A. LINDEBOOM, "Dog and Frog. Physiological Experiments at Leiden during the Seventeenth Century," in *Leiden University in the Seventeenth Century. An Exchange of Learning*, ed. Th.H. LUNSINGH SCHEURLEER - G.H.M. POSTHUMUS

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In an attempt to point to possible reasons, one has to consider that, whereas the great Italian universities seem to produce great innovators such as Cesalpino and Galileo, even these universities represent a stronghold of conservative Aristotelianism, where the interesting developments did not come from the philosophy faculties, but from elsewhere. So, several botanists,[65] anatomists and mathematicians show elements of advanced attitudes; all of them, however, within the framework of Aristotelianism. The mathematician Galileo had a strong aversion to Aristotelian natural philosophy, but significantly enough many of the problems to which he addressed himself were those of the natural philosopher.[66] So, also to the physician Fienus this Aristotelian framework provided a structure within which to discuss embryological problems. That his penetrating scholastic analyses in this field did but have a restrained influence on medicine, is due to the fact that he focussed philosophically on a topic stemming from an age-old philosophical and theological debate on animation.

This choice obviously limited scope for Fienus' talents and predeterminated the structure, the questioning and reasoning in his *De formatrice foetus liber*. Like Galileo and Vesalius, he was engaged in a struggle against philosophical authorities and looking for truth. Unlike them, however, he could not totally deny and defy the scholastic tradition; commenting upon classical texts he did not follow the new method of investigation based upon observation and experiment.[67] He obviously had set himself the task of supplementing, enriching, and correcting the ancient authorities by his own reasoning and the observation of others, without, however, disturbing the philosophical basis upon which he built.[68]

MEYJES (Leiden, 1975), pp. 279-293; on embryology, see G.C. HERINGA - J.I.H. MENDELS, "Regnier de Graaf's onderzoekingen over follikel en corpus luteum," *Nederlands Tijdschrift voor Geneeskunde* 80 (1936), 5034-5040; L. MEUNIER, "Reynier de Graaf, 1641-1673. L'ovulation démontrée au XVIIe siècle par l'anatomie normale, par l'anatomie pathologique et par l'expérimentation," *Janus* 6 (1901), 524-530.

65. On Renaissance botany, see K. MEIER REEDS, "Renaissance Humanism and Botany," *Annals of Science* 33 (1976), 519-542; P. DILG, "Die botanische Kommentarliteratur Italiens um 1500 und ihr Einfluss auf Deutschland," in *Der Kommentar in der Renaissance*, ed. A. BUCK and O. HERDING, Kommission für Humanismusforschung Mitteilung 1 (Weinheim, 1975), pp. 225-252.

66. See SCHMITT, "Philosophy and Science in Sixteenth-Century Universities: Some Preliminary Comments," p. 497.

67. See E.A. CASSIRER, "The Place of Vesalius in the Culture of the Renaissance," *Yale Journal of Biology and Medicine* 16 (1943), 109-120.

68. L. OLSCHKI, *Geschichte der neusprachlichen wissenschaftlichen Literatur*, 2 (Leipzig, 1919-1927), p. 24; cited by ADELMANN, *Marcello Malpighi*, 2: 751.

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But, is it allowed to compare the philosopher-physician Fienus, basing his work on embryology on the textual interpretation and exegesis, with the great representatives of the new analytical mind, his *globus intellectualis* being the Louvain university, where professors incessantly had to sort out the conflicts between their scholastic tradition and the findings of the new empiricism and rationalism?[69] Fienus' Louvain colleagues, Gerardus de Villeers and Petrus Castellanus, were right in writing their liminary elegies for Fienus' work: Fienus unveiled the secrets of Nature and went beyond Aristotle and Galen by leading his reader into the light.[70] They did not feel obliged, however, to specify that this light was only the 'light of the Louvain Collegium Trilingue' where they were all – Vesalius,[71] Ronssaeus, Lemnius, Thriverius, and Fienus – instructed to read and interpret the texts of the Stagirite with their own eyes and to judge by themselves.

69. VANPAEMEL, *Echo's van een wetenschappelijke revolutie*, p. 16.

70. See Fienus, *De formatrice foetus liber*, fol. a5r: "Ac cernens operum patefacta arcana suorum, / Adducto haec dixit verba supercilio, / Aut egomet scripsi haec, datur aut Natura secunda,/ aut Genius nostro maior Aristotele" and fol. a5v: "*Τίς σοὶ τῆς φύσεως κρυφίας ὤιξε κελεύθους / Ὥστε ἄγνωστα πάλαι εἰς φάος εἰσαγαγεῖν, / Οὐδὲν Ἀριστοτέλης ἐδιδάξατο ἠδὲ Γαληνὸς.*"

71. See A.M. LUYENDIJK-ELSHOUT, "De duisternis rondom Vesalius. Het veranderend patroon der geneeskunde in de Lage Landen in de zestiende eeuw," *Tijdschrift voor Geschiedenis* 85 (1972), 390-409, and K. BAFORT, *Bijdragen tot de vroegste geschiedenis van de Fakulteit Geneeskunde aan de Universiteit te Leuven* (Leuven, unpublished diss., 1958), p. 98, who refers to DE VOCHT, *Collegium Trilingue*, 3:322-333.

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BAUDOUIN VAN DEN ABEELE

UNE VERSION MORALISÉE DU *DE ANIMALIBUS* D'ARISTOTE (XIVE SIÈCLE)

Un volumineux manuscrit originaire de l'abbaye bénédictine de Ramsey, dans les Midlands, et conservé à la British Library de Londres (Royal 7 C I), offre sur une trentaine de folios un texte d'interprétation allégorique du monde animal, qui commence par les mots:

> Puisque selon l'apôtre, les qualités invisibles de Dieu sont aperçues au travers des créatures, bien que Dieu soit invisible, c'est par les créatures corporelles soumises aux sens et par les espèces créées sur terre, que l'on peut regarder leur Créateur, pour être ainsi pris par la main dans la connaissance et l'amour du Créateur (f. 251v).

On pourrait s'attendre ensuite à un Bestiaire, dans la grande tradition anglaise des XIIe et XIIIe siècles, ou à une des encyclopédies moralisées de la fin du XIIIe ou du début du XIVe siècle. En réalité, le cas est tout différent: ces lignes introduisent un texte de moralisation sur les animaux composé à partir d'extraits du *De animalibus* d'Aristote. Jamais signalé dans les études sur la réception médiévale des textes d'Aristote ni dans les répertoires de manuscrits aristotéliciens,[1] ce texte offre le cas, à priori surprenant, d'une conjonction de deux points de vue opposés sur la nature: d'une part la lecture allégorique héritée de l'exégèse biblique et généralisée dans la tradition des Bestiaires et de la littérature moralisante, et d'autre part la nouvelle appréhension aristotélicienne du monde animal. Ce texte singulier, qui pose la question des modalités de réception divergentes du *De animalibus*, requiert donc l'attention, et la présente contribution vise à en dresser un premier portrait: il sera question de ses manuscrits, de sa structure, de son contenu descriptif et allégorique, ainsi que de sa genèse.

1. Pas de référence dans le volume qui clôt l'entreprise majeure de recensement des manuscrits: C. LOHR, *Latin Aristotle Commentaries*, III: *Index initiorum - Index fontium*, Corpus Philosophorum Medii Aevi, Subsidia X (Florence, 1995), ni dans S.D. WINGATE, *The Medieval Latin Versions of the Aristotelian Scientific Corpus (with special reference to the biological works)* (London, 1931). Nous n'en avons pas trouvé trace dans les répertoires de commentaires aristotéliciens publiés pour certains pays ou certains grands fonds de manuscrits. Le texte est signalé sous l'incipit *Quia secundum apostolum invisibilia dei* dans le répertoire de L. THORNDIKE et P. KIBRE, *A Catalogue of Incipits of Mediaeval Scientific Writings in Latin* (2e éd., Londres, 1963), col. 1231.

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I. Les manuscrits

Les trois témoins manuscrits du texte connus à ce jour sont conservés en Angleterre:

- Londres, British Library, Royal 7 C I (XIVe s.), f. 251v-280r.
- Oxford, Bodleian Library, Laud. misc. 402 (XIVe-XVe s.), f. 203v-216v.
- Cambridge, Jesus College, Q.g.6 (XVe s.), f. 94v-159r.

Le manuscrit de Londres (British Library, Royal 7 C I), du XIVe siècle, est un volumineux codex de 434 folios en parchemin (308 x 193 mm), formé de deux composantes: les f. 1 à 353 et les f. 354 à 434 étaient à l'origine indépendants, sans que l'on puisse dire à quelle époque ils ont été réunis. C'est un manuscrit sans apprêt, qu'aucun ornement ne vient rehausser. La première partie, qui contient le texte qui nous intéresse, est d'une écriture cursive très dense et abrégée, disposée sur deux colonnes. Elle comprend vingt textes de nature surtout parénétique et homilétique: on y trouve le *De oculo morali* de Pierre de Limoges, la *Dieta salutis*, une collection de matériaux de sermons connue sous le nom de *Convertimini*, les fables d'Eudes de Cheriton, des méditations de Bernard de Clairvaux, d'Augustin, de Bonaventure, les *Declamationes Senecae*, le *Stimulus amoris* pseudo-bonaventurien, les *Synonima* d'Isidore de Séville, le *Breviloquium Philosophorum* de Jean de Galles, un sermon, un traité de prédication, des moralités sur Isaïe, le *De animalibus* qui nous occupera ici (f. 251v-280r), puis de façon curieuse le *De re militari* de Végèce René, ensuite des sermons d'Augustin, les *Imagines Fulgencie*, et enfin le *De planctu naturae* d'Alain de Lille.[2] Rien donc de spécifiquement scientifique dans cette collection de textes, qui semble plutôt orientée vers la prédication et la méditation. Le manuscrit provient de la grande abbaye bénédictine de Ramsey, près de Peterborough, comme le montre une note au f. 2v: *liber dompni Willelmi de Ketering monachi Rameseye*.

Le deuxième manuscrit, actuellement à Cambridge (Jesus College, Q.g.6) est à nouveau de provenance monastique: une note du XVe fournit l'ex-libris *Iste liber assignatur novo armariolo in claustro Dunelmensis Ecclesie per venerabilem Magistrum Johannem Auklande priorem eiusdem Ecclesie*. Il s'agit de la cathédrale de Durham, dans le Nord de l'Angleterre, dont le chapitre entourant l'évê-

2. Pour plus de détails sur les textes, voir le catalogue de G.F. WARNER et J.P. GILSON, *Catalogue of Manuscripts in the Old Royal and King's Collections* (London, 1921), vol. 1, p. 174- 176.

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que était formé par une communauté bénédictine. John Aukland en fut prieur de 1484 à 1494.[3] C'est un manuscrit de plus petit format (215 x 133 mm), écrit sur longues lignes en une écriture cursive fortement abrégée, par diverses mains, et comptant 276 folios dans l'état présent. Douze textes se succèdent, dont plusieurs sont communs avec le manuscrit de Londres: dans l'ordre, on rencontre le *De ente et essentia* de Thomas d'Aquin, le *Breviloquium philosophorum* de Jean de Galles, le *Convertimini* déjà cité, des moralités sur Isaie, le *De animalibus* moralisé (f. 94v-159r), les *Declamationes Senecae*, un traité sur les sept péchés capitaux, des sermons, un texte sur les septénaires bibliques, une seconde copie du texte sur les péchés capitaux, des annotations morales et, pour terminer, six sermons.[4] Comme dans le manuscrit de Londres, les textes homilétiques et ascétiques forment la dominante du volume.

Le manuscrit d'Oxford (Laud.misc. 402), se rattache lui aussi à la cathédrale de Durham, du moins à l'époque moderne. Il a appartenu à Antonius Maxton et à Daniel Birkhead, tous deux prébendiers à Durham durant le premier quart du XVIIe siècle, à Augustine Lindsell, connu comme prébendier à Durham en 1619 puis évêque de Hereford,[5] puis à l'évêque William Laud dès 1633,[6] avant de parvenir dans les collections de la Bibliothèque Bodléienne. C'est un manuscrit sur parchemin (250 x 170 mm), de nature composite, car ses 219 folios sont faits de six éléments dont la réunion est sans doute tardive.[7] La dernière partie (f. 133-219) comprend deux textes, écrits en longues lignes, en une écriture datant probablement du XIVe siècle: des Sermons de Robert Grosseteste adressés aux frères mendiants, et le *De animalibus*, qui occupe les f. 203v - 216v.[8]

3. J. LE NEVE, *Fasti Ecclesiae Anglicanae 1300-1500*, vol. 6, *Northern Provinces*, éd. revue par B. JONES (London, 1963), p. 111.

4. Voir le catalogue de M. RHODES JAMES, *A Descriptive Catalogue of the Manuscripts of Jesus College Cambridge* (London, 1895), p. 84-85.

5. La succession des possesseurs n'est pas tout à fait claire, car on trouve deux notes de possession qui se recoupent: 1a (*Dan. Birkhead ex dono ornatissimi magistri Ant. Maxton*), 132v (*Augustine Lindselle ex dono amicissimi Antonii Maxton*). Sur ces personnages, voir le catalogue de COXE cité, aux pages X-XI.

6. Précision au f. 1b: *Liber Guilielmi Laud archiepiscopi Cantuar. et cancelarii universitatis oxon. 1633.*

7. Les parties sont: f. 1-15, 16-31, 32-94, 95-110, 111-132, 133-219.

8. Catalogue H. COXE, *Catalogus codicum mss. Laudianorum, Codices latini* (Oxford, 1858), col. 295-297. Des compléments nous ont été fournis par N. POLLINI (Lausanne et Oxford, Merton College), qui a bien aimablement vérifié quelques points de la description sur place.

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Le *De animalibus* moralisé est donc transmis par trois manuscrits conservés en Angleterre, et qui sont selon toute vraisemblance également d'origine insulaire: tous trois sont en outre de provenance bénédictine, sans que l'on puisse toutefois affirmer qu'ils ont été copiés dans les abbayes dont ils proviennent.

II. Le texte

Aucun des manuscrits n'offre d'indication d'auteur, de date, de milieu d'origine ou de destinataire. Un titre proprement dit ne se présente pas non plus: les manuscrits de Londres et de Cambridge ont seulement, en marge respectivement latérale et supérieure, le titre *De animalibus*, peu spécifique, et qui peut avoir été ajouté postérieurement à la copie. Force est donc de procéder à une analyse interne, afin de cerner les spécificités du texte et de remonter, peut-être, à une mise en situation.[9]

Le prologue[10] commence par gloser, en l'abrégeant, la fameuse citation de Saint Paul dans l'épître aux Romains: *invisibilia enim ipsius a creatura mundi per ea que facta sunt intellecta conspiciuntur* (Rom, 1, 20). Par les choses visibles, nous sommes menés vers l'invisible. L'auteur poursuit en disant que les propriétés des créatures ont été rassemblées par "le très célèbre philosophe Aristote" dans son "Livre sur les animaux", et qu'elles mènent à recommander les vertus et à détester les vices. Le prologue inclut quelques lieux communs de la littérature didactique: brièveté de l'œuvre (*breviter*), et insuffisance de l'auteur *(pro modulo insipiencie mee*). Il conclut: "A ce petit ouvrage suffira une brève explication de l'intention préalable, afin que les préparatifs ne soient pas plus importants que le festin qui suit". Le lecteur n'y apprend donc rien de très précis sur le contexte, mais deux lignes de force se dégagent avec clarté: l'ouvrage se place sous l'autorité d'Aristote, et affiche une volonté de faire œuvre utile pour le salut moral de l'homme.

La structure du texte est calquée sur les dix-neuf livres du *De animalibus* d'Aristote, dans l'ordre où la tradition latine les avait hérités de l'intermédiaire arabe: *Histoire des animaux* (dix livres, avec déplace-

9. Pour l'examen du texte, nous avons eu recours à un microfilm du ms. de Cambridge, qui semble offrir un texte plus complet que les deux autres. Une éventuelle édition devrait assurément prendre en compte les trois copies, sous réserve de nouvelles découvertes de manuscrits.

10. On trouvera en annexe le texte du prologue d'après le manuscrit de Cambridge.

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ment du livre 7 après le livre 9), *Parties des animaux* (5 livres), *Génération des animaux* (4 livres). La division en livres est la seule que présente le texte: dans le manuscrit de Cambridge est réservé au début de chaque livre un espace pour une lettrine, non exécutée, tandis que figure dans la marge le numéro du livre, de 1 à 19. Il n'y a cependant pas 19 sections, mais 18, car il manque le livre 4. Chaque section offre une suite d'extraits d'un livre du *De animalibus*, entrecoupés de moralisations. La traduction du premier extrait permettra de se faire une idée de la teneur de ce texte:

> Certains animaux vivent dans l'eau, puis leur forme se change en une autre forme et ils vivent hors de l'eau, comme celui que l'on appelle en grec *ambides* (vers de vase). Celui-ci vit en effet d'abord dans les fleuves, puis sa forme change, et il devient l'animal dit *astaroth* (oestres). Ainsi, certaines personnes cloîtrées (*claustrales*) vivent d'abord dans la contemplation et les eaux des larmes, par dévotion. Mais après, ils s'adonnent tellement aux affaires et aux soucis du siècle qu'ils changent leur forme de religion et qu'ils cherchent toujours une issue, vers les choses terrestres; ils vivent donc avec des gens qui sont dépourvus de l'humidité de la dévotion, et ils se conforment à eux. Tels sont aussi ceux qui après le baptême ou après l'abondance des eaux dans la pénitence, récidivent et changent leur forme intérieure.[11]

Ensuite on passe à l'éponge, qui reste toujours appliquée à la pierre et évoque ainsi le religieux qui persévère dans l'adhésion au Christ, tandis que l'ortie de mer, appliquée aux pierres mais détachée pour chercher sa nourriture, est à l'image de certains religieux qui, par les appétits charnels et la gourmandise, se séparent du Christ. Le texte présente ainsi une structure didactique stricte, en des interprétations allégoriques parfois longuement développées. Extraits et allégories alternent en une suite continue, sans que soient signalées dans le manuscrit les reprises du discours "factuel".

III. La question des sources

Comme l'annonce le prologue, la source d'inspiration du texte est le *De animalibus* d'Aristote. Vu la date tardive des manuscrits, tant la traduction arabo-latine de Michel Scot (terminée vers 1220) que la traduction gréco-latine de Guillaume de Moerbeke (vers 1260-1270) ont

11. Pour le texte latin de cette section ainsi que des suivantes, voir en annexe. La transcription en annexe donne le texte d'une page complète du ms. de Cambridge, ce qui permet de se faire une idée de la taille de l'œuvre, qui occupe 130 pages.

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pu servir de source. En réalité, le doute n'est guère permis: tout au long du texte, on rencontre des noms d'animaux à consonance arabe, tels qu'ils avaient été latinisés en surface par Michel Scot lorsqu'il traduisait à Tolède le *De animalibus.*[12] La comparaison avec le texte du *De generatione animalium* arabo-latin édité récemment,[13] et avec le texte du manuscrit du Vatican, Chigi E VIII 251 pour l'*Historia animalium* et le *De partibus animalium,*[14] fait apparaître une correspondance nette entre le texte de Michel Scot et les extraits moralisés dans ce "bestiaire aristotélicien". Un premier *terminus post quem* est donc fourni par l'introduction du *De animalibus* arabo-latin en Angleterre, qui ne peut guère se situer avant 1230.[15]

Le *De animalibus* d'Aristote est-il la seule source du texte? A la lecture, c'est l'impression qui se dégage. On rencontre toutefois un renvoi à Solin dans le manuscrit de Cambridge, au livre 8, à propos de la hyène: *Solinus dicit quod hyena non insidiatur feminis* (f. 126v). Il n'y a pas là une exception, mais une confirmation de la source: dans le manuscrit du Vatican, une glose marginale au passage *Hist. An.* VIII (IX), 1, 608b5 fait précisement référence à Solin: *Mentitur Solinus, qui dicit, quod hiena non insidiatur feminis.*[16] L'auteur semble donc bien avoir utilisé comme source exclusive, pour les parties descriptives, le *De animalibus* d'Aristote dans sa version traduite par Michel Scot. Il y a tout au plus glissé l'une ou l'autre addition minime. Ainsi, quand il est question du *spasmus* des enfants, au livre IX, la glose *anglice crampe* apparaît dans le texte.[17] Dans le même registre, voici une addi-

12. Sur cette traduction, voir A.M.I. VAN OPPENRAAIJ: "Quelques particularités de la méthode de traduction de Michel Scot", in *Rencontres de culture dans la philosophie médiévale. Traductions et traducteurs de l'Antiquité tardive au XIVe siècle*, éd. J. HAMESSE et M. FATTORI (Louvain-la-Neuve/Cassino, 1990), p. 121-129.

