

II. History of Philosophy / Lectures

On Spirits¹⁴⁷

LARS REUKE (Cologne)

Abstract: In sexual as well as in spontaneous generation, *spiritus* has an important role as *vehiculum vitae*. This paper tries to shed light on Albertus Magnus' concept of *spiritus* focusing on its role in spontaneous generation.

Keywords: Albertus Magnus; soul; spiritus; spontaneous generation

I. Introduction

From the 1860s onwards, no one within the scientific community anymore believed in the theory, which is now called “spontaneous generation”¹⁴⁸, the generation of living beings from dead matter. In 1861, Louis Pasteur published a lengthy paper of about 90 pages, which swept away the notion of spontaneous generation¹⁴⁹. This was perhaps one of the last elements of what we might call “traditional natural philosophy” that disappeared. Its decline became manifest when biologists, or natural philosophers began to use microscopes, though the discovery of bacteria rekindled the debate for a short while. However, since Antiquity, this theory was contested and philosophers

¹⁴⁷ I would like to thank Guy Guldentops (Cologne) and Georgi Kapriev (Sofia) for their comments on an earlier, different version of this text. Many thanks to Evelina Miteva (Cologne) for comments and corrections of the final version.

¹⁴⁸ This is the modern name for this phenomenon, medieval names are e.g. *generatio ex putrefaction*, *generatio equivoca*. See M. van der Lugt, *Le ver, le démon et la vierge. Les théories médiévales de la génération extraordinaire*, Paris 2004, p. 134. According to Maaïke van der Lugt William Moerbeke uses *spontaneus* once in his translation of *De generatione animalium*, *sponte* is entirely modern in this context.

¹⁴⁹ For this, see H. Harris, *Things Come to Life. Spontaneous Generation Revisited*, Oxford 2002, pp. 112 - 120. Harris describes on these pages the last gasp of spontaneous generation as a contested scientific theory. Pasteur developed his famous experiments as a reaction to his opponent Pouchet in the *Académie française*.

differed widely about the question whether and to what extent spontaneous generation is possible.

It is important to note that spontaneous generation in its ancient and medieval form is not about the first emergence of life¹⁵⁰, but rather centers around the emergence of lower forms of life, such as bees, snakes, flies, frogs etc. from dead matter. Examples in literature are abundant and are generally curious stories from our point of view.

In the present paper, I will first give a very short account of Albert's theory of spontaneous generation. Secondly, I will explain in more detail the role of *spiritus* or πνεῦμα in spontaneous generation. Before concluding, I will focus on the interesting historical origins of the Albertinian concept of *spiritus*.

II. Albert's theory of spontaneous generation in a nutshell

Albert's theory of spontaneous generation seems to be a simple three-step process: the first step is the decay of dead matter, the *putrefactio*. Then, after the decay, *spiritus* emerges enclosed by an elastic skin. This new body resembles an egg. The final step consists in the infusion of life through the stars.¹⁵¹ The scheme for spontaneous generation seems to be very easy, but a close look at the details reveals problems, all of which cluster around the notion of *spiritus* that Albert employs here. First, how does *spiritus* come about when a body decays? Second, which properties and what structure does *spiritus* have? Finally, which are the properties that allow *spiritus* to receive life from the stars, how do the stars accomplish this?

To see this, I will describe the three steps in more detail now. *Putrefactio* is, as Albert defines it, the "unmixing" of a body consisting of the four sublunary elements.¹⁵² As is

¹⁵⁰ The so-called *Urzeugung*.

¹⁵¹ Albertus Magnus, *De animalibus* VI,3,3, ed. H. Stadler in *Beiträge zur Geschichte der Philosophie des Mittelalters* 15 – 16, Münster 1916/1920: "Illa autem, quae simpliciter ex putrefactione nascuntur, generantur ex humido ad superficiem exalante, cuius viscosum exterius frigiditate aeris duratur in pellem, intra quam calor evaporans ex putrescente continetur, qui spirare facit humidum intra pellem conclusum, quod spirans spiritualiter pulsare incipit: qui spiritus est vehiculum vitae infusae illi substantia a stellis, quarum virtus est in ipso."