13. A.M.I. VAN OPPENRAAIJ, éd., *Aristotle, De animalibus. Michael Scot's Arabic-Latin Translation. Part three. Books XIV-XIX: Generation of Animals*, Aristoteles semitico-latinus 5 (Leiden/New York/Köln, 1992).

14. Nous avons pu bénéficier de la transcription effectuée par C. HÜNEMÖRDER et K. VOLLMANN, *Aristoteles latinus. De animalibus libri XIX in der Übersetzung des Michael Scotus, Buch I - XIV* (München, 1994), aimablement mise à notre disposition par les auteurs.

15. Sur les premiers manuscrits du *De animalibus*, voir M.-Th. D'ALVERNY, "L'explicit du «*De animalibus*» d'Avicenne traduit par Michel Scot", in *Bibliotèque de l'École des Chartes* 115 (1957), 32 -42.

16. Transcription HÜNEMÖRDER-VOLLMANN, p. 128 (ms. Chigi E VIII 251, f. 34rb).

17. Ms. de Cambridge, f. 144v, texte correspondant à *Hist. An.*, IX, 12, 588a3.

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tion plus importante, après une allégorie sur l'oiseau d'eau nommé *diarchatez*, qui plonge dans l'eau et y reste immergé longtemps, comme ceux qui se maintiennent par leurs pleurs dans la contemplation: *Sed sunt aliqui similes cuidam parve avi que vocatur anglice diveltumpe que mergit se in aquam et statim vel valde cito erigit se super aquam.*[18] Dans ce passage étranger au *De animalibus*, et qui semble être une addition personnelle, il pourrait s'agir de la foulque (*Fulica atra*), connue sous des noms analogues en moyen anglais, et dont les plongeons sont effectivement de courte durée.[19] Avec la glose *crampe*, cette addition offre la preuve que le texte a été rédigé en Angleterre.

On est loin de se trouver devant une version allégorisée continue du *De animalibus* arabo-latin. Le manuscrit de Cambridge offre, pour chaque livre, non pas le texte complet entrecoupé de moralisations, mais une succession d'extraits. L'auteur a respecté l'ordre où ils apparaissent dans le texte d'origine. Les 65 folios du manuscrit font ainsi se succéder plus ou moins 640 extraits du *De animalibus.*[20] Les passages sélectionnés sont, dans le texte d'origine, parfois rapprochés, parfois fort espacés, si bien que la densité de la reprise est variable: au livre I, selon les nombres repères de Bekker, on rencontre d'abord des extraits proches (487b1, 487b7, 487b12, 417b23, 488a10, 488a13, 488b16, etc.), mais ensuite les citations sont plus distantes (490a31, 492a23, 493b16, 493b26, 494a4, 494b2, etc.).

La densité des extraits varie également d'un livre à l'autre: assez lâche au livre I, elle est plus serrée au livre II, et très serrée pour le livre VIII (soit *Hist. An.* IX).[21] Le compilateur a très nettement opéré des choix dans le texte aristotélicien, ce qui se dégage d'une première approximation:

18. Ms. de Cambridge, f. 132, après une allégorie sur le passage *Hist. An.*, VIII, 12, 615a29.

19. Voir H. KURATH et S. KUHN, *Middle English Dictionary*, part D.4 (Ann Arbor, 1962), p. 1188, au terme *dive-dap*, attesté avec des variantes (*devedop, dovedoppe, dyvedap*, etc.). Le terme traduit le latin *mergus*, lui-même mal circonscrit.

20. Le décompte offre une marge d'approximation, car les citations sont très peu séparées et mises en évidence dans le ms. de Cambridge. Le texte y est, par ailleurs, copié en une écriture cursive fort abrégée et par moments d'une lecture difficile.

21. Ainsi, à partir du f. 126v, on rencontre les passages suivants pour le livre VIII (*Hist. An.* VIII(IX)): 608a22, a34, b5, b19, b26; 609a9, a17, a30, b1, b25, b32; 610a4, a4, a15, a15, a22, a22, etc.

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Ed. Bekker	Ms. Cambridge
Hist. An. 152 p. = 53 %	*Hist. An.* 101,5 p. = 78 %
Part. An. 58 p. = 20 %	*Part. An.* 13,5 p. = 10 %
Gen. An. 74 p. = 26 %	*Gen. An.* 15 p. = 12 %

Dans sa sélection des extraits, le rédacteur a donc privilégié l'*Historia animalium*, passée de 53 % à 78 % de l'ensemble. Sans doute parce que c'était la partie la plus "narrative" de la zoologie d'Aristote, incluant le plus de descriptions de comportements, et que ceux-ci se laissent plus facilement transposer au monde des hommes par la voie de l'allégorie. A l'intérieur des dix livres de l'*Historia animalium*, des glissements se laissent également observer.

		Ed. Bekker	Ms. Cambridge
I.	Organisation du monde animal et description de l'homme:	12 %	3 %
II.	Membres:	9 %	12 %
III.	Organes:	11 %	8 %
IV.	Invertébrés, sensations:	10 %	- -
V.	Reproduction:	7 %	6 %
VI.	Reproduction:	11 %	16 %
VII.	(*Hist. An.* VIII). Modes de vie:	13 %	19 %
VIII.	(*Hist. An.* IX). Caractère et comportement:	19 %	33 %
IX.	(*Hist. An.* VII). Reproduction de l'homme:	5 %	4 %
X.	Reproduction de l'homme:	4 %	0,5 %

On a signalé plus haut l'absence du livre IV, et il importe de s'interroger sur cette élimination. Peut-être tient-elle à un aspect de la réception des livres d'animaux d'Aristote. Le livre IV de l'*Historia animalium* traite essentiellement de la zoologie des animaux dépourvus de sang (c'est-à-dire des invertébrés), ainsi que des sensations. Aristote distingue quatre grands genres d'animaux dépourvus de sang, qu'il nomme

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les animaux mous (c.à.d. les céphalopodes), les animaux à coque souple (crustacés), les animaux à revêtement écaillé (testacés et apparentés) et les animaux à entailles (insectes et apparentés). Aucun de ces genres n'était présent en tant que tel dans les textes didactiques relatifs au monde animal qui avaient cours dans l'Occident médiéval (le *Physiologus* et les Bestiaires, les *Etymologies* d'Isidore de Séville, le *De naturis rerum* de Raban Maur, les encyclopédistes des XIIe et XIIIe siècles). Ignorés du discours savant médiéval, ces quatre genres d'invertébrés n'évoquaient aucun écho direct, et se prêtaient donc mal à une récupération allégorique.

Observons un moment encore les glissements d'accent dans le traitement des dix livres de l'*Historia animalium*. Passant de 12 à 3 % de la matière, le livre premier perd nettement en importance relative, pour une raison qui nous échappe. Les livres sur les membres et les organes (II et III), pris ensemble, restent quasi stationnaires, tandis que les livres traitant de la reproduction des animaux (V et VI) gagnent modérément en importance. En revanche, c'est dans le comportement des animaux (livres VII et VIII, correspondant à *Hist. An.* VIII et IX) que l'accroissement est le plus spectaculaire: d'un total de 32 %, ces deux livres sont passés à 52 % de la matière. Ceci tient sans doute aux dominantes de l'interprétation allégorique traditionnelle du monde animal: dans le *Physiologus* et les Bestiaires, dans les similitudes développées par les encyclopédies moralisées ou les recueils d'*exempla,* ce qui prime est généralement le comportement des animaux. La façon de se nourrir, de chasser ou de se défendre, de trouver son gîte ou de se déplacer, sont autant de propriétés animales qui faisaient facilement l'objet d'une transposition allégorique, à titre d'exemple ou de repoussoir.[22] Dans la zoologie d'Aristote, c'est donc aussi la partie comportementale de l'*Historia animalium* qui était le plus directement utilisable par un moraliste.

Ces observations permettent d'avancer une réponse à la question délicate de la genèse du texte. En effet, l'on peut se demander à juste

22. Voir les actes du colloque *L'animal exemplaire au Moyen Age* (Orléans, septembre 1996), à paraître; e.a., notre contribution *L'allégorie animale dans les encyclopédies latines*. Il manque toujours une étude de quelque envergure sur les procédés à l'œuvre dans l'allégorie animale, analogue à ce qu'a pu faire pour les pierres précieuses C. MEIER, *Gemma spiritalis. Methode und Gebrauch der Edelsteinallegorese vom frühen Christentum bis ins 18. Jahrhundert*, Münstersche Mittelalter-Schriften 34 (München, 1977).

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titre si l'auteur de ce *De animalibus* a sélectionné et moralisé des extraits du *De animalibus* d'Aristote, ou s'il a tout simplement pourvu de commentaires allégoriques un florilège existant, un de ces nombreux recueils d'extraits de la zoologie aristotélicienne, tels qu'on les rencontre dans les manuscrits à partir du milieu du XIIIe siècle.[23] Étant donné que dans notre compilation certaines parties du texte d'Aristote sont fort réduites ou négligées, d'autres priviligiées, et que ces glissements d'accent dans la matière peuvent s'expliquer par des choix en vue de la moralisation, il nous semble plus probable que le compilateur de ce *De animalibus* moralisé a fait l'intégralité du travail.

Dans l'ensemble, les extraits ne sont pas récrits ou synthétisés, mais respectent la formulation du texte de Michel Scot. Il ne semble pas non plus se produire de phénomènes d'adaptation des descriptions, en fonction d'une leçon allégorique déterminée, comme cela a pu s'observer dans la tradition du *Physiologus* et des Bestiaires. L'autorité du texte d'Aristote a sans aucun doute empêché de tels aménagements.

IV. L'interprétation allégorique

Les interprétations allégoriques forment la raison d'être de ce texte singulier. Il importe donc d'en dégager quelques lignes de force, sans prétendre pour autant épuiser un sujet qui mériterait une petite monographie.

Tous les livres du *De animalibus* n'ont pas été pourvus de la même manière de leçons allégoriques par le rédacteur: Déjà, aux livres 12 et 13, certains extraits ne sont pas suivis de moralisations, et ceci s'accentue au livre 14, aux trois quarts dépourvu. A partir du livre 15 (f. 152), on ne relève plus de moralisations du tout, à quelques rares exceptions près. Les 125 extraits des cinq livres du *De generatione animalium* (15-19) se suivent donc sans plus donner lieu à des leçons allégoriques, et ne sont guère plus qu'un florilège. Par rapport à son intention et sa structure initiales, l'ouvrage apparaît dès lors inachevé.

Dans les livres moralisés, les leçons qui suivent les extraits sont introduites par des formules du type *huiusmodi sunt, sic, exemplum de, significat, assimilatur*, quelques fois aussi *adapta ad*, ou une interpellation directe au lecteur. Au début du manuscrit de Cambridge, un mot-clef de la moralisation est également noté dans la marge, par une for-

23. Ces textes sont encore très peu connus et ont parfois échappé aux répertoires existants. Voir dans ce volume l'article de Pieter BEULLENS.

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mule du type *contra luxuriosos*, *contra detractores in claustro*, etc. Ce système pourrait avoir été emprunté aux encyclopédies pourvues de telles notes marginales, comme le *De naturis rerum* d'Alexandre Neckam[24] ou le *Liber de proprietatibus rerum* de Barthélemy l'Anglais,[25] toutes deux bien diffusées en Angleterre. Les notes marginales disparaissent cependant après le f. 103 du manuscrit de Cambridge,[26] et comme elles ne se retrouvent pas dans le manuscrit de Londres, il faut y voir, plutôt qu'un système prévu d'emblée par l'auteur du texte, une addition isolée visant à rendre le texte plus maniable.

Comme les extraits édités en annexe permettent de le constater, les interprétations sont détaillées et développent le plus souvent de façon explicite les parallélismes entre le trait naturel et l'exploitation. Le texte offre parfois plus d'une leçon pour un trait, et ceci en sens opposé, *in bonum* puis *in malum*, ou inversément. Ainsi, l'oiseau rapace, qui fait son nid en hauteur, représente d'abord ceux qui s'élèvent par la contemplation, mais il est aussi à l'image du diable, à l'affut des âmes égarées: *aliter diabolus qui insidiatur animabus et est uncorum unguium.*[27] C'est toute l'ambivalence du symbolisme animal médiéval.[28]

Peut-on relever des accents particuliers parmi les quelque 490 moralisations du manuscrit de Cambridge?[29] On sait que l'allégorie animale peut suivre les mêmes voies que l'allégorèse biblique, invitant le lecteur ou l'auditeur à établir des parallèles avec l'histoire sainte

24. Alexander Neckam, *De naturis rerum*, éd. T. WRIGHT (London, 1863).

25. *Bartholomaei Anglici De genuinis rerum... proprietatibus libri XVIII* (Francoforti 1601, rééd. Frankfurt am Main, 1964). Sur l'importance des notes marginales (absentes de l'édition de Francfort), voir H. MEYER, "Bartholomaeus Anglicus *De proprietatibus rerum*. Selbstverständnis und Rezeption", *Zeitschrift für deutsches Altertum und deutsche Literatur* 117 (1988), 237-273.

26. Par la suite, on rencontre encore de temps à autres une note du type *No(ta)* ou *No(ta) op(timum)*, révélatrice de l'intérêt des utilisateurs du texte.

27. Ms. de Cambridge, f.132, à propos de l'*accipiter* (cf. *Hist. An.*, VIII (IX), 8, 613b31).

28. Réflexions intéressantes à ce propos par M. GERHARDT, "Zoologie médiévale. Préoccupations et procédés", in *Methoden in Wissenschaft und Kunst des Mittelalters*, éd. A. ZIMMERMANN, Miscellanea Mediaevalia 7 (Berlin, 1970), p. 231-248.

29. Pour les besoins de cette enquête, nous avons dépouillé l'intégralité du texte dans le ms. de Cambridge, en résumant le trait naturel et en notant les mots-clef de l'interprétation. Il n'a pas été possible de vérifier la correspondance des leçons dans les deux autres mss, ce qui est laissé à une étape ultérieure du travail.

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(lecture allégorique au sens strict, ou typologique), la morale personnelle ou sociale (sens tropologique ou moral), le salut de l'âme et la vie future (sens anagogique). Une vue d'ensemble des leçons fait apparaître la grande rareté des modalités allégorique *sensu stricto* et anagogique, au profit de la modalité tropologique, qui domine entièrement le texte. Dans ce registre, les réflexions sur la réforme des mœurs sont à l'avant-plan. Toutes les vertus et tous les vices sont représentés, mais avec certaines insistances. Ainsi, ce qui est lié à la luxure (*luxuria, delectatio carnalis, voluptas, sensualitas, lecatores, fornicatores, concupiscentia*) occupe avec 52 cas sur 490 plus de 10 % des moralisations. La cupidité et l'avarice comptent chacune pour un peu moins de 5 %, suivies par la gourmandise et la médisance. Du côté des pratiques vertueuses, un accent tout particulier est mis sur la pénitence et ce qui peut y contribuer (47 cas).

La morale sociale est peu détaillée, et l'on trouve peu de leçons adressées spécifiquement à des catégories socio-professionnelles (juges, baillis, marchands). Une insistance pourtant: le monde religieux est fortement présent, avec quelque 60 leçons mentionnant les *religiosi, claustrales, contemplativi*, ou quelque aspect de la vie *in claustro*. Sans surprise, les princes et puissants sont pris à parti (19 cas), et un antiféminisme prononcé se manifeste par endroits (18 cas). Dans ce dernier registre, un motif d'indignation précis mérite l'attention: les *mulieres cornute* (13 cas). Ainsi, au livre II, Aristote affirme que "les animaux à cornes ont les pieds fendus", ce qui est exploité *contra mulieres cornutas.*[30] Plus loin, la règle "tout quadrupède vivipare ayant des cornes n'a pas de dents supérieures" est exploitée: *Nota quod contra naturam est quod iuvenes mulieres sint cornute.*[31] Au livre VIII (*Hist. An.* VII), les sections sur les cerfs qui perdent leurs bois sont abondamment glosées en ce sens.[32] Il y a ici un élément possible de datation: d'après les recherches de la *Alltagsgeschichte*, poursuivies surtout par les médiévistes allemands et anglo-saxons, il semble que le chaperon à cornes, dont le principe est qu'il enserre deux cônes de cheveux montés en corne à hauteur des oreilles, se soit répandu à la fin du XIVe siècle.[33] Le Moyen Age tardif multiplie les critiques envers ces

30. Ms. de Cambridge, f. 97v; cf. *Hist. An.*, II, 1, 499b15

31. Ms. de Cambridge, f. 101; cf. *Hist. An.*, II, 17, 507a33.

32. Ms. de Cambridge, f. 129r et 129v.

33. H. HUNDSBICHLER, "Kleidung", dans H. KÜHNEL (éd.), *Alltag im Spätmittelalter* (Graz/Wien/Köln, 1984), p. 232-259, à la page 241, au sujet de la *Hörnerhaube*. H. KÜHNEL, art. *Hörnerhaube*, dans *Bildwörterbuch der Kleidung und Rüstung* (Stuttgart, 1992), p. 119, date cette mode entre 1380 et 1460. Voir aussi I. BROOKE, *English*

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extravagances de costume: on le voit dans les lois somptuaires, les sermons, etc.[34] Dans le *De animalibus* moralisé, la virulence de ce point de critique semble attester que le phénomène est récent et doit être combattu à la racine. Sous bénéfice de vérification, le texte dont il est question ici ne serait donc pas antérieur au troisième quart du XIVe siècle, quand apparaît ce trait d'accoutrement.

V. Questions d'origine

Les observations qui précèdent permettent d'avancer quelques éléments pour une mise en situation du texte. Manifestement, le *De animalibus* moralisé est d'origine anglaise, ce qu'attestent des aspects tant de critique externe (provenance ancienne des manuscrits) qu'interne (gloses anglaises dans le texte). Sa datation se situe probablement après le milieu du XIVe siècle, quand apparaît le chaperon à cornes dans le costume féminin, et avant la fin du siècle, si la datation des manuscrits de Londres et d'Oxford est à retenir.

Ce *De animalibus* met en œuvre l'exploitation pour la parénétique d'un texte de haut niveau scientifique. Un prédicateur pouvait y trouver une matière neuve pour introduire ou agrémenter des sermons adressés à un public cultivé. On pourrait penser en première instance au milieu des ordres mendiants, activement impliqués dans la réception de la science naturelle,[35] et en particulier des textes aristotéliciens en Angleterre,[36] et rédacteurs d'ouvrages tant encyclopédiques que moralisants.[37] L'environnement textuel du *De animalibus* moralisé dans les manuscrits n'est pas sans traces de ce milieu: dans le manuscrit de

Costume of the Later Middle Ages. The 14th and 15th centuries (London, 1936). Cependant, il semble bien que, dès la fin du XIIIe siècle, l'on ait parfois désigné par le mot "cornes" toute bosse de cheveux, même latérale: voir Mireille MADOU, "Cornes et cornettes", in *Flanders in a European perspective. Manuscript Illumination around 1400 in Flanders and Abroad*, ed. M. SMEYERS-B. CARDON (Leuven, 1995), p. 417-426.

34. Cf. M. MADOU, *Le costume civil*, Typologie des sources du Moyen Age occidental 47 (Turnhout, 1986).

35. R. FRENCH et A. CUNNINGHAM, *Before Science. The Invention of the Friars' Natural Philosophy* (Aldershot, 1996).

36. Voir R.J. LONG, "The Reception and Use of Aristotle by the Early English Dominicans", in *Aristotle in Britain during the Middle Ages*, éd. J. MARENBON, Rencontres de Philosophie médiévale 5 (Turnhout, 1996), p. 51-56, ainsi que divers autres articles de ce volume.

37. On pense, pour l'Angleterre, à Barthélemy l'Anglais, Nicole Bozon, John Bromyard, Robert Holcot et plusieurs d'autres.