¹⁵² Albertus Magnus, *Meteora* IV,1,6, ed. P. Hoßfeld, Münster 2003 (Editio coloniensis 6/1) "Est autem attendendum quod, licet putrefactio et combustio habent unum finem et similem viam resolvendo corpora mixta, tamen putrefactio naturalis est et generationi naturali ipsius mixti opposita est combustio est violenta. Cuius causa vera est, quia naturalis actio non est, nisi fiat aliquo principorum naturalium et intrinsecorum operante vel cooperante. Putrefactio ergo erit via naturalis, cum fiat calore intrinseco educente humidum." This text also shows the difference of combustion and putrefaction: Combustion is a process which is triggered by an external agent, whereas putrefaction is entirely natural – it is caused by the absence of a principle of equilibrium within the corpse, i.e. the soul. More precisely, this principle of equilibrium is the vegetative part of the soul. See also Albertus Magnus, *Meteora* IV,1,6: "[V]ivorum potius

well known, every sublunary body is constituted by a specific mixture of the four elements; this mixture is specific for each different type of living beings. This mixture has to be kept in balance¹⁵³ in order to keep the body healthy and alive. When the body loses this ability, it gets sick and if this loss is permanent, it dies. We know this process very well from everyday experience; you just have to look at road accidents or things you forget in the fridge. Albert tells us now that, if the *putrefactio* were complete, the corpse would completely dry out, and hence no *spiritus* could emerge. Humidity is crucial for the emergence of *spiritus*, but outer conditions have to be finely balanced¹⁵⁴. These conditions have to ensure that the *spiritus* is enclosed and begins to pulsate within this enclosure. The pulsation is caused by the heat of the *spiritus* which is driven by the heat to the outside. The *spiritus* is receptive for the influence of the stars, and they infuse life into this pneumatic body. This, now, is spontaneous generation according to Albertus Magnus.

III. *Spiritus* in spontaneous generation

We have seen from the short outline of Albert's theory of spontaneous generation, that *spiritus* is the second of three steps in spontaneous generation. Its role is seemingly to link dead matter with the vivifying power¹⁵⁵ of the stars. Another important function is the preservation of living beings, a role that is closely connected to its role in spontaneous generation, as we shall see later. We have to turn first to the origin of *spiritus*, i.e. to the question how it is generated. *Spiritus* emerges at a certain point during putrefaction. Putrefaction is the disintegration of an elemental body into its elemental parts. Therefore, putrefaction is, as Albert states in *Meteora*, the opposite of elemental

corruptio secundum naturam videtur esse mors quam putrefactio. Putrefactio enim non accidit vivis, nisi postquam corrupta sunt per mortem.", Albertus Magnus, *De morte et vita* I,3, ed. Borgnet (vol. 9), Paris 1890: "Est enim mors hujus vitae privatio ex corruptione proportionis, quae est inter vivificans et vivificatum procedens." and *ibid.*: „Vita enim secundum prius habita, licet non sit circa quaedam separata, tamen implicite intelligitur in causa vitae; sed hoc est anima: et huic vitae non opponitur mors. Et vita quae est in fluxu ab anima ipsa: et nec vitae directe opponitur mors: eo quod illa et magis est anima quam corporis, sicut fluxus luminis plus est solis quam aeris recipientis. Et est tertia vita [*corr. ex ed.* Borgnet: vira] participata a corpore, adhaerens ei sicut forma formato: et haec est cui mors opponitur: hanc enim privat, et non aliam universaliter."

¹⁵³ This would amount to a definition of life as negative entropy (negentropy), that is, the ability to work against the general tendency to decay (entropy) in nature.

¹⁵⁴ See nt. 5.

¹⁵⁵ A precise formulation how to conceptualize this vivifying power cannot be given here, but the excellent paper of A. Takahashi, *Nature, Formative Power and Intellect in the Natural Philosophy of Albert the Great in Early Science and Medicine* 13 (2008), pp. 451 – 481 gives a very good account on that matter.

composition¹⁵⁶. Complete putrefaction results, as well as combustion, in total dryness and coldness. What remains, then, is nothing but earth. Albert defines the agents and the subject of putrefaction: The first agent is an outside heat, the *agens proximum* is the corrupted natural heat of the body and the subject of this sort of *corruptio* is the humidity of the body¹⁵⁷. This definition becomes quite clear, if we look at an extreme case of corruption, the *combustio*: in order to set something on fire, heat from the outside has to be applied. The burning thing finally gets dry and cold. But combustion is not a natural process, as is putrefaction.