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Londres, plusieurs textes sont de la plume d'auteurs dominicains ou franciscains (cinq sur vingt), et l'on y trouve des textes qui auront une grande fortune comme matière d'*exempla* des mendiants anglais: les *Imagines Fulgencie* et les *Declarationes Senecae* font partie d'une petite compilation de quatre textes qui a été étudiée récemment sous le nom de *Exempelwerk der englischen Bettelmönche.*[38]

Toutefois, on ne peut dire que les lignes de force de l'interprétation allégorique confirment cette première orientation: un auteur franciscain ou dominicain aurait-il insisté si fortement sur la vie religieuse et la contemplation ? En outre, le monde des études n'est pas mis en exergue: il n'y a guère d'allusion aux maîtres ou aux étudiants. Au contraire, certaines leçons laissent entrevoir une méfiance à l'égard de la science et des études, ce qu'illustre l'exemple de l'hirondelle. Aristote dit que ces oiseaux ont de bonnes ailes mais les pattes faibles, et qu'ils ont deux couvées par an[39]: le rédacteur les assimile à certains religieux qui ont une charité réduite mais une science étendue; les deux couvées par an sont les fruits de la leçon et de la dispute: *.i. aliqui religiosi qui, caritatem parvam sed scientiam magnam habentes, bis in anno producunt fructum, ut legendo vel disputando.*[40] Ce sont les formes de base de l'enseignement universitaire, la *lectio* et la *disputatio*, qui sont mises ici sous une lumière explicitement négative. Rien dans les trois manuscrits qui ont transmis le *De animalibus* moralisé ne rappelle d'ailleurs directement le contexte universitaire: ce sont des recueils de textes destinés à l'édification et à la méditation. Aussi est-on ramené plutôt vers les milieux bénedictins, dont proviennent les trois manuscrits - sans que l'on puisse dire s'ils y ont été copiés. Les Bénédictins anglais n'étaient par ailleurs pas coupés du monde universitaire: l'abbaye de Ramsey, dont provient le manuscrit de Londres, envoyait régulièrement deux ou trois moines au Canterbury College de Cambridge, afin d'y suivre un enseignement.[41]

38. N. PALMER, "Das 'Exempelwerk der englischen Bettelmönche': Ein Gegenstück zu den 'Gesta Romanorum'?", in *Exempel und Exempelsammlungen*, éd. W. HAUG et B. WACHINGER (Tübingen, 1991), p. 137-172.

39. *Hist. An.*, VI, 5, 563a12.

40. Ms. de Cambridge, f. 111v.

41. R.B. DOBSON, "Ramsey", in *Lexikon des Mittelalters*, 7 (München, 1995), col. 431-432. Durant le bas Moyen Age, l'abbaye ne semble pas avoir été un centre intellectuel important, mais il manque d'études à ce sujet.

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Remaniement moralisé partiel des traités sur les animaux d'Aristote, le *De animalibus* insulaire constitue une curiosité dans le panorama de la réception des écrits zoologiques d'Aristote. S'il est vrai qu'une utilisation de cette "nouvelle" zoologie dans le cadre de l'homilétique est attestée au préalable, par exemple dans les sermons de saint Antoine de Padoue (1195-1231),[42] la rédaction d'un texte spécifique où des extraits du *De animalibus* sont moralisés constitue, dans l'état présent des connaissances, un cas isolé. Il récupère pour les besoins de l'édification un texte de haute scientificité, et va ainsi en quelque sorte à contre-courant d'une ligne d'évolution de la pensée médiévale. D'après une conception souvent sous-jacente aux études sur la connaissance de la nature au Moyen Age, l'entrée de la zoologie d'Aristote sonne le glas de la vision symbolique sur les animaux. A l'aube du XIIIe siècle, le *De animalibus* latin introduit un autre regard, et agit comme un facteur de laicisation de la conception de la nature. Le *De animalibus* moralisé dont il a été question ici cadre mal dans une telle vision des choses. En réalité, le bouleversement aristotélicien n'a empêché en rien la prolifération d'une riche littérature allégorisante sur la nature durant la période qui va de 1250 à 1350.[43] Dans le domaine du monde animal, l'arrivée des nouveaux textes aristotéliciens est sans doute à évaluer de façon nuancée: elle a donné lieu à des discours de niveaux radicalement différents. Plus qu'une césure, elle introduit une modalité supplémentaire dans le discours médiéval sur l'animal.

42. Agostinho FIGUEIREDO FRIAS, "A utilização antoniana do *De animalibus* de Aristóteles nos *Sermones*", in *Congresso internacional "Pensamento e testemunho. 8°centenário do nascimento de Santo António"* (Braga, 1996), vol.I, p. 377-386.

43. Longtemps négligées, les encyclopédies moralisées du Moyen Age tardif ont fait l'objet de travaux récents ou encore en cours d'élaboration en Allemagne (C. Meier-Staubach, H. Meyer), en France (M.H. Tesnière), aux États-Unis (J.B. Friedman) et en Italie (M. Oldoni, J. Ventura). A ce sujet, voir notre article "Bestiaires encyclopédiques moralisés. Quelques succedanés de Thomas de Cantimpré et de Barthélemy l'Anglais", in *Reinardus* 7 (1994), 209-228.

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ANNEXE

De animalibus moralisé.
Ms. Cambridge, Jesus College, Q.g.6
Transcription du prologue et des premières sections (f. 94v)

Quia secundum apostolum invisibilia Dei per ea que facta sunt intellecta conspiciuntur, hoc est Deus invisibilis per creaturas corporales sensui exteriori obiectas ac per species suas intellectu conceptas illarum creator intuetur, ut vel sic in cognitionem et amorem creatoris mei possem utcumque manu duci, creaturas suas ac illarum proprietates secundum tradicionem nominatissimi philosophi Aristotelis in libro suo de animalibus brevissima quadam nacta oportunitate intuebam solicicius, ex quibus equidem mores hominum commendacionem virtutum ac detestationem viciorum, pro modulo insipiencie mee, breviter et sparsim dignum duxi annotare, sciolisque capacioribus studendi in hac parte materiam ministrare. In sequens igitur opusculum sufficiat breve hoc verbum intencionis preconcepte expressivum ne maior sit apparatus quam sequens convivium.

Quedam animalia vivunt in aqua, deinde mutantur in aliam formam et vivunt extra, sicut quod nominatur grece ambides. Nam ipsa manet in fluminibus prius, deinde mutatur forma eius, et fit ex eo animal quod dicitur astaroth. Sic quidam claustrales primo vivunt in contemplacione et aquis lacrimarum pre devocione. Sed post implicant se tantum negociis et curis secularibus, quod omnem formam mutant religionis, et continuum querunt exitum cum terrenis; cum humore igitur [et] devocionis privatis conversantur et illis conformantur. Huiusmodi etiam sunt post baptismum vel aquarum habundantiam in penitencia recidivantes et formam interiorem mutantes.

Esubes est animal in aqua vivens, quod nec descendit in terram nec separatur a petra cui applicatur. Istud verum significat religiosum qui ad terram, terrenam scilicet conversacionem, non descendat, sed continue in aquis devocionis et fletus perseverat, nec separatur a petra Christo cui firmiter adheret.

Quedam animalia sunt applicata ad petram et fiunt absoluta quando querunt suum nutrimentum, sicud genus quod dicitur almalichi, quod quidem exit a loco suo nocte et pascitur. Huiusmodi sunt religiosi qui per carnalem et gulosum appetitum separantur a Christo, et hoc de nocte, vincente scilicet dyabolica temptacione, qua separati sunt a Deo

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primi parentes nostri in claustro paradisi, quod etiam expulsio illorum ab illo loco voluptatis in hanc vallem miserie ab irriguo paradisi quam fons devocionis Christus irrigabat, in terram arentem conpetenter significabat. Potest etiam adduci interdum contra illos qui tempore quadragesimali per penitentiam Christo adherent, sed cito post Pascham per gulam et concomitantem luxuriam ab eo recedunt in regionem longinquam. Exemplum de filio prodigo de quo Lucas loquitur.

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MICHAEL CAMILLE

BESTIARY OR BIOLOGY? ARISTOTLE'S ANIMALS IN OXFORD, MERTON COLLEGE, MS 271

> The Lord created different creatures with different natures not only for the sustenance of men, but also for their instruction, so that through the same creature we may contemplate not only what may be useful to use in the body, but also what may be useful in the soul.... there is no creature in which we may not contemplate some property belonging to it which may lead us to imitate God, or some property which may move us to flee from the Devil. For the whole world is full of diverse creatures, like a manuscript full of different letters and sentences in which we can read whatever we ought to imitate or flee from.
>
> Thomas of Chobham, *Summa de arte praedicandi.*[1]

> Having already treated of the celestial world, as far as our conjectures could reach, we proceed to treat of animals, without omitting, to the best of our ability, any member of the kingdom, however ignoble. For if some have no graces to charm the sense, yet nature, which fashioned them, gives amazing pleasure in their study to all who can trace links of causation, and are inclined to philosophy. Indeed, it would be strange if mimic representations of them were not attractive, because they disclose the mimetic skill of the painter or sculptor, and the original realities themselves were not more interesting, to all at any rate who have eyes to discern the causes.
>
> Aristotle, *De partibus animalium*, I, 5, 645a4-10.

These two quotations, the first from a treatise on the art of preaching by the English theologian Thomas of Chobham (d. 1236) and the second from Aristotle's *De animalibus* which first became available in the Latin West after 1220 in Michael Scot's translation from the Arabic, represent two quite different and what would at first seem quite anti-

* I would like to thank the Warden and Fellows of Merton College Oxford for allowing me to examine Merton College MS 271 and for permission to reproduce whole folios of it here, especially Dr. A.S. Bendall, Fellow and Librarian, who speedily provided information and organized the photography. I am also grateful to Pieter Beullens and Allan Gotthelf for their advice on the textual history of the *Historia animalium*.

1. Thomas of Chobham, *Summa de arte praedicandi*, ed. F. MORENZONI (Turnhout, 1988), p. 275.

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thetical models of understanding the animal world. Both emphasize mimesis - assuming that animals are marvellous and beautiful, worthy of human representation and reflection. But whereas the Christian model of interpretation, established much earlier by St. Augustine views animals as a text to be read in order to reach a higher, allegorical and usually Christological significance, 'the philosopher' argues that animals are interesting and moreover pleasurable objects of study in their own right. This same distinction can be observed in the various pictorial modes for representing animals in medieval manuscripts. Corresponding to Chobham's approach is the well-known Bestiary – the most popular animal encyclopedia of the Middle Ages, which was based on the early Christian *Physiologus*, Isidore of Seville and the *Hexameron* of Ambrose.[2] With its exegetical framework, the Bestiary was especially popular in monastic contexts in the twelfth and thirteenth centuries and the development of its extensive and complex pictorial program has been the object of many art-historical studies.[3] By contrast animal representations in Latin manuscripts made for the new university audience, that are found in the treatises that comprise Aristotle's *De animalibus* - remain relatively unknown. This paper attempts to redress the balance. Starting from this question of whether the mode of animal illustration in these radically different Latin texts conforms

2. For the *Physiologus* see N. HENKEL, *Studien zum Physiologus im Mittelalter* (Tubingen, 1976); M.J. CURLEY, trans., *Physiologus* (Austin and London, 1979); U. TREU, ed., *Physiologus. Naturkunde in frühchristlicher Deutung* (Hanau, 1987) and F.N.M. DIEKSTRA, "The Physiologus, The Bestiary and Medieval Animal Lore," *Neophilologus* 69 (1985), 142-155.

3. For a full list of Bestiary manuscripts see *Beasts and Birds of the Middle Ages: The Bestiary and its Legacy*, ed. W.B. CLARK and M.T. MCMUNN (Philadelphia, 1989), pp. 197-203 and for the illustrated English Bestiary tradition D. HASSIG, *Medieval Bestiaries: Text, Image, Ideology* (Cambridge, 1995) pp. 183-187 as well as the articles of X. MURATOVA, especially "Problèmes de l'origine et des sources des cycles d'illustrations des manuscrits des bestiares," in *Épopée animale, fable, fabliau. Actes du IVe Colloque de la Société Internationale Renardienne* (Évreux, 7-11 septembre 1981), ed. G. BIANCIOTTO and M. SALVAT (Paris, 1984), pp. 383-408. For the French tradition and its illustration see Florence MCCULLOCH, *Medieval Latin and French Bestiaries* (Chapel Hill, 1962), pp. 45-69. The most accesssible modern English translation of the Bestiary is T.H. WHITE, *The Bestiary: A Book of Beasts, being a Translation from the Latin Bestiary of the Twelfth Century* (New York, 1954) while a modern French version is provided in the facsimile edition of Oxford, Bodleian Library MS 1511, *Le Bestiaire*, trans. M.-F. DUPUIS et S. LOUIS, presented by X. MURATOVA and D. POIRION (Paris, 1988).

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to their divergent philosophical positions, it will focus on one particularly important thirteenth-century illuminated copy of Aristotle's *De animalibus*.

The image which usually begins the Bestiary can be seen in Oxford Bodleian Library, MS Ashmole 1511, made in England c. 1200 - the creation of the animals (fig. 1.)[4] In the full-page miniature God as the Logos-Creator on the left stands outside nature, pointing to the neatly organized rows of various quadrupeds, from elephant to antelope, ranged before him on the right. By contrast, the opening page of a thirteenth-century Southern Italian manuscript of Aristotle's *De animalibus* now in San Marino, Huntington Library MS. 1035 has an altogether more mundane opening image (fig. 2).[5] The arms in the bas-de-page indicate that this manuscript was written for Charles I of Anjou (1266-85). Although it has this lay patron this is not a 'picture-book' in which images predominate, like the Bestiary, but a scholarly text which opens with only a single small historiated initial letter. The rubric reads: "Incipit liber primus Aristotelis natura animalium quem transtulit magister Michael Scotus de greco in latinum X libros." Most manuscripts of Scot's translation, unlike this one, do not divide the *De animalibus* into the *Historia animalium* in ten books, the *De partibus animalium* in four books, and the *De generatione animalium* in five books, but number them consecutively from one to nineteen. In the initial we see a seated philosopher or teacher in the same position as God in the Bestiary miniature, but here addressing a group of standing students with his right hand and pointing down with his left to the various types of animals discussed in the text who are ranged below his doc-

4. See the discussion by X. MURATOVA, "Les manuscrits-frères: un aspect particulier de la production des Bestiaires enluminés en Angleterre à la fin du XIIe siècle," in *Artistes, artisans et production artistique au Moyen Age*, 3, ed. X. BARRAL I ALTET (Paris, 1990), pp. 69-92. The second illumination in many Bestiaries, which shows a human in relation to other beasts, depicts Adam giving names to the animals. This again contrasts to Aristotelian ideas; because Aristotle's text deals with knowledge gained through the senses rather than linguistic nomination, which in Isidore of Seville's *Etymologiae* provides a basis for interpretation; see X. MURATOVA, "Adam donne leurs noms aux animaux," *Studi Medievali* 18,2 (1977), 367-394.

5. For the Huntington MS see *Aristoteles Latinus*, codices descripsit G. LACOMBE in societatem operis adsumptis A. BIRKENMAJER, M. DULONG, Aet. FRANCESCHINI, Pars Prior (Rome, 1939), pp. 80-81 and *Guide to Medieval and Renaissance Manuscripts in the Huntington Library*, ed. C.W. DUTSCHKE, (San Marino, 1989), 1, pp. 299-301.

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tor's chair. Whether this represents Aristotle himself, the author, or Michael Scot, the translator, is unclear, but what is stressed in any case is the human perception and understanding of nature and not its divine creation. This formula for representing the philosopher in his chair examining the elements of nature can be found in thirteenth-century illustrations of Aristotle's other works.[6] It exemplifies the relationship between observation and philosophical inquiry set up in Aristotle's text in which animals are seen as useful objects of human knowledge and not as they appear in the Bestairy, as symbolic representations in the "Book of Nature".[7]

The Huntington manuscript forms part of a corpus I am in the process of putting together of all extant illustrated Latin manuscripts of Aristotle's works that were produced during the thirteenth and early fourteenth centuries, a veritable *Aristoteles Illuminatus*. These images provide a unique insight into the role of the visual arts in the medieval university curriculum, attempting as they do, to visualize Aristotelian concepts for masters and students. As is well known, the rediscovery and translation of Aristotle's works on natural science had a profound impact upon religious faith, scientific knowledge, philosophical epistemology and even art itself during the course of the thirteenth and fourteenth centuries.[8] What is not so well known, not only among histori-

6. As is the case with an initial produced at the University of Paris in the 1270's in Biblioteca Apostolica Vaticana, MS vat. lat. 2071, fol. 275v. opening *De sensu*. Here a seated philosopher peruses a strange collection of creatures, including an elephant and birds, from his magisterial chair, probably because the first sentence of Aristotle's text here describes how in understanding the senses it is necessary to "consider animals and all things possessed of life." Reproduced in M. CAMILLE, "The Eye in the Text: Vision in the Illuminated Manuscripts of the Latin Aristotle," *View and Vision in the Middle Ages*, *Micrologus* 6 (1998), 129-145, Fig. 6.

7. The contrast between Augustinian and Aristotelian traditions of writing about animals is explored in M. de BOÜARD, "Encyclopédies médiévales: sur la 'connaissance de la nature et du monde' au moyen âge," *Revue des Questions Historiques*, 16 (1930), 258-304 and G. BIANCIOTTO, *Bestiaires du Moyen Age* (Paris, 1980), pp. 12-14. See also the very useful general discussion of medieval animal representations in F. KLINGENDER, *Animals in Art and Thought to the End of the Middle Ages* (London, 1971), pp. 87-88.

8. See F. VAN STEENBERGHEN, *Aristotle in the West. The Origins of Latin Aristotelianism* (Louvain, 1970); G. VERBEKE, "L'Aristote Latin," in *Contemporary Philosophy. A New Survey*, ed. G. FLOISTAD (Dordrecht, 1990), 6/2, pp. 749-772; and B.G. DOD, "Aristotle in the Middle Ages," in *The Cambridge History of Later Medieval Philosophy*, ed. N. KRETZMANN, A. KENNY, J. PINBORG (Cambridge 1982), pp. 46-79.

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ans and philosophers of science, but also among art historians, is how often these revolutionary new texts were themselves illustrated.[9] Even a cursory reading of the *Historia animalium* suggests that Aristotle must have prepared a large selection of anatomical diagrams and sketches, now lost. However, what is significant for our purpose and what will be the main theme of this paper is how this contrast, which I have stressed at the outset, between the 'symbolic' approach of the Bestiary and the 'naturalistic' approach of Aristotle, does not always apply to the representations of the animals themselves. In their new Aristotelian context the representation of animals continues to show the persistent influence of Bestiary themes and traditional medieval modes of animal apprehension. This is true both on the formal and iconographical level. On the formal level the animals have the same schematic heads and snouts in both the Ashmole Bestiary (fig. 1) and in the Aristotle initial (fig. 2). In fact the artists of both Latin manuscripts depict the various beasts using the very same conventions. So powerful are the visual stereotypes of the artistic tradition, they override any new critical expectations in the text. More interesting and surprising is the way that some of the symbolic themes visualized in the Bestiary also occur in Aristotelian manuscripts.

Animals are referred to throughout the Aristotelian corpus, especially the *Corpus vetustius* and the well-established texts of the *Organon* already appearing in illuminated copies by the beginning of the century. Even those more controversial treatises of the *Libri naturales* like the *Physics* that were not to enter the curriculum of the University of Paris until later are sometimes elaborately illuminated with historiated initials. It is significant that we do not find many carefully illustrated copies of the biological works at this date. This is for two main

9. See M. GRABMANN, "Einrichtung und Anordnung der lateinischen Aristoteleskodices des Mittelalters," in *Gesammelte Akademieabhandlungen* (Munich, 1979), 2, 155-162; *La vie universitaire parisienne au XIIIe siècle* (Chapelle de la Sorbonne, 1974), pp. 11-113; R. BRANNER, *Manuscript Painting in Paris During the Reign of St. Louis* (Berkeley, 1977), p. 125; M. CAMILLE, "Illustrations in Harley MS 3487 and the Perception of Aristotle's *Libri naturales* in Thirteenth Century England," in *England in the Thirteenth Century: Proceedings of the 1984 Harlaxton Symposium*, ed. W.M. ORMROD (Suffolk, 1986), pp. 31-45; "The Discourse of Images in Philosophical Manuscripts of the Late Middle Ages: Aristoteles Illuminatus," in *Album. I luoghi dove si accumulano i segni (dal manoscritto alle reti telematiche). Atti del Convegno di studio della Fondazione E. Franceschini e della Fondazione IBM Italia*, ed. C. LEONARDI, M. MORELLI e F. SANTI (Spoleto, 1995), pp. 93-110.