Disintegration of the elemental structure of the putrefying body is a pre-condition for its rearrangement. In his *De spiritu et respiratione*, Albert the Great explains the composition of *spiritus*, albeit no explanation of its development during putrefaction is provided. *Spiritus* is not ether; it is a composition of the elements air, water, and fire with no or only few traces of earth¹⁵⁸.

Hence, *spiritus* is an elemental body that, having the form of air, is distinguished from all other dense substances, and most importantly it serves the soul in fulfilling its natural tasks and is hence an instrument through which the soul makes a body alive¹⁵⁹. The properties the *spiritus* has are due to its elemental mixture: Water provides the *spiritus* with a flexible thickness that allows the *spiritus* to receive the forms and at the same time to retain them well. Air, on its turn, provides the *spiritus* with the most important elemental form. *Spiritus* has this form because air has qualities, which are principles of life, i.e. humidity and warmth. As for the fire, it is warm and dry. By its warmth, fire opens up arteries and its dryness hardens them. Earth is not a part of *spiritus*, or is only an ineffective part of it, as it is cold, dry and heavy. Because it is heavy, it contradicts the nobility of *spiritus*, its coldness contradicts the animating properties of *spiritus*. Earth then, because of its coldness, is in Albert's view even *mortificativum*.¹⁶⁰

¹⁵⁶ Albertus Magnus, *Meteora* IV,1,5: "Simpliciter enim accepta generatione mixti commune contrarium, quod habet et principium, est putrefactio."

¹⁵⁷ Albertus Magnus, *Meteora* IV,1,8: "Et sic putrefactio congrue diffinita est, cum diffinitio eius contineat genus proprium et agens primum, quod est caliditas aliena, et agens proximum, quod est caliditas naturalis corrupta, et subiectum proprium, quod est uniuscuiusque humidum."

¹⁵⁸ Albertus Magnus, *De spiritu et respiratione* I,1,4, ed. Borgnet, Paris 1890: "Medius tamen est in substantia et forma inter aerem et aquam, habens proprietates utriusque in aliquot, et in aliquot proprietates ignis: sed parum vel nihil habet de proprietatibus terrae."

¹⁵⁹ *Ibid.*: "Dicamus igitur spiritum vivorum esse compositum corpus ex elementis, habens formam aeris, animae organice deserviens ad omnes vitae actus."

¹⁶⁰ *Ibid.*: „Aquae quidem habet proprietatem in humido aliquantulum spisso, ut et bene formas recipiat et convenienter teneat [...]. Aeris autem habet formam propter principia vitae quae sunt in aere, quae sunt calidum et humidum: convenientissimum enim est ut instrumentum vitae habeat etiam vitae principia [...]. Proprietates autem ignis habet, ut caliditate sua vias aperiat et perforet: calidum enim est aperitum et

It seems clear that, in Albert's view, *spiritus* is a necessary condition for the generation of animals. Before we come to the origin of *spiritus*, let us first have a look at its instrumental function in generation. It is the soul and not the nature which uses *spiritus* as an instrument. Nature does not use intermediaries, it executes its action directly. The soul, on the other hand, uses intermediaries. Albert gives a reason for this: The soul does not and cannot stop its activity. Because of its unity the soul cannot execute multiple acts by itself.¹⁶¹ But in the constitution of a living body different forms, corresponding to its many faculties and limbs, are necessary; the soul therefore uses the *spiritus* to bring about this plurality. It is the *spiritus* which informs the parts of the body: It transfers via the heart the sensitive power to the head, the nutritive power to the liver and, finally, the formative power to the testicles, which Albert calls divine (the power, not the testicles)¹⁶².

Following Avicenna Albert draws an analogy: The heart can be compared to the sun, while the *spiritus* can be compared to the sun-light. For Albert this is not just a metaphor, it is a parallelism between micro- and macrocosmos, between minor and major world. The heart is the principle of life of the single body; the sun is the principle of life in the lowest sphere of the major, heavenly world. This lowest sphere is the cause of generation and corruption. As the rays of the sun have the virtues of their stars, so do the flows of *spiritus*, which originate from the heart¹⁶³.