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reasons: first because of the relatively late appearance of the biological treatises, which were not translated until c.1220 by Michael Scot in Toledo, and second due to their lesser role in the curriculum in comparison with the *Physics* or the logical works. This accounts for the smaller number of manuscript copies of the complete *De animalibus* (only 40 MSS contain all five treatises) and the dearth of presentation copies containing illustrations. Of over one hundred manuscripts in my corpus, I have as yet seen only two richly illuminated copies of Michael Scot's translation, Pommersfelden Schloss Bibl., MS 124 and St. Gallen, MS 836.[10] The new translation of the various works made later in the century from the Greek by William of Moerbeke was much more popular to judge by the 37 extant manuscripts.[11] However, this too was not usually illuminated beyond the traditional opening initial and standard border decoration, with a few exceptions.

In the rest of this paper I want to examine the illustrations of one of those exceptions - Oxford Merton College MS 271 (Figs. 3-12: for a complete description, see the Appendix). Although this large and splendid volume was used in the teaching of the arts curriculum at Oxford and is listed in the college's 1375 catalogue, it was originally produced in Paris.[12] Its format and page design link it to a number of splendidly decorated manuscripts of university texts produced in the French capital towards the end of the century.[13] Aristotle's *De animali-*

10. For the Pommersfelden manuscript see *Die Grafen von Schönborn: Kirchenfürsten, Sammler, Mäzene* (Germanisches Nationalmuseum, Nürnberg, 1989), pp. 470-471, no. 364, which was produced in Paris ca. 1240 by the same Parisian workshop that produced a series of early illustrated Aristotles, now in Erfurt, discussed and reproduced in *Miniatura der Erfurter Amploniana*, ed. C. PIOSSEK (Erfurt, 1990), Figs. 80-82.

11. See *The Cambridge History of Later Medieval Philosophy*, p. 77, and the important article by P. BEULLENS, "Quelques observations sur la traduction de l'*Histoire des Animaux* d'Aristote par Guillaume de Moerbeke," *Bulletin de Philosophie Médiévale* 34 (1992), 181-196.

12. *Aristoteles Latinus*, Pars Prior, no. 367; E. TEMPLE and J.J.G. ALEXANDER, *Illuminated Manuscripts in Oxford College Libraries* (Oxford, 1986), no. 684; F.M. POWICKE, *The Medieval Books of Merton College* (Oxford, 1931), p. 143. It is an important manuscript for the edition of *Gen. An.*; see H.J. DROSSAART LULOFS, *De Generatione Animalium: Translatio Guillelmi de Moerbeka: Aristoteles Latinus XVII.2* (Bruges and Paris, 1966), pp. XV, XXV.

13. C. DE HAMEL, *A History of Illuminated Manuscripts* (London, 1994), p. 129, plate 111, reproduces fol. 17v. of the Merton manuscript and dates it "c. 1250-75". J.J.G. ALEXANDER and E. TEMPLE, *Illuminated Manuscripts in Oxford College Libraries and University Archives and the Taylor Institution* (Oxford, 1985), no. 684, describe it as "North France Saec. XIII3/4". I would link it to a number of university texts

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bus was one of the list of required texts taught at the Faculty of Arts of the University of Paris in 1255. Along with the *Physics* and the *Metaphysics* lectures on it might not be completed before the Feast of St. John the Baptist (24th June).[14] The Merton manuscript was probably produced for a master in the schools rather than an ordinary student, or at least someone with considerable financial resources. Not only do each of the five treatises open with a large historiated initial but so do the smaller book divisions. Moreover, placed around the two column text on these pages are elaborate marginal scenes of animal life by the same skilled illuminator. The opening rubric in the manuscript (fig. 3) *Liber primus de hystoriis animalium* would have suggested to any French reader of the period the idea of illustration, since the word *historia* or *histoire* was an official term used in manuscript production to describe the painted pictures.[15] However, whereas the Bestiary can be described as containing 'histoires' in the form of framed pictures dividing up the text, like illustrations in historical narratives, romances and encyclopedic works, the system of illustration used for Aristotle's works was based upon that used for Bibles and Psalters - the sacred texts par-excellence. Representation is either contained within "the Word' - that is, in the large historiated initials, or is confined to the margins of the text like a gloss. Creating such a splendid copy of Moerbeke's relatively new translation, the designers of the Merton manuscript were not producing a student text but the appearance of textual glosses and emendations suggest that it was intended for academic use and was not merely a lavish presentation volume. One context for its production might be the interest in Aristotle's biology within the Dominican *studium* of Paris where readers of Aristotle's biological texts like Albertus Magnus and Thomas of Cantimpré had urged that philosophers " consider the forms of creatures and delight in the artifex who made them."[16]

with a similar format produced for the University of Paris ca. 1280-90, for example a Bartholomaeus Anglicus, *De proprietatibus rerum*, MS Hunter 391; cf. *The Glory of the Page. Medieval and Renaisance Illuminated Manuscripts from Glasgow University Library* (London, 1987), p. 73.

14. H. DENIFLE, *Chartularium Universitatis Parisiensis*, I (Paris, 1889), p. 278.

15. P. DURRIEU, "L'enlumineur et le miniaturiste," *Comptes rendus: Académies des inscriptions et belles-lettres* (1910), 330-346 and J. CERQUIGLINI, "Histoire, image: accord et discord des sens à la fin du moyen âge," *Littérature* 74 (1989), 110-125.

16. Thomas of Cantimpré, *Liber De natura rerum*, ed. H. BOESE (Berlin and New York, 1973), p. 120. For a general discussion of Dominican interest in animals see R. FRENCH and A. CUNNINGHAM, *Before Science: The Invention of the Friars' Natural*

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Our expectation, that the animals in this manuscript will function in a way which links them to Aristotelian ideas in the text is however undermined from the very beginning. The first indication we have that this manuscript is 'inflected' not to say 'infected' with Bestiary imagery is evident in the initial to Book I of the *Historia animalium* (fig. 3). The text opens with the important discussion of the theory of division and identity of parts making up a 'genus' but in the initial is the animal that heads every Bestiary, "Leo the lion, mightiest of beasts".[17] Although the first animal mentioned in Aristotle's text is the horse, the lion is the highest in the hierarchy of the beasts in the Christian tradition, since it could signify, along with many other things, Christ. A powerfully-drawn lion turning its head frontally to face the reader is thus the first beast pictured in this manuscript. It is interesting to note that while the upper half of the letter shows a lion the lower half shows various animals intertwined in vegetation, the illuminator showing much more skill at depicting leaves of oak and ivy than in his observation of animals. For Aristotle the study of animals and plants was all part of the same study of nature. This non-separation between plants and animals is embodied in the decoration of this manuscript where animals are often depicted embedded in vegetative initials or standing on borders created out of leaves, flowers and vines.

Looking from the initial to the animal represented in the margins of this first page, we see in the lower bas-de-page the scene of three hounds chasing a stag. One of the problems with the representation of animals in medieval manuscripts is that it is hard to separate their decorative or liminal function from their illustrative function within the text and this is certainly the case with this manuscript. For example, the hybrid dragon-monster which terminates the bar border at the top left just below the large historiated initial is a representation of a beast of sorts with a different meaning and ontology than the lion depicted in

Philosophy (London, 1996), pp. 178-179, and in the university system, M.M. MULCHAHEY, "The Dominican *Studium* System and the Universities of Europe in the Thirteenth Century: a Relationship Reconsidered," in *Manuels, programmes de cours et techniques d'enseignement dans les universités médiévales* (Louvain-la-Neuve, 1994), pp. 277-325.

17. For a discussion of the 'natural' and 'figurative' significance of the lion in the Bestiary, see L. KORDECKI, "Making Animals Mean: Speciest Hermeneutics in the *Physiologus* of Theobaldus," in *Animals in the Middle Ages: A Book of Essays*, ed. N.C. FLORES (New York, 1996), pp. 94-95.

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the letter. Art historians have rarely considered marginal images a part of the iconographic program of the book but these are often just as important as the images found within the letters or miniatures themselves. The bulk of illuminated copies of Aristotle's Latin works were produced in Paris at the very period when marginal art flourished, from c. 1250 to 1320.[18] In this particular case there is no perceptible difference between the animals that are painted inside the initials and those that prance in the lower and upper margins. Both are by the same artist and show a highly schematized approach to animal depiction, creating the heads of quadrupeds, for example, from curving lines and circles which make it hard to distinguish one beast from another.

The three hounds chasing the stag in the bas-de-page of fol. 1 (fig. 3) is in fact a ubiquitous motif found in this position in multifarious manuscript texts of the period - Bibles, Psalters, Books of Hours, vernacular romances of all types as well as more learned treatises by Aristotle and Seneca.[19] Usually running in the left-to-right direction of reading the motif might best be seen as a metaphor of reading itself, the eye's hunt for knowledge along the fields of the ploughed page. The stag (*cervus*) in the French as well as English Bestiaries has a complex of Christological meanings associated with its overcoming the serpent. Augustine's commentary on Psalm 41 had compared the stag seeking the *fons vitae* as the Christian running after knowledge.[20] There was also the belief, emphasized in the French Bestiary tradition as well as the encyclopedist Vincent of Beauvais, that the stag could rejuvenate himself which makes it the "oldest animal there is."[21] Aristotle, in Book VI of the *Historia animalium* refutes this notion, arguing that "Fabulous stories are told concerning the longevity of the animal, but the stories have never been verified, and the period of gestation and the growth of the fawn would not lead one to attribute extreme longevity to this creature." (*Hist. animal.*, VI, 29 578b23-26). The stag hunt with

18. See the indispensable catalogue of marginal themes in L.M. RANDALL, *Images in the Margins of Gothic Manuscripts* (Berkeley, 1966). M. CAMILLE, *Image on the Edge: The Margins of Medieval Art* (London, 1992) deals with animal representation on pp. 47-48.

19. See the list of many examples of "dog pursues stag" in RANDALL, *Images in the Margins*, p. 92.

20. PL 36:464-468, discussed in M. BATH, *The Image of the Stag. Iconographic Themes in Western Art* (Baden-Baden, 1992), pp. 210-211.

21. See BATH, *The Image of the Stag*, p. 221, and for the stag in the Bestiary see Hassig, *Medieval Bestiaries*, pp. 40-51, and CAMILLE, *Image on the Edge*, p. 118.

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dogs was one of the most prestigious hunting activities, which probably accounts for it appearing so frequently in Parisian books of this period. The same is true for the dog chasing the rabbit in the bas-de-page found at the opening of Book II of the *Historia animalium* which is even a more popular motif in contemporary texts of all kinds.[22] Here the direction of the chase is 'against the text' from right to left and rabbits also appear in the initial. Rabbits were not included in the *Physiologus* and were only later incorporated into the Bestiary tradition as these small creatures, much sought-after for their meat and fur, became something of a luxury commodity. The ubiquity of rabbits in Parisian manuscript illumination c. 1300 might suggest that they do not have a specific meaning within the other animal depictions of the Merton manuscript, but I do not think they can be described as simply 'decorative'. This assumption is made by Hassig when arguing that "the hare and the rabbit were considered by bestiarists as a food and clothing resource, without important allegorical or moral significance."[23] When Andreas Capellanus wrote his Latin treatise *De Amore* he compared the overlustful to "a shameless dog... for they are affected solely by that animal urge which puts men on a level with the rest of the animal kingdom. They are not moved by man's true nature which makes us distinct from all animals by the difference of reason."[24]

The opening of Book III where Aristotle discusses the organs of generation of blooded animals depicts the division of water and earth in the initial. The blooded creatures on the very tips of the vine borders are a rabbit and a hound. These same two animals, reversing positions, appear in the lower border of Book IV (fig. 4). The dog and rabbit were conventional moralizing symbols at this time, not from the Bestiary but from vernacular love-poetry, where they often refer to the male and

22. For example, the opening of the *Prior Analytics*, London British Library, Burney, MS 275, made for Francesco Caraccioli, Chancellor of the University ca. 1310, fol. 184r. Bibliothèque Mazarine, MS 3469, a copy of Aristotle's *Physics* made for an English student studying at Paris, fol. 1. Aristotle's *Ethics*, Florence, Biblioteca Riccardiana, MS 113, fol. 1; Bartholomaeus Anglicus, *De proprietatibus rerum*, Laon MS 426, fol. 213r; Bible, Oxford, Corpus Christi College, MS 1, fol. 1. These 'university' examples, of which there are many more can be added to the list of 'dog pursuing hare' in RANDALL, *Images in the Margins*, p. 92.

23. HASSIG, *Medieval Bestiaries*, p. 48.

24. Andreas Capellanus, *On Love*, edited with an English translation by P.G. WALSH (London, 1982), p. 41.

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female sexual organs.[25] They are euphemistic ways of depicting what cannot be depicted, as in this page of a famous Parisian manuscript of courtly love songs, Montpellier, Faculté de Médecine, MS H. 196 fol. 63v, where the two lovers seated on a bench each have their respective beasts, the lady her *con*, a furry creature commonly used to describe the female genitals in both Latin and vernacular contexts, and the gentleman his little dog.[26] The dog sometimes catches the rabbit as a sign of copulation visible in the lower part of a Parisian ivory mirror case.[27] In this respect the animals in the margins of the Merton *De animalibus* are representations of a major aspect of the text which treats not only the sexual parts and lives of animals but also, as we shall see, of humans.

Book IV treats bloodless animals and the initial represents fish swimming in water (fig. 4). As Aristotle explains at the outset however, this category includes molluscs (cephalopods), crustaceans, insects and animals with shells but *not* fish, which he counts as blooded and which correspond to our notion of invertebrates. Fish are painted swimming in the sea in the initial and in the lower margin, where they lie grounded on the lower bar. This is a case where the text and illustrations are at odds. In fact throughout the illustrative program there is no awareness or attempt to visually present Aristotle's classification of animals into groups, corresponding to the modern conception of class more than genus. Rather, the illuminators seem to follow the *Physiologus* tradition which divides the animal kingdom into *quadrupedia* (mammals), *aves* (birds), *pisces* (fish, aquatic mammals and assorted marine creatures), *serpentes* (reptiles, including amphibia), and *vermes* (literally worms, but including insect larvae and other miscellaneous creatures). This had been the way visual artists had organized the various forms of the animal world for centuries and this is how the artists of the Merton *Historia animalium* depict them, despite their quite different categorization in this text.

25. See C.K. ABRAHAM, "Myth and Symbol: The Rabbit in Medieval France," *Studies in Philology* 60 (1963), 589-597 and L.O. VASVARI, "A Tale of 'Tailing' in the *Libro de Buen Amor*," *Journal of Interdisciplinary Studies* 2 (1990), 22.

26. Reproduced in M. MÜLLER, *Minnebilder: Französische Minnendarstellungen des 13. und 14. Jahrhunderts* (Cologne, 1996), Abb. 8, and see the discussion of an English contemporary erotic use of rabbits and squirrels in L. FREEMAN SANDLER, "A bawdy betrothal in the Ormesby Psalter," in *Tribute to Lotte Brand Phillip. Art Historian and Detective*, ed. W.C. CLARK (New York, 1974), pp. 155-159.

27. This ivory is reproduced in R. KOECHLIN, *Les ivoires gothiques français* (Paris, 1968), pl. CLXXVIII, no. 1034.

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At the opening of Book V where Aristotle discusses "duly and in order several modes of propagation" a rabbit sits alone on the left bar-border as if watching the bestial couplings in both initial and margin below (fig. 5). These two pairs of beasts illustrate Aristotle's contention that "In animals where generation takes place from animals of the same kind, wherever there is duality of sex generation is due to copulation." (*Hist. An.*, V, 1, 539a26). The initial shows a bull seeming to slip off the back of a cow, illustrating how with large-sized vivipara, the female "rarely allows the male to complete the act owing to the rigidity of the penis of the bull." Once again within the initial the two beasts copulate against a trellis of plants, which fits nicely with Aristotle's argument here that "there is one property that animals are found to have in common with plants..." the fact that some spring like from like, while others are spontaneously generated from putrefying earth or vegetable matter". In the bas-de-page we see the same copulation of two quadrupeds, which I would suggest are wolves or dogs, their indistinguishability echoing the generalizing aspect in the text itself "Covering with the wolf is the same as with the dog." The erect and much smaller sign of libidinous passion, the rabbit , watches from the left, a hint perhaps at the "rigidity of the penis of the bull" in the initial above, which is hidden in the depiction. Significantly however Aristotle discusses the hare when discussing copulation here; "Thus, retromingent animals copulate with a rearward presentment, as is the case with the lion, the hare and the lynx; though in the case of the hare the female often first mounts the male." (*Hist. An.*, V, 2, 539b22-24). Though there are two rabbits, an erect male at the bottom and a sprinting female at the top of this page, they do not get to copulate with each other until much later in the manuscript, in the initial opening the second Book of *De generatione animalium* on fol. 119v. Such playful and humorous allusions to the text suggest that for this illuminator the margins were a major site of representation and not just the historiated initials, since they allowed the artist to evoke aspects of animal, and as we shall see, human sexuality not possible within the initials.

This is the case with one of the most elaborate pages in the whole manuscript, opening Book VI (fig. 6). The bulk of this chapter treats the propagation of Birds, but goes on to treat the pairing of other animals. Unusually however, the images on this page all represent single isolated beasts, presented in almost heraldic side-views that isolate them as separate forms, despite the emphasis in the text upon their sex-

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ual union. The text opens with the word "serpent" and the illuminator has filled the top of the "S" with half of such a creature performing a purely decorative and non-illustrative function. The bottom half contains a bird and two quadrupeds, indicating, by contrast the subjects that are to be treated in the book. But it is the outer margin and bas-de-page where we see a whole parade of creatures, from top to bottom, a ram, a horse, an ass, and what appears to be a hog. Along the vertical bar border are a line of ten more creatures, including a bear and a lion, ending in a tiny black mouse that scurries up the bar border terminal, which is of course surmounted by the ubiquitous rabbit. Book VI in fact does end with a short discussion of "the phenomenon of generation in regard to the mouse." Mice are described as "astonishing both for the number of their young and for their rapidity." (*Hist. An.*, VI, 37, 580b14-15). The only bird in this magnificent menagerie is taken from popular Bestiary lore and is the ostrich (looking like a crane) with a horseshoe in its mouth. This motif, found in the French Bestiary tradition, is based on Pliny and later, Pierre of Beauvais, who stated that an ostrich will eat iron.[28]

More of these animals show the influence of the Bestiary tradition. In the Bestiary the hyena is described as "being accustomed to live in the sepulchres of the dead and to devour their bodies. Its nature is at one moment masculine and at another feminine, and hence it is a dirty brute."[29] The sixth beast from the right is a hyena shown ripping a shrouded corpse from its coffin. In the Bestiary as with all the animals, the creatures appearance and behaviour is moralized: The hyena represents "the Children of Israel ... who paid respects to dead idols; whence the Prophet compared the Synagogue to a dirty animal, saying 'My inheritance is made for me like the cave of the Yena'. Yes those of you who serve wantoness and avarice are compared to this monster." In

28. For the ostrich see Pliny, *Natural History*, Books 8-11, trans. A. RACKHAM (Cambridge, 1983), 10.1, and for Pierre of Beauvais, MCCULLOCH, *Medieval Latin and French Bestiaries*, p. 147. For other Bestiary images of the horseshoe motif, seen earliest in London, British Library, MS. Add. 11283 of ca. 1170, see W.B. CLARK, *The Medieval Book of Birds: Hugh of Fouilloy's Aviarium* (Binghampton and New York, 1992), p. 39 and Fig. 37 as well as "The Aviary-Bestiary at the Houghton Library," *Beasts and Birds of the Middle Ages: The Bestiary and its Legacy*, ed. W.B. CLARKE and M.T. MCMUNN (Philadelphia, 1989), p. 36 and A. PAYNE, *Medieval Beasts* (New York, 1990), p. 194.

29. For the hyena in the Bestiary tradition see HASSIG, *Medieval Bestiaries*, pp. 145-155.

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Book VI Aristotle discusses the hyena in order to refute the belief that it has the organs of both sexes but does not mention its graveyard habits here. In Book VII(VIII) he later describes "the animal called 'glanus' by some and 'hyena' by others is as large as a wolf with a mane like a horse... " which is "exceedingly fond of putrefied flesh, and will burrow in a graveyard to gratify this propensity." (*Hist. An.*, VII(VIII), 5, 594a31-b5). So what initially seems like a reference to the Bestiary tradition is here in conformity with Aristotle's animals.

Book VIII(IX) on habits and feeding also contains two more popular Bestiary images in the lower margin, the beehive and the pelican feeding her young with her own blood (fig. 7). The first was a popular image of Christian unity and the second of Christ's own sacrifice.[30] Aristotle does describe the feeding habits of bees (*Hist. An.*, VII(VIII) 596b 12), but the image of the 'pelican in her piety' is obviously one that has no place in the Aristotelian scheme of things. Aristotle's work actually attempts to refute a number of notions that continued to be popular in the Bestiary, notably the theory that the weasel conceives through the ears and gives birth through the mouth, which the Christian writer of the Bestiary of course uses to moral purposes. He argued that the error arose from sightings of female weasel carrying their young in their mouths (*Gen. An.*, III, 6, 756b15). In contrasting the approach of Aristotle's biology to that of Bestiary however, it is important that we not make too much of a stark contrast between the 'scientific' philosopher and the credulous monastic writer. Aristotle himself often describes animal behaviour in moral terms and, as the art historian Francis Klingender recognized, often endorsed the notion that animals have 'characters.'[31] The Bestiary, being based on the *Physiologus* took information from reports in Pliny that were themselves based on the *Historia animalium*, so that Aristotle sometimes describes a creature that will also appear in the Bestiary. One such is the manticore,

30. For the beehive see HASSIG, *Medieval Bestiaries*, pp. 52-62, and for the pelican as a figure of piety, V.E. GRAHAM, "The Pelican as Image and Symbol," *Revue de littérature comparée* 36 (1962), 235-243. The pelican image appears in the context of learning, above the representation of exponents of the Seven Liberal Arts, including Aristotle, in an exterior south gable at the cathedral of Clermont-Ferrand, reproduced in W. STAMMLER, "Aristoteles und die septem artes liberales im Mittelalter," *Der Mensch und die Kunste: Festschrift für Heinrich Lutzeler* (Düsseldorf, 1962), p. 509. For the Pelican in the Merton MS (listed under its old number 0.1.3.) see RANDALL, *Images in the Margins*, p. 20 and HASSIG, *Medieval Bestiaries*, p. 57.

31. KLINGENDER, *Animals in Medieval Art and Thought*, p. 88.

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described in the *Historia animalium* (II, 1, 501a25-b1) where Aristotle cites an earlier authority Ctesias who assures us that it has the body of a lion and "that it resembles a man in its face and ears".[32] When Aristotle does discuss monsters it is only as birth-defects and thus as totally natural productions.

It is significant in this respect that such hybrid monsters, which are ubiquitous in this period of Parisian manuscript illumination are conspicuously absent from the Merton manuscript except in one rare case on fol. 84v illustrating Book II of *De partibus animalium* where a hybrid with the head of a bearded man, the wings of a bird and the body of a quadruped appears (fig. 12). The kind of monster we see on this page with the head of a bearded man and the body of a bird fits perfectly into the tastes of the early fourteenth-century but seems radically opposed to Aristotle's text, which argues that hybrid animals are imposible due to the differing gestation periods of the various beasts (*Gen. An.*, IV, 3, 769b22-25).[33] As recent studies have shown however, the appearance of hybrid animals in manuscript illuminations, especially those mingling human and animal, increases in the thirteenth and fourteenth centuries.[34] Aristotle's procedure was to compare the parts of animals in the *Historia animalium* and only later in the *De partibus* to discuss causes, differences and similarities between animals. The illuminators took this division of parts to an extreme in the Merton manuscript, placing limbs and heads of various beasts both within the initial and strewn about the bas-de-page (fig. 13). This little hybrid then is almost a parody of the Aristotelian playing with parts, certainly made more striking on this page since the headless bird at the bottom of the page chimes with the monster above, who has the body of a bird and the head of a man. One aspect of Aristotle's biology which was disturbing to many Christian commentators was his viewing humans and animals as part of the same continuum, which of course Christian-

32. For the manticore see M. SOUTH, *Mythical and Fabulous Creatures: A Source Book and Research Guide* (New York, 1985), pp. 125-131.

33. For Aristotle on monsters see C. KAPPLER, *Monstres, démons et merveilles à la fin du Moyen Age* (Paris, 1980), pp. 208-210; C. LECOUTEUX, *Les monstres dans la pensée médiévale européenne* (Paris, 1993), p. 9; and also M. CAMILLE, "Hybridity, Monstrosity, and Bestiality in the Roman de Fauvel," in *Fauvel Studies*, ed. A. WATHEY and M. BENT (Oxford, 1998), pp.161-174.

34. See the steep rise in animal hybrids in the graph "Animal Functions in Illuminated Manuscripts," in J.E. SALISBURY, *The Beast Within: Animals in the Middle Ages* (London, 1994), p. 129.

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ity could not accept, viewing the animal world as inherently inferior but also as a mirror for man.

One of the main reasons why Aristotle's biology could be appropriated by medieval philosophers was that like the Christian world-view, it placed man above the animals and made him the center of the universe. The *Historia animalium* in its original Greek and in the medieval Latin tradition exemplifies this by making man the culmination of the discussion in Books IX and X. Book IX (which appears as Book VII in modern editions) begins with the initial D of "*De hominis autem generatione et prima in femella*" ("As to man's growth, first within his mother's womb") and shows above a man on top of a woman in the act of copulation (fig. 8). Both are fully clothed although the female's dress is hitched-up around her thighs. The couple is placed against the same verdant leaves of plants as found in the depiction of other animal sexual acts throughout the manuscript. This serves to visually underline Aristotle's close association between plant and animal systems of reproduction (*Hist. An.*, V, 1, 539a16-20). Below in the lower half of the initial we see the results of coitus - a woman rocks a cradle. The same 'before' and 'after' sequence, painted in the bas-de-page, is a wonderful bit of medieval illusionism. The artist paints this as though it were taking place on a little ledge that hangs from the bar-border by two little ropes at either end (fig. 8). On the right the same woman is shown holding a baby before a fire. As usual in the marginal scenes the artist makes more allusive commentary here, with the fire representing the 'heat' necessary for all animal generation. On either side two differently colored rabbits, one red and one blue, i.e. one cold and thus female in Aristotelian physiological terms and the other warm face one another. These images of sexual intercourse serve to pictorially reinforce what was to become the accepted medical notion (based on *Gen. An.*, I, 20, 729a9-11) that the male as the active partner provides the seminal 'idea' while the female, as passive, provides only the matter for the foetus. This radical gender difference visible in a number of other examples of the copulating couple in medieval manuscript illumination, has broader cultural and social ramifications which I have discussed elsewhere.[35]

35. See M. CAMILLE, "Manuscript Illumination and the Art of Copulation," in *Constructing Medieval Sexualities*, ed. J. SCHULZ, K. LOCHRIE and P. MCCRACKEN (Minneapolis, 1998), pp. 58-91, where the Merton *Historia animalium* bas-de-page is reproduced in a detail, as Fig. 4, p. 70.

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This particular image is a case where the artist has gone in a totally different direction from the Bestiary, which, being produced in a monastic community was highly prurient about sexual matters, even of animal species. When it does describe and depict sexuality between males and females, it does so symbolically, as in the image of the fire-stones which are pictured as a male and female. "When these are far apart from one another the fire in them does not catch light. But when by chance the female may have approached the male, at once the flame bursts out, so much that everything around the mountain blazes. You therefore, O Men of God, who wage this way of life of ours, keep well away from women, lest when you have got near to one another, the twin-born flame should break out in yourselves and burn up the good things which Christ has conferred upon you."[36] Whereas the fire in the Bestiary is a moralistic retribution of the heat of a disordered passion for the misogynistic audience, in the Aristotelian text it is an elemental force, as depicted here, crucial to the propagation and preservation of not just human, but all animal life.

In the large opening initial to Book X a more traditional image of human sexual intercourse is painted within the initial; a couple copulating in a bed beneath a parted curtain (fig. 9). This is directly related to the opening lines "*Procedente autem etate viro et mulieri non generandi*" ("As a man and a woman advance in age, they may continue to have intercourse with one another and yet produce no children; the cause of this is to be found sometimes in both partners, sometimes in one only.") Representing sanctioned sexual union within marriage this iconography occurs in illustrated initials in other Aristotelian texts, most notably *De generatione et corruptione* a well as in medical texts specifically concerned with copulation such as *De Coitu* but also in thirteenth-century narrative works in the vernacular like romances.[37] Whereas the couples in Book IX and in the lower border are clothed and seem to enjoy doing it 'in nature' the emphasis in this initial is upon the place of sex within culture, i.e. the marriage bed, enclosed

36. WHITE, *The Bestiary: A Book of Beasts*, pp. 226-227. See also the discussion of fire-stones in HASSIG, *Medieval Bestiaries*, pp. 116-129.

37. For the initial to *De generatione* see CAMILLE, "Manuscript Illumination," Figs. 8 and 9. Secular images are examined by A. STONES, "Images of Temptation, Seduction and Discovery in the Prose Lancelot: A Preliminary Note," *Wiener Jahrbuch für Kunstgeschichte* 46-47 (1993-94) Abb. 12-15, and for the 'marriage-bed' see A. SAMUELS, "The Image of the Parents in Bed," *Journal of Analytic Psychology* 27

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under its canopy. This open canopy can be found in a number of images representing licit sexual intercourse in texts like the *Régime du corps* by the thirteenth-century writer Aldebrandino of Siena.[38] This is also the only page of the whole manuscript where the illustrations include no animals. Indeed this book of the *Historia animalium* is decidedly anthropocentric in its focus. In the standard university copy of Moerbeke's translation of Aristotle's *Historia animalium* book X is often missing and some modern scholars have sought to exclude it from Aristotle's corpus.[39] But there is a logic to its inclusion in the Merton manuscript which is made even more evident through the pictorial decoration. Here it forms part of a single continuum despite the sudden transition in the text from theoretical discussion to a practical, medical one. In many ways the exclusion of animals from this opening to the last book proclaims the superiority of civilized man above the lower animals. In the bas-de-page, as if to contrast with the naked couple in their canopied bed above, another clothed couple are groping on a branch. Perhaps their clothing serves to signal their unruly passion and is not only a sign of the artist's unwillingness to present human nakedness. Out on the branches in the margins the man and woman in the heat of their eager coupling are seen as no better than and indeed as

(1987), 323-329, and for couples in bed generally see R. VAN MARLE, *Iconographie de l'art profane* (La Haye, 1932), p. 482; S.L. GILMAN, *Sexuality: An Illustrated History* (New York, 1989), p. 67 and K. LERCHNER, *Lectulus Floridus: Zur Bedeutung des Bettes in Literatur und Handschriftenillustration des Mittelalters* (Cologne/Weimar/Vienna, 1993).

38. For discussion of the *Régime du corps* and the medical tradition of copulation imagery see CAMILLE, "Manuscript Illumination," Fig. 2, and the edition by L. LANDOUZY and R. PEPIN, *Le Régime du corps de maître Aldebrandin de Sienne* (Paris, 1911), p. 28, as well as the Catalan text edited by T. VICENS, *Speculum al Joder: Tradado de recetas y consejos sobre el coito* (Barcelona, 1994). For the medical arguments for the 'missionary' position, influenced like these images by Aristotle, see J. CADDEN, *Meanings of Sex Difference in the Middle Ages: Medicine, Science and Culture* (Cambridge, 1993), pp. 245-247; and for legal opinions, the fully-documented article by J.A. BRUNDAGE, "Let me count the ways: canonists and theologians contemplate coital positions," *Journal of Medieval History* 10 (1984), 81-93, as well as J.A. BRUNDAGE, *Law, Sex and Christian Society in Medieval Europe* (Chicago, 1988), plate 13.

39. For discussion of these problems of authorship and original ordering of the texts see *History of Animals. Books 7-10*, trans. D.M. BALME (Cambridge, Mass., and London, 1991), pp. 13-30, and the summaries of presentations by Ph. VAN DER EIJK and P. BEULLENS, in "International Workshop 'The Tradition of Aristotle's *De Historia Animalium*'," in *Bulletin de Philosophie Médiévale* 38 (1996), 175-176.

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equivalent to the animals rutting around them, but in the initial above, they are properly contained and covered, creating new life in the christian confines of copulation - that is, within marriage. There is evidence that in early fourteenth-century Paris doctors were important patrons of Aristotle manuscripts, which makes the inclusion and illustration of Book X in the Merton manuscript all the more pertinent.[40] What is most remarkable in the Merton College manuscript is the complex visual means through which both human and animal sexuality are presented and distinguished. It is not yet possible to know whether the thirteenth-century explosion of images of copulation in other texts and contexts is a result of the increasing influence of Aristotle's ideas or even these images illustrating manuscripts of his works. However, it is clear that these illustrations in the Merton *De animalibus* are rare and precious pictorial evidence in the history of human sexuality.

The illustrations of Aristotle's other biological works in the manuscript seem less ambitious in comparison with those found in some other Aristotelian texts. A major aspect of Aristotle's argument in *De progressu animalium* for example is concerned with making complex divisions and subdivisions between different animal parts and types of animal locomotion. In many thirteenth-century manuscripts of the logical works, such as Florence, Bibl. Riccardiana 160, fol. 51r. the designer has created a pictorial means of diagramming the complex divisions discussed in the text alongside.[41] Nothing like this appears in the Merton *De progressu* initial where the illuminator has placed four vague quadrupeds which differ only in color and five birds in the initial (fig. 10). Yet often an image in the margins is directly related to the adjacent text, suggesting that the planner of the manuscript wanted the images to work together with the text and not just decorate it. In the borders of Book III of *De generatione animalium* we see the only ser-

40. Inscriptions in some illuminated copies of Aristotle's works suggest they belonged to students of medicine, for example, a copy of the *Libri naturales*, Geneva, Bibliothèque Publique et Universitaire, MS. lat. 76, which belonged to Michel Guistella, who obtained a bachelor of medicine in 1409. For the role of doctors see A. BIRKENMAJER, "Le role joué par les médecins et les naturalistes dans la réception d'Aristote au XIIe et XIIIe siècle," in *Études d'histoire des sciences et de la philosophie du Moyen Age* (Wrocklaw/Warshaw/Cracow, 1970), pp. 73-87 and C. O'BOYLE, "Medicine, God, and Aristotle in the Early Universities: Prefatory Prayers in Late Medieval Medical Commentaries," *Bulletin of the History of Medicine* 66 (1992), pp. 199-200.

41. See CAMILLE, "The Discourse of Images," pp. 102-103, fig. 5.

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pents in the whole manuscript at the top and bottom (fig. 14). These are not represented in pairs, like most of the other animals, since they generate spontaneously. As well as a cock copulating with a hen at the bottom right another bird squats alone with its tail, perhaps representing Aristotle's discussion here of the "wind egg" (*Gen. An.*, III, 1, 749b1) in which a female emits and which allows for reproduction without contact.[42]

But what were probably the most remarkable of all the marginal illustrations in this manuscript are no longer visible. They have been erased by a prudish later reader.[43] These occur in *De partibus animalium* and are part of the illuminator's playful fragmentation of the human body. In initials and borders opening all four books of this work, the illuminator has painted isolated heads, limbs and even intenstines of both animals and humans. In the lower border of Book III all that remain today are two faint smudges, which on closer inspection reveal themselves to be two large phalluses, each consisting of two testicles and a penis, slinking towards the left like fat worms. Similarly at Book IV, the only marginal motif to have been rubbed-away is that of a similarly large phallus, which perches on the line ending like a bird (fig. 13). This playful use of dismembered male body parts, and even the asociation of the male member with a bird, can be paralleled in other manuscripts, although to equate the male member with a living creature occurs more frequently in popular badges of the period, to which these ghostly penises also relate.[44] Another totally mutilated scene in the lower border of Book II of *De generatione animalium* (fol.

42. Aristotle, *Historia animalium*, V, 5, trans. A.L. PECK (Cambridge, Mass., and London, 1984), pp. 110-111, with note a. See also C. ZIRKLE, "Animals Impregnated by the Wind," *Isis* 25 (1936), 95-130.

43. Other examples of the same process of erasure in manuscripts are described and their logic discussed by M. CAMILLE, "Obscenity under Erasure: Selective Iconoclasm in Medieval Manuscript Illumination," in *Obscenity in the Middle Ages*, ed. J. ZIOLKOWSKI (Leiden, 1998), pp. 139-155.

44. For a nun picking phalluses from a tree in an early fourteenth-century manuscript of the *Roman de la Rose* (Paris, BN fr. 25526, fol. 196v) see CAMILLE, *Image on the Edge*, p. 81, and for very similar forms to those rubbed-away in the Merton manuscript, see the lead and pewter badges that have been recently published and explored by M. JONES, "Secular Badges," in *Heilig en Profaan. 1000 laat-middeleeuwse insignes uit de collectie H.J.E.van Beuningen* (Cothen, 1993). The common medieval association between penises and birds is discussed by L.O. VASVARI, "*L'Usignolo in Gabbia*: Popular Tradition and Pornographic Parody in the *Decameron*," *Forum Italicum* 28 (1994), 224-249.

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119v.) has an unusual shape that clearly depicted two creatures having intercourse . But why this particular image was singled-out for destruction of all the copious copulations found elsewhere in this manuscript, is unknown. Perhaps it depicted an even more shocking scene of copulation, not between two animals but between a man, possibly a monk, and a quadruped.

In previous studies of the illuminated manuscripts of Aristotle's works produced at the Universities of Oxford and Paris in the thirteenth and fourteenth centuries I have argued that these programs of decoration served an important function of assimilating Aristotle's difficult and controversial pagan philosophy into the Christocentric curriculum of the university. Appropriating Christian images to illustrate Aristotle's ideas was a way of restructuring 'the philosopher' within traditional learning. This occurs too in manuscripts of the *De animalibus* and there is no better example of it than the illuminated initial to *De motu animalium* in the Merton manuscript which begins by discussing motion in general and how "the origin of this is the unmoveable, and that only the prime mover must of necessity be immoveable" (*Mot. An.*, 1, 698a7-10). Just as initials opening Book VIII in contemporary manuscripts of the *Physics* assimilate this unmoved mover to God in the act of creating the universe from contemporary iconography of Genesis illustrations, so too here in a manuscript of the biologial works, the prime mover is God holding the orb of the universe, stratified into the Aristotelian four elements (fig. 11).[45] Three nondescript 'animals' strut on the lower terminal and there is of course, high on the page, the ubiquitous rabbit, a fecund sign sitting erect at the very birth of the universe.

In thinking about why scholars and masters would have wanted to read Aristotle that was visually as well as doctrinally presented within a Christian framework it is also worth remembering that for the illuminators of these books the problem was also one of visual models. The practices of the thirteenth-century illuminators' workshop are relevant in this respect, since they depended upon the illuminators copying earlier models and not reading the text they were illustrating. Translated relatively late, the illuminators of the biological works were at an added disadvantage, and it is not surprising that they looked to the traditional types of books they illuminated, like Bibles and Bestiaries,

45. See CAMILLE, "Illustration in Harley MS 3487," p. 37, figs. 8 and 9.

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when they were commissioned to decorate the new Aristotelian works.[46] The visual representation of scientific inquiry, especially that of natural history, was unable to move away from the tyranny of inherited stereotypes of animal depiction but also to remove animals from the realm of moralizing or allegorical interpretation. *Significatio* was always more important than science. This is underscored by the omission in the pictorial repertoire of animals to be found in the Merton manuscript, of many species that Aristotle discuss at length, such as insects. Since they are simply not part of the modelbook repertoire of this illuminator they go unrepresented, despite Aristotle's discussion of them (*Hist. An.*, V, 8, 541b34-542a17). It is not until later in the fourteenth-century that carefully delineated grasshoppers and butterflies appear in the margins of illuminated manuscripts, in a totally non-Aristotelian context.[47]

This imbalance between Aristotelian text and Aristotelian image is also evidenced by the work of those scholastic writers who adapted and transformed Aristotle's biology - the work of two important scholastic Dominicans, Thomas of Cantimpré and Albertus Magnus. Thomas of Cantimpré's *De natura rerum*, completed before 1240, made frequent use of Aristotle's *De animalibus*.[48] A manuscript of this work dated 1295 is extant in Berlin which shows an even more developped taste for marginal fantasy than the Merton manuscript.[49] Lynn Thorn-

46. A good example of this is the Oxford artist who illuminated one of the greatest of all thirteenth-century copies of the *Libri naturales*, London, British Library, Harley MS 3487. He illuminated a Bestiary that is still extant in Trinity College Cambridge, MS R.14.9. When he came to create the great Aristotelian compilation many of the animals used in the marginal scenes, like lions, also appeared in initials, like this one to Book II of the *Physics* (fol. 10r); it shows a man placed in the upper part of the letter looking down on a group totally indistinguishable creatures. See M. Camille, "Illustrations in Harley MS 3487," pp. 31-43.

47. This is best seen in the famous Genoese treatise on the vices, parts of which are in the British Library, Add. 28841, see O. PÄCHT, "Early Italian Nature Studies and the Early Calendar Landscape," *Journal of the Warburg and Courtauld Institutes* 6, (1950), 13-47.

48. A discussion of the manuscript tradition of Thomas appears in the facsimile of a later illuminated copy, *De Natura Rerum (lib. IV-XII) por Tomas de Cantimpré. Tacuinum Sanitatis Codice C-67 (fols. 2-116) de la Biblioteca Universitaria de Granada*, ed. L. GARCIA BALLESTER (Granada, 1974), pp. 1-22.

49. For the Berlin MS which was illuminated in Northern France rather than Paris, probably in Metz, see H. BOESE, *Die lateinischen Handschriften der Sammlung Hamilton zu Berlin* (Wiesbaden, 1966), pp. 64-65; G. VON VITZTHUM, *Die Pariser*

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dike called Thomas "one of the most credulous authors" and indeed this manuscript embodies that in its delightful mingling of actual and fantastic creatures in the outer margin, such as the elephant and castle from the Bestiary. Despite Aristotle's gynecological arguments for the generation of monsters Thomas devotes the whole of his third book "De Monstruosis Hominibus" to the Plinian monstrous races.[50]

Another important biological manuscript with marginal illustrations is of Albertus Magnus' own *De animalibus* and dates from the second quarter of the fourteenth century - Paris, BN lat. 16169. It belonged to "pauvres maîtres du Collège de la Sorbonne", purchased in 1384 for 18 francs.[51] Albert had written *De animalibus* as the culmination of his commentaries on Aristotle's natural treatises between 1258 and 1262, using Michael Scot's translation. On one page, illustrating Book V of the work, two horses, two pairs of birds and two fishes mate while a serpent spontaneously generates itself on the right. Within the letter itself and again higher on the page is a man and a woman. While the artist of this manuscript elsewhere represents quite detailed images of gynecological subjects, it is interesting to note how he is less explicit here in depicting human, compared to animal sexuality. He is certainly more prudish than the earlier illuminator of the Merton *De animalibus*. Actually the author, Albert himself, states that humans are the only animals to feel shame at the sexual act, which perhaps explains why, compared to the copulating animals alongside them, the human couple are visible only from above the waist in the initial.[52]

If we are looking for the beginning of an Aristotelian attitude to nature and animal depiction in the Middle Ages it is, paradoxically, not

Miniaturmalerei zur Zeit des heiligen Ludwigs (Leipzig, 1907), Tafel XLI; G.J.J. WALSTRA, "Thomas de Cantimpré, *De naturis rerum*: État de la question (suite et fin)," *Vivarium* 6 (1968), 48; and P. AIKEN, "The Animal History of Albertus Magnus and Thomas of Cantimpré," *Speculum* 22 (1947), 205-225.

50. See L. THORNDIKE, *A History of Magic and Experimental Science* (New York, 1929) 2, p. 389, and J.B. FRIEDMAN, *The Monstrous Races in Medieval Art and Thought* (Cambridge, Mass., 1981), p. 123.

51. For this MS see M.-J. IMBAULT-HUART, *La Médecine au Moyen Age à travers les manuscrits de la Bibliothèque Nationale* (Paris, 1983), pp. 122-123.

52. This folio depicting marginal copulation is reproduced and discussed in CAMILLE, *Image on the Edge*, pp. 46-48, fig. 23. Albert the Great, *Man and Beasts: De animalibus (Books 22-26)*, translated by J. SCANLAN (Binghampton, 1987). See also J.R. SHAW, "Scientific Empiricism in the Middle Ages: Albertus Magnus on Sexual Anatomy and Physiology," *Clio Medica* 10 (1975), 53-65.

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to be found in the illustrations of Aristotle's treatises of biology or even in those encyclopedic treatises influenced by them. Rather, where we first see artists attempting to replicate the surface appearances of individual animals and their parts, what Aristotle refers to at the beginning of the *Historia animalium* as genus and species, it is in the marginal illumination of ornithological treatises like the treatise *De arte venandi cum avibus* ('On the art of falconry') written by Frederick II circa 1250.[53] Both in the original Latin version, Vatican Pal. lat. 1071, and the translation made ca. 1300 for Jean de Dampierre, Paris BN fr. 1240, the behaviour and appearance of birds is unfettered by moralization and are seen in the practical context of hunting rites and chivalric sport. Likewise when artists are free to represent animals and birds in the margins of sacred texts like Bibles and Psalters we often see them portraying specific beasts and birds with great sensitivity. But the place where we see the most ardent Aristotelian approach to animal depiction in the fourteenth century is in modelbooks. Used by artists in their everyday workshop practice these drawings record not just genera of animals but individual creatures, which are even labelled in English in the famous Pepysian Sketchbook which contains highly detailed images of birds.[54] Yet ultimately I do not want to fall into that modern scientific and ahistorical bias which sees the waning Middle Ages as witnessing an awakening of the ancient promise of rendering absolute truth objective. The development of naturalistic representation is neither linear nor systematic. The moralizing and fantastic aspects that I have discerned in the illustration of the Merton *De animalibus* should not be thought of as 'medieval' since these aspects continue during the Renaissance in later translations and copies of the *Historia animalium*. For example, Vatican Lat. 2094, translated by Theodore Gaza and illuminated 1473-4 by a talented Florentine artist, the text has pseudo-classical 'grotesque' decoration and symmetrically arranged plants and animals in its borders which are as much a part of the pictorial lan-

53. C.A. WILLEMSEN, *Friderici Romanorum Imperatoris Secundi De arte venandi cum avibus*, 2 vols. (Leipzig, 1942). See also B. VAN DEN ABEELE, *La Fauconnerie au Moyen Age. Connaissance, affaitage et médecine des oiseaux de chasse d'après les traités latins* (Paris, 1994), and most recently D. WALZ, "Das Falkenbuch Friedrichs II," *Le scienze alla corte di Federico II*, *Micrologus* 2 (1994), 161-185.

54. Modelbooks are best discussed in R.W. SCHELLER, *Exemplum: Model-Book Drawing and the Practise of Artistic Transmission in the Middle Ages ca. 900 - ca. 1470* (Amsterdam, 1995), but see also M. CAMILLE, *Le monde gothique* (Paris, 1996), pp. 146-147.

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guage of their time as the Merton manuscript borders were two hundred years earlier. Science can never exist independent of religious and social worldviews that shape and transform it, constantly working against any notion of its grasping a 'real' or perceivable concrete universe in any crude empirical way. Just as the tendency of earlier scholars to project modern categories of scientific taxonomy upon Aristotle's biological works, it has been traditional in art history to talk about increasing 'naturalism' and there have been scholars who have argued that representations of animals (especially of birds) in Gothic manuscripts are the forerunners of scientific illustration, in a naive realist view of representation.[55] The images in the Merton *De animalibus* however, suggest the impossibility of presenting textual information in a neutral or purely factual way, and show that every image brings with it attitudes and beliefs. Aristotle himself understood this I think in his argument that observation of the animal world has an aesthetic and moreover a pleasurable dimension. It is this capacity for pleasure that the writers of the Bestiary and the etymologizing Isidore left behind or rather, reformulated as a pleasure taken in words. Aristotle celebrates the pleasures of things in themselves and human enjoyment in their perception. This seminal idea that animals are ideally suited to pictorial representation goes back, not only to the Bestiary tradition but to Aristotle's own statements in *De partibus animalium* (645a5) quoted at the beginning of this paper. The Paris-university- trained poet and canon of Amiens cathedral Richard de Fournival who often paraphrases the words of "the philosopher" in his writings, understood the dynamic interplay between vision, pleasure and animals when he wrote in his *Bestiare d'amour*, an allegory of love using animal exemplars as symbols of human passion, that "Birds and beasts are better understood through pictures than words" (*paintes ke dites*).[56] This pre-eminently

55. Most notably B. YAPP, *Birds in Medieval Manuscripts* (New York, 1981) and "Birds in Bestiaries: Medieval Knowledge of Nature," *The Cambridge Review* 105 (Nov. 1984), 103-190, and for a contrasting view of the aesthetic and conventional nature of animal imagery see D. HASSIG, "Beauty in the Beasts: A Study in Medieval Aesthetics," *Res* 19-20 (1990-91), 137-161. For the more recent reformulation of the issues around Aristotle's biology see the essays collected in *Aristotle on Nature and Living Things: Philosophical and Historical Studies presented to David M. Balme on his Seventieth Birthday*, ed. A. GOTTHELF (Pittsburgh, 1985), and the other papers collected in this present volume.

56. *Li Bestiaires d'amours di Maistre Richart de Fornival e Li Response du Bestiare*, ed. C. SEGRE (Milan and Naples, 1957), p. i.

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visual pleasure finds its expression, however much it is distorted through the matrix of medieval monstrosity and marginality, in the Merton manuscript of *De animalibus*.

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1. Oxford, Bodleian Library, MS Ashmole 1511, fol. 2, Bestiary.
God creating the animals.

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2. San Marino, Huntington Library, MS 1035, fol. 1, *De animalibus*. Philosopher regarding the animals.

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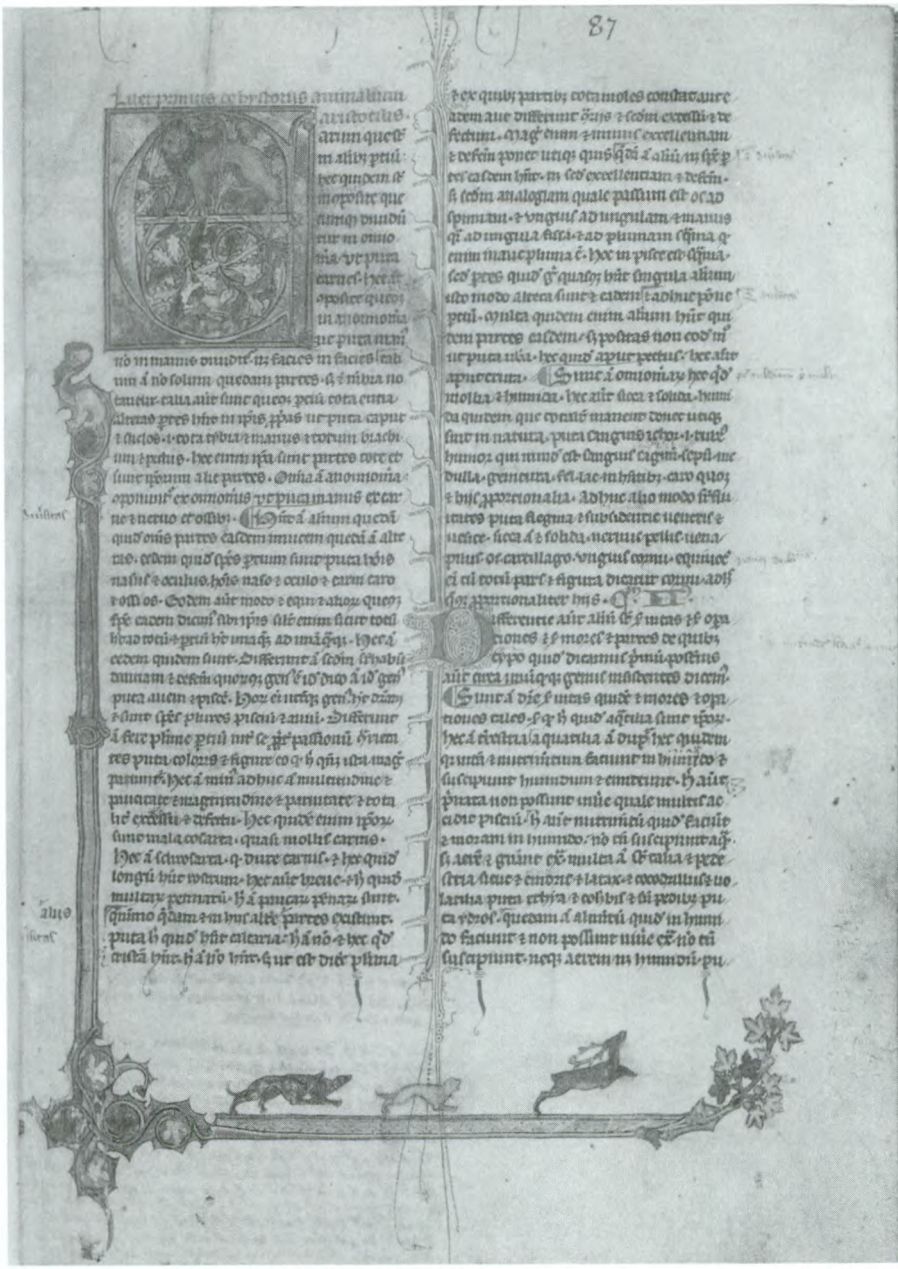

3. Oxford, Merton College, MS 271, fol. 1r. *Historia animalium*, Book I.

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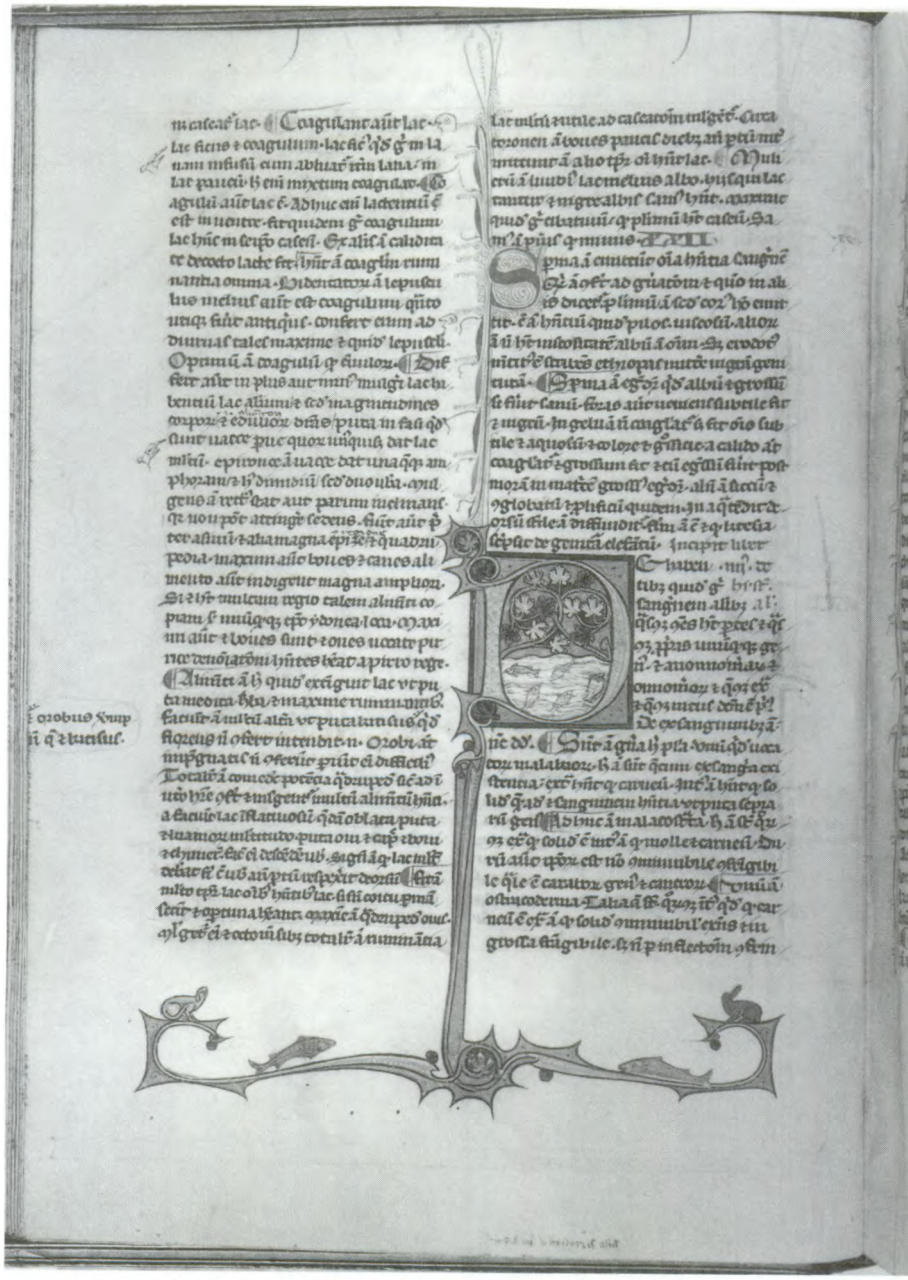

4. Oxford, Merton College, MS 271, fol. 17v. *Historia animalium*, Book IV.

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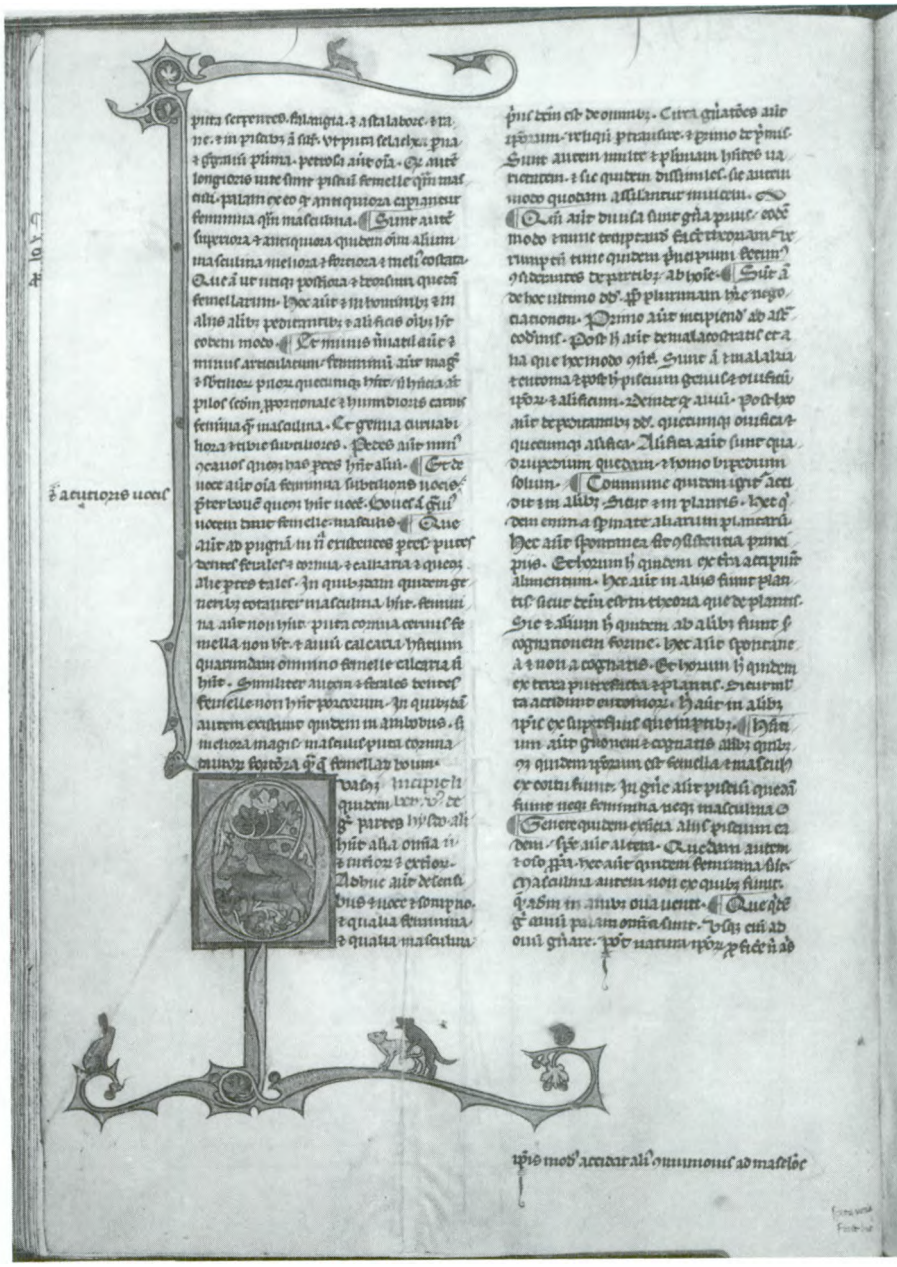

5. Oxford, Merton College, MS 271, fol. 24v. *Historia animalium*, Book V.

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6. Oxford, Merton College, MS 271, fol. 33r. *Historia animalium*, Book VI.

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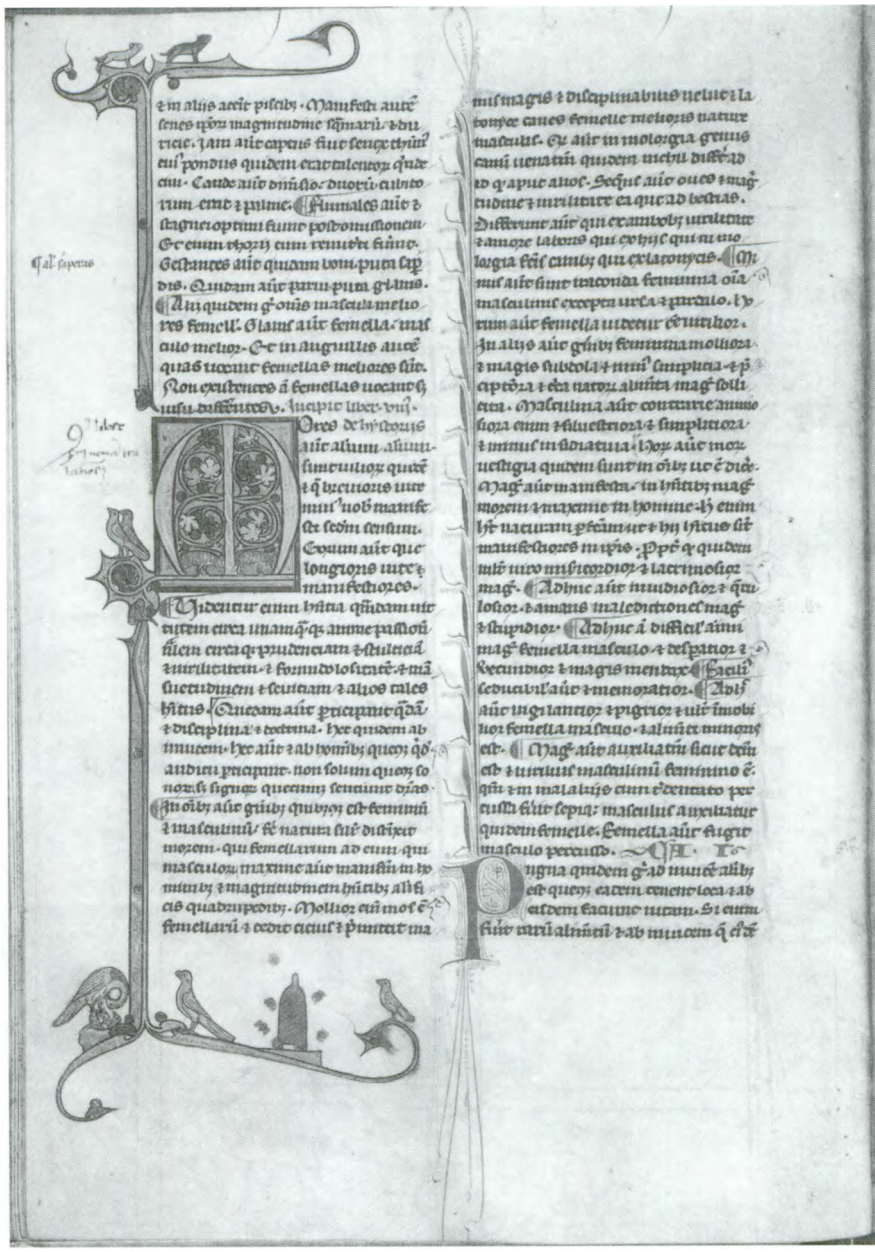

7. Oxford, Merton College, MS 271, fol. 52v. *Historia animalium*, Book VIII.

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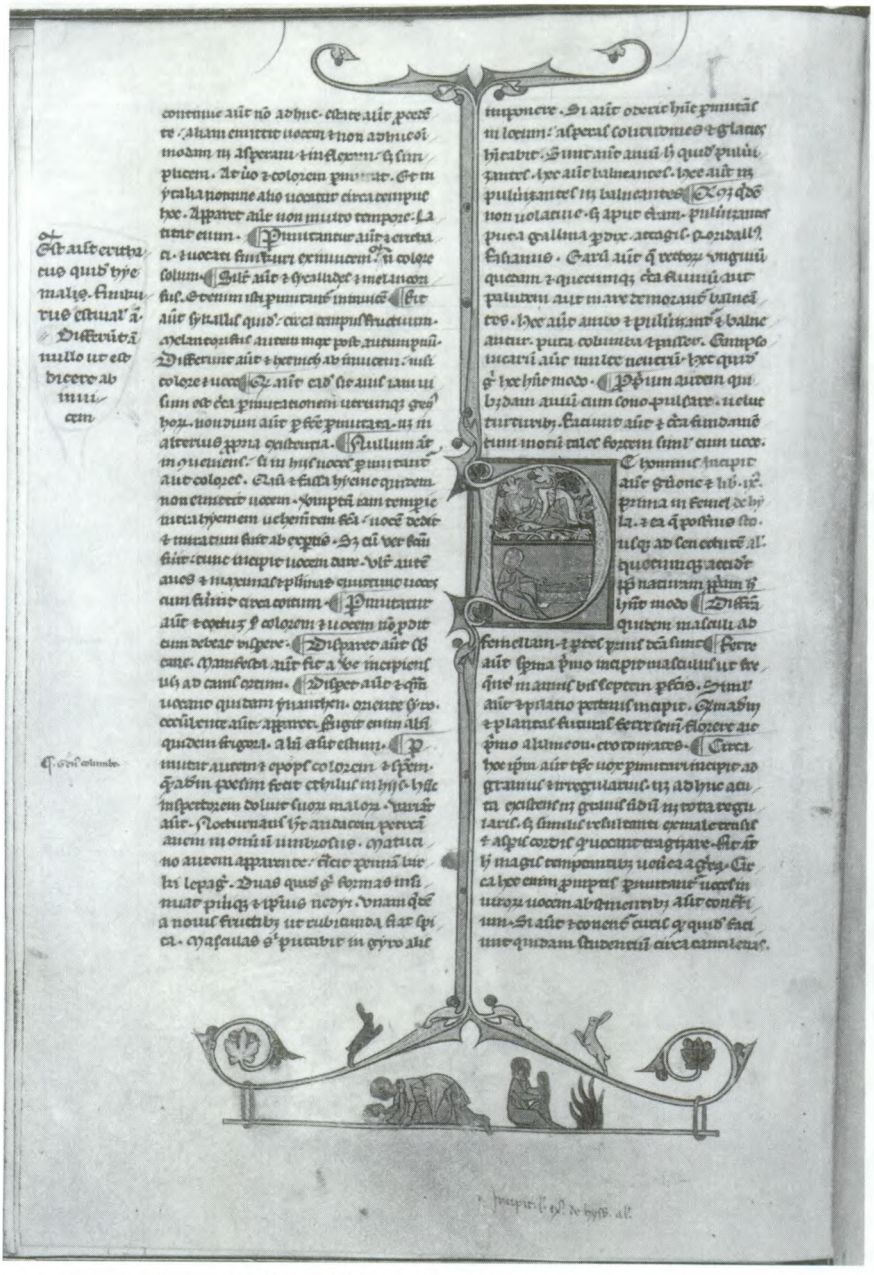

8. Oxford, Merton College, MS 271, fol. 65v. *Historia animalium*, Book IX.

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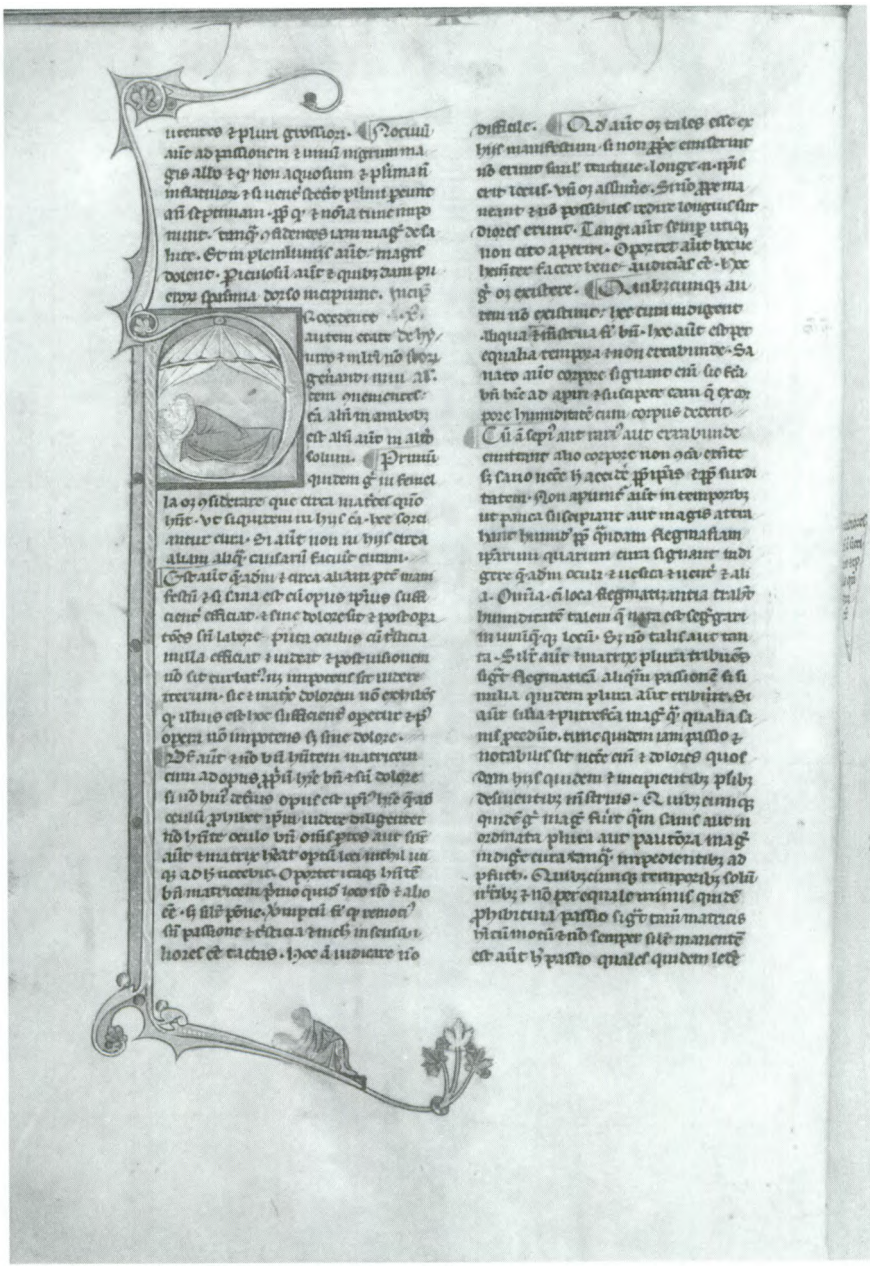

9. Oxford, Merton College, MS 271, fol 69v. *Historia animalium*, Book X.

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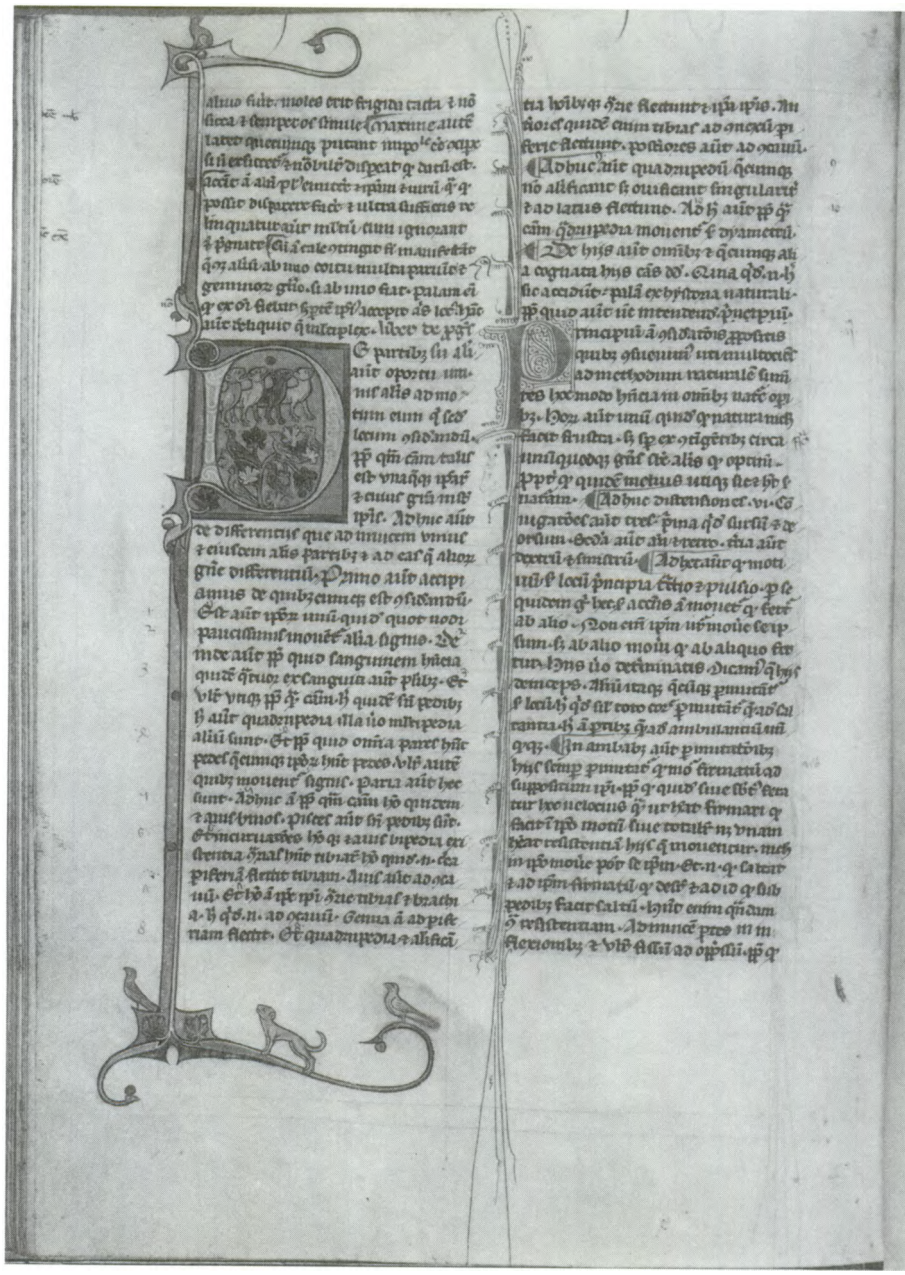

10. Oxford, Merton College, MS 271, fol. 72v. *De progressu animalium.*

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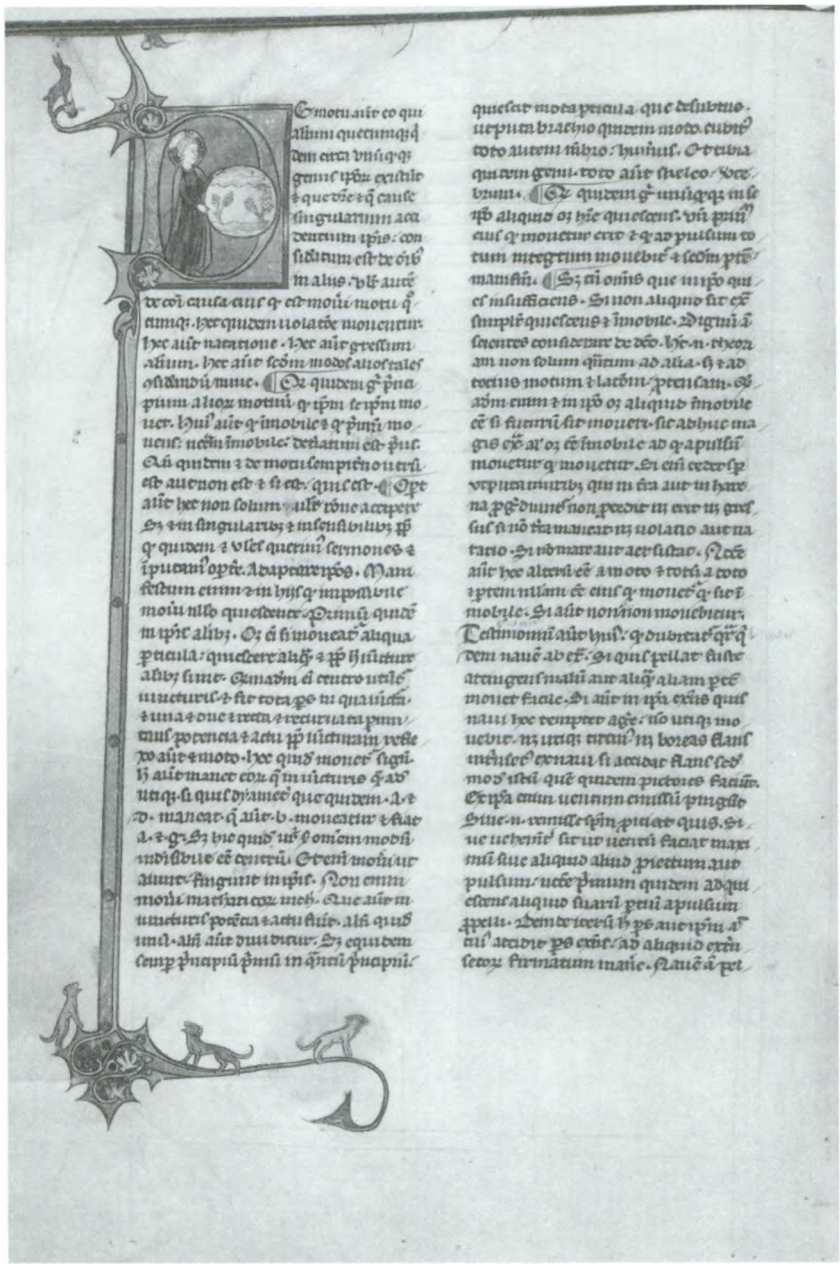

11. Oxford, Merton College, MS 271, fol. 77v. *De motu animalium*.

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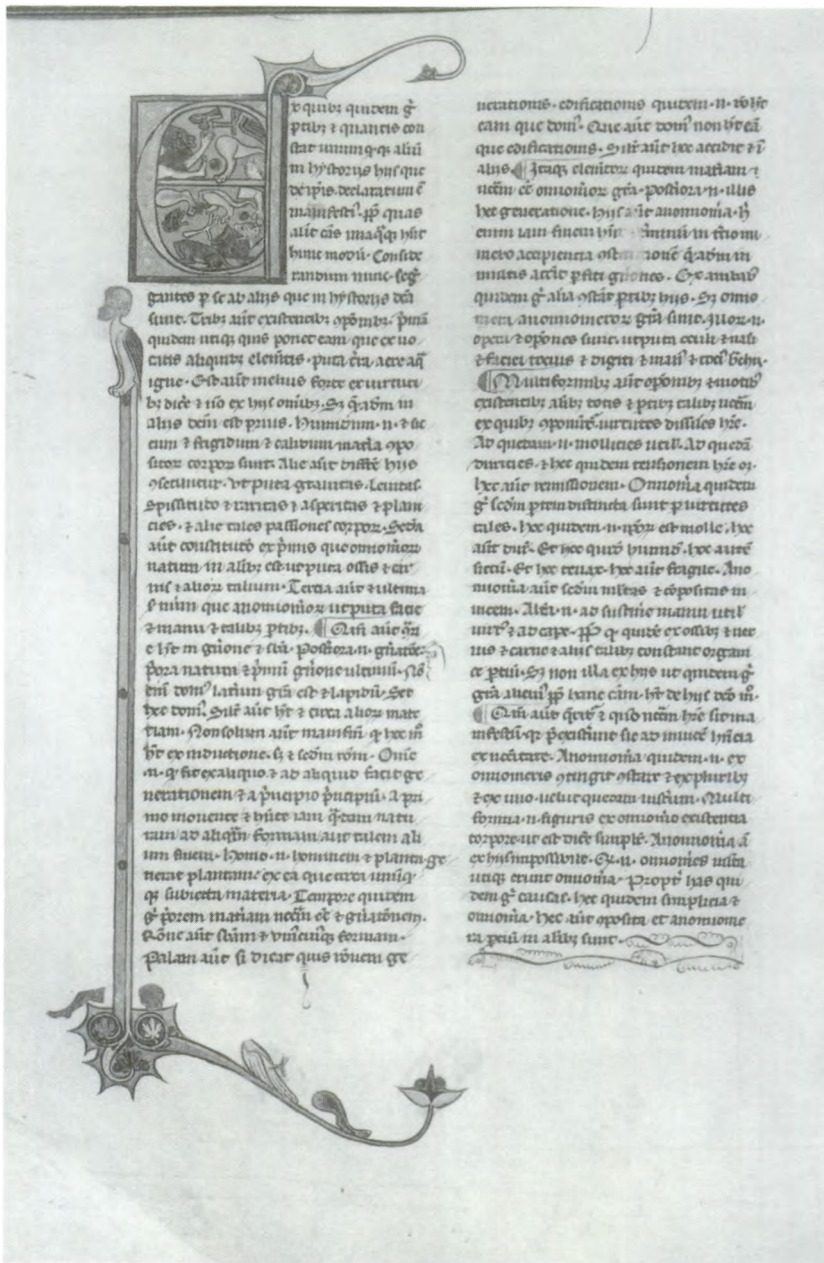

12. Oxford, Merton College, MS 271, fol. 84v. *De partibus animalium*, Book II.

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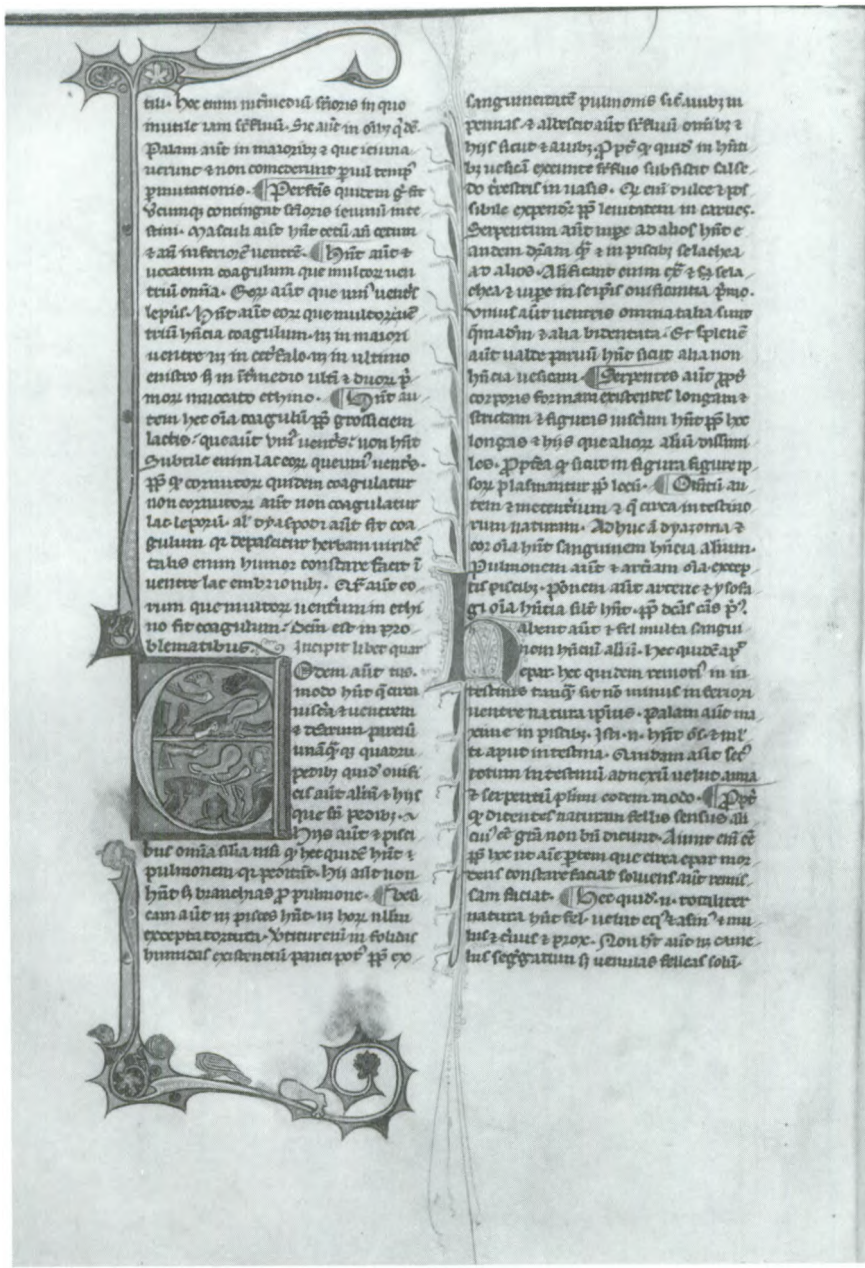

13. Oxford, Merton College, MS 271, fol. 100v. *De partibus animalium*, Book IV.

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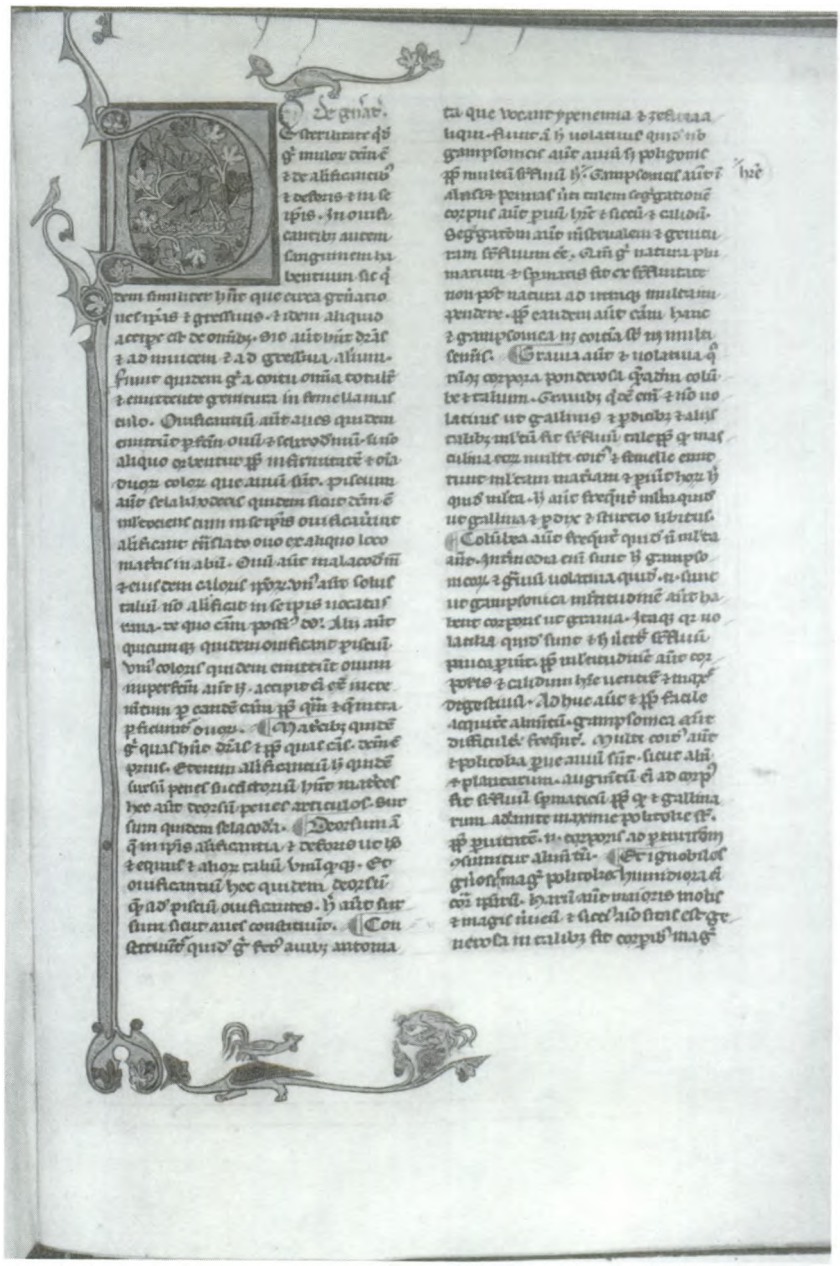

14. Oxford, Merton College, MS 271, fol. 129r. *De generatione animalium*, Book III.

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APPENDIX

Description of Oxford, Merton College, MS 271 (MS 0.1.3)

304 x 205 mm. (cut down especially at top). Aristotle, *De Animalibus*, trans. William of Moerbeke. Paris ca. 1280. Written in two columns of 42 lines. Rubricator's instructions visible on some folios (17v.) and numerous marginal annotations in another hand (fols. 1, 72v.).

Fol. 1: *Historia animalium*, Book I (fol. 1r) initial: lion in upper half of 'E', two dogs chasing rabbit in lower half; left border, hybrid; lower border, three hounds chase stag. Book II (fol. 6r) initial: dog and rabbit in foliage; lower border, dog chases rabbit to left. Book III (fol. 11r) initial: two birds in foliage in upper half, fish in water in lower half; lower border rabbit and dog perched on terminals. Book IV (fol. 17v) initial: foliage in upper half, fish in water in lower half; lower border dog and rabbit and two fishes on terminals. Book V (fol. 24v) initial: cow and bull copulating; upper border, running rabbit; lower border rabbit watches to quadrupeds (dogs?) copulating. Book VI (fol. 33r) initial: dog and bull; left border and bottom; ram, horse, ass, camel, boar(?), female quadruped, stag, bear, ostrich with horseshoe in its mouth, lion, hyena eating corpse, fox, cat, rat, mouse and rabbit on the terminal. Book VII (fol. 43r) initial: horse in foliage; rabbit alongside; lower border, male and female asses. Book VIII (fol. 52v) initial: two tiny sheep beneath large foliage, pair of birds alongside; upper border; two small quadrupeds facing right; lower border, pelican feeds young with her blood, large bird, beehive and five bees, smaller bird facing right. Book IX (fol. 65v) initial: couple copulating fully clothed in foliage in upper half, woman rocking baby in a cradle in lower half; lower border two rabbits facing one another on terminal, below on a suspended ledge a couple copulating fully clothed on left and a woman warming a baby by a fire on right. Book X (fol. 69v) initial: couple copulating in bed under curtain; lower border couple copulating fully clothed on terminal. *De progressu animalium* (fol. 72v) initial: four variously-coloured quadrupeds above a bush with five birds; lower border: small bird in outer margin, dog facing left, bird on terminal. *De motu animalium* (fol. 77v) initial: God holding the orb of the world with the four elements; upper border rabbit, lower border, three quadrupeds. *De partibus animalium* Book I (fol. 80v) initial: various human and animal parts; lower border, various animal parts. Book II (fol. 84v)

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initial: various human and animal parts, left border hybrid with with human head, animal feet and bird's wings; lower border human leg, head, bird's body and quadruped's leg. Book III (fol. 92v) initial: parts of animals including intestines; lower border two animated human phalluses later rubbed-out. Book IV (fol. 100v) initial: animal and human parts, human head alongside, lower border four human and animal parts, including a rubbed-out human phallus. *De generatione animalium* Book I (fol. 111v) initial foliage with two copulating quadrupeds and a rabbit, lower border two copulating horses. Book II (fol. 119v) initial: two birds copulating, two rabbits copulating and a single rabbit in foliage: lower border two copulating animals (or man copulating with animal?) defaced and two birds copulating. Book III (fol. 129r) initial: two birds, one in a nest: top border, dragon, left border bird; lower border dragon, cock and copulating birds. Book IV (fol. 136v) two lions copulating; upper border a rabbit; lower border two foxes and two boars copulating. Book V (fol. 144r) initial: decorative, rabbit in left border, upper border flying bird; lower border bird and two copulating quadrupeds.

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ALLAN GOTTHELF

FROM ARISTOTLE TO DARWIN

Closing Words

The recent surge, among scholars of the Middle Ages and the Renaissance, of scholarly interest in, and scholarly interaction on, the transmission of Aristotle's biological treatises and ideas, joins the two-decades-old intensification of interest among Aristotelian scholars in these treatises and their philosophical significance. Although Aristotle's work on matters that now form parts of physics and chemistry passed from serious scientific interest soon after the Renaissance, his biological treatises remained the starting point for most all study of animals into the eighteenth century. Even in the early nineteenth century, the biologist Richard Owen, in his Hunterian Lectures, could refer extensively to Aristotle as an earlier contributor to an ongoing scientific discussion.

By the time of Charles Darwin, however, Aristotle was already antiquarian. In a notebook entry dated 1838, Darwin adds to a list of things "To be read" the abbreviated note: "Read Aristotle to see whether any my views very ancient?" Unfortunately, this self-suggestion was not to be followed for some 44 years, when, in the waning months of his life, Darwin received from his friend William Ogle a gift copy of Ogle's translation of *Aristotle on the Parts of Animals* (London 1882). In a letter to Ogle, dated 22 February 1882, Darwin, as is now well known, wrote:

> From quotations which I had seen I had a high notion of Aristotle's merits, but I had not the most remote notion what a wonderful man he was. Linnaeus and Cuvier have been my two gods, though in very different ways, but they were mere school-boys to old Aristotle.

As Darwin's biological work achieved dominance, and Aristotle's became even more "ancient" and even less known, these words were increasingly quoted as necessary witness to the biological genius of Aristotle.

More recently a few scholars have sought to dampen our enthusiasm for this letter, suggesting that Darwin had read very little of Aristotle, and understood less, and that the vaunted letter was merely an extravagantly worded gesture of politeness to Ogle upon receipt of the gift copy.

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In fact – to summarize the argument of the concluding paper of the conference, which is published elsewhere[1] – two additional Darwin letters, as yet unpublished, in which Aristotle is mentioned, and the references to Aristotle in Darwin's earlier writings and notes, enable us to see that the famous letter is indeed to be taken at face value. A letter of thanks for the gift, polite but unenthusiastic, was sent by Darwin immediately upon receipt of the book, and is dated 17 January 1882. The famous letter was a second one, sent spontaneously some five weeks later, and not in response to anything Ogle had written. Careful analysis of its content, and comparison with a letter Darwin wrote three years earlier, make clear that the famous 22 February 1882 letter was carefully formulated and literally meant; and that Darwin's prior "high notion of Aristotle's merits" was a consequence of his perception of Aristotle, based on "extracts, which I have seen", as "one of the greatest, if not the greatest observers, that ever lived" (to J.A. Crawley, 12 Feb. 1879). They also make clear that the 1882 letter reflected an authentic, and substantial, increase in Darwin's respect for Aristotle based on a careful reading both of Ogle's Introduction and of more or less the "quarter of the book proper" that Darwin says he has read.

The question remains as to the basis of this increased respect, and of Aristotle's promotion to heroic rank alongside Linnaeus and Cuvier. A clue may be sought in the reasons of Darwin's reverence for Linnaeus and Cuvier, but these reasons must themselves be inferred from an array of evidence. This evidence suggests that Linnaeus was esteemed by Darwin for his wide-ranging and in some ways philosophically sensitive system of classification, while Cuvier was esteemed primarily for carrying out a remarkably detailed and accurate program of giving explanatory priority to function over structure. As it happens, these two enterprises, in one form or another, are precisely the central concern of both Ogle's Introduction and (at least) the first quarter of *Parts of Animals*. So, we may hypothesize that when Darwin opened Ogle's volume what he found, from a student of nature working two millenia before Linnaeus or Cuvier, were achievements on a scale that for its time matched the joint efforts of his longstanding heroes – and in a burst of gratitude for "the pleasure" which the Introduction especially had given him ("I have rarely read anything which has interested me more"), he wrote his famous letter to Ogle.

1. A. GOTTHELF, "Darwin on Aristotle," *Journal of the History of Biology*, 32 (1999).

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An appreciation for Aristotle's explanatory functional analysis, however, is an appreciation of his teleological approach to nature (when the latter is properly understood). The evidence that Darwin may have seen this includes (i) Darwin's occasional use of teleological language in his biological writings, (ii) his own identification of the respect in which natural selection has (and does not have) teleological implications, and (iii) studies of biological teleology in contemporary philosophy of biology that confirm the existence of these implications. What Darwin shared with Aristotle, in short, is the view that animals have the parts they do in the variations they do because these parts and their variations naturally contribute to the animals' survival, even if the two biologists did not share the same view of the naturalistic efficient causes which make this so – and there is, as I say, some evidence that Darwin may have seen this.

This likely insight into the naturalistic character of Aristotle's teleology and, more widely, into the "Linnaean" and "Cuvierian" aspects of Aristotle's biological enterprise, may, then, have been the basis for the Aristotelian apotheosis reflected in Darwin's famous quotation; and the insight, I would argue, is a deep and sound one. In that respect, and with a slight but pardonable exaggeration, we may go on to place Darwin alongside the other great (and not so great) interpreters of Aristotle's animals who are the primary subjects of this volume.

Scholarly discussion continues today on the relationship – both the deep similarities and the fundamental differences – between the theoretical structures of the Aristotelian and the modern Darwinian biological world-views, and on what we, in our time, may yet have to learn from Aristotle's biological and philosophical work. Aristotle's animals, so alive, as we have seen, in the Middle Ages and Renaissance, may be said, then, to live on into the present. Indeed they may well prove to be, as objects of study and influence, in Aristotle's own words, "everlasting in the way that is possible to them" (*Gen. An.*, II, 1, 731b32-33).

As the last speaker at the conference, it was appropriate for me to say some closing words, in which my aim was to capture the spirit, as I saw it, of an event which saw cooperative multi-disciplinary inquiry across the many centuries from Aristotle to Darwin. At the request of several of the participants, those words, with their original title, are repeated here. Readers of this volume will not have difficulty capturing the various allusions to authors, scholars, and animals, or understanding the appreciation these allusions reflect, although it should be men-

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tioned that the "majestic elephant" leading the procession is a reference to the figure which appeared on the conference's poster and program; and that the single rabbits "by themselves", referred to further on, appear on a manuscript page, shown to us by Michael Camille, of the opening of *Historia Animalium*, Book V, just below the mention of spontaneous generation, and a connection between the illustration and this mention had been urged by me in the course of a very lively discussion.

Aristotle's Touring Circus

As I surveyed in my mind early this morning the incredible range of authors, regions, cultures, time periods, literary genres, and indeed animals we have had the great fortune to examine together these past few days, one image and one voice kept returning: the image is that of the early twentieth-century American traveling circus, an image fed mostly by the movies of my childhood, and the voice is of its side-show announcer, the circus "barker" as he was called – the loud, rough but enticing voice that barked like a dog, whence the title "barker".

"Step right up, ladies and gentlemen, step right up. We have a feast for your eyes and mind – never before seen together in one place – Aristotle's touring circus! Myriad creatures, of all shapes and sizes, animals who have traveled many lands and times, and that most mysterious set of creatures, the animal scholars – and yes, even more mysterious and wonderful, the scholars of those scholars, themselves from many lands.

"The majestic elephant leads the procession – is it African or Indian? no one knows! Look at her, she carries seventeen of those mysterious scholars-of-scholars, who have assembled from near and far, from Leuven and Louvain-la-Neuve and Antwerp and Leiden, from the great Land-of-Albertus, reaching from Hamburg to Bonn and even to Salzburg; from the illuminated Land-of-Many-Manuscripts, encompassing Milano and Pavia and Pisa; and from across the waters, the small and the large, from the barbarian lands of London, Chicago, even New Jersey! The strong man leads the way, the man of Steel, clutching various animals in each hand, covered in two very different blankets. And even more varied than these scholars-of-scholars are the scholars-of-animals they bring with them – that ancient man of many guises, the elusive Stagirite, at whom all the others stare – and the others, a Spaniard and Saxon, speakers of Arabic and speakers of Hebrew, and even a Scotsman, who disappears and reappears, in different lands and different hands, and the dim figure from Cantimpré, who seems to take shape before your very eyes, and Italians of many interpretative stripes, and the embryologist from Leuven.

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> And the tales they tell, and the animals they carry – first of course the lion, then crocodiles, and horses, and sagacious bees, and birds of many plumage – yes, the birds and the bees – and rabbits, rabbits everywhere, rabbits and dogs, rabbits by themselves, crying out: understand me! I procreate alone, look above me and see! and many other animals – Aristotle's animals, middle-aged, re-born, anthologized, medicalized, moralized, syllogized, animals with souls – animals studied by induction, and deduction. Animals eternal and animals evolved. You name it, we have it!"

It may be hoped that readers of the present proceedings of this conference on "Aristotle's Animals in the Middle Ages and Renaissance" will find in their attention to the volume occasion for a similar engagement with these creatures, beings which are, in their own way, as Aristotle reminds us (*Part. An.*, I, 5, 645a15-26), so noble and wonderful.

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