We have already seen that due to its elemental mixture the *spiritus* has the ability to receive forms. This receptivity enables the stars to infuse life into the "pneumatic" body

perforativum, siccitate autem actuali indurat interiorem tunicam arterialem [...]. Terrae autem proprietatem non habet: quia terra frigida, gravis, et sicca est, expressa ab ea omnimodo humiditate. Et per gravitatem quidem repugnaret nobilitati, per frigiditatem autem repugnaret vitae quam operator, eo quod frigus est mortificativum, praecipue illud quod est conjunctum cum sicco."

¹⁶¹ *Ibid.*: „Sed oportet nos non latere, quod hoc instrumento anima et non natura utitur: natura enim jungitur materiae sine medio, et perficit in ea suas operationes sine medio: eo quod ipsa non operatur essentialiter et per se nisi unum: propter quod instrumentum non indiget. Sed anima nihil ita operatur quod non cesset vel cessare possit aliquando ab illo, et operatur multa essentialiter. Cum igitur ipsa sit una et indivisibilis, per se solam haec plurima operari non potest: et ideo junctum est ei instrumentum, ex cuius formali diversitate plurima valeat operari." What can be said, though, is that life – as we shall see later – is the one undivided act of the soul within the body.

¹⁶² *Ibid.*: „[...] spiritus a corde transmissus ad alia membra inducit formas illorum ad vehendum virtutes illorum membrorum in corpus, sicut in cerebro accipit sensus et motus formam, et in hepate virtutum naturalium formam inducit [corr. ex induit], et in testiculis virtutem formativam quae a Philosophis vocatur divina."

¹⁶³ *Ibid.*: „Et in hoc egregie Avicenna comparat cor soli, et spiritum vitalem comparat lumini solis in minori mundo: quoniam cor est principium vitae per totam circumferentiam corporis, sicut sol principium vitae in maiori mundo in circulo declivi, qui causa est generationis et corruptionis rerum ut diximus in secundo *Peri geneseos*. Radii autem solis accipiunt virtutem omnis stellae quam illuminant et tangunt: et ita faciunt spiritus procedentes a corde ad alia membra principalia: reflexi enim ab ipsis spiritus vehunt secum virtutes membrorum in ea ad quae reflectuntur."

– it is quite clear, that it is a soul, which is transmitted into that body¹⁶⁴. The light-metaphor here is apt: as the sun transforms the air from colourless to colourful, so do the stars with the *spiritus*: the stars transform it from dead to alive. An interesting argument in the beginning of *De spiritu et respiratione* shows that. Albert argues here against those who hold that without striving and nutrition life is impossible. Albert contends that this objection is not valid, since striving and nutrition are first for us, but not first *secundum naturae ordinem*. Albert proves this by taking the immortal beings into consideration. It is fairly obvious that the celestial bodies, to which Albert refers with *immortalia*, have no nutrition or striving. Since these are living beings, it seems clear, that life is primary to all faculties of the soul. More precisely, Albert says that life is primary to every *other* operation of the soul. Life is an act proceeding from the essence of the soul; all other faculties of the soul are therefore secondary. Nutrition and striving only apply to the mortal beings, intellection and motion to humans as well as to the stars; animals have sense, but no intellection, and so forth. Hence, it seems clear that it is an essential act for the soul to enliven a body – be it celestial or terrestrial. All other faculties then seem to be accidental. But it can only accomplish this together with the *spiritus*. To understand how this works, a look at Albert’s *De homine* is helpful. The soul is *causa formalis*, *causa efficiens* and *causa finalis* of the body. In the first and third respect it is present in the whole body; as *causa efficiens* it is attached to the respective organs of the faculties of the soul¹⁶⁵. But the soul needs an intermediary for its acts:

¹⁶⁴ The necessity of the *spiritus* in the generation of living being poses a big problem for hylomorphism, since the form should be without intermediary in matter. I cannot offer a full solution here, but this much might be said: As we shall see, the stars do not emanate the soul into the body – except in humans. All other living beings gain their soul through *inchoatio formae*, that is, through processes internal to the material composition of the body based on heat. The soul “emerging” from these processes is then not so much the *forma corporis*, but rather a result of it. Again I refer the reader to A. Takahashi, *Nature* (nt. 8), who describes Albert’s notion of the *virtus formativa*, which plays an important role in this context. See also D. Wirmer, *Vom Denken der Natur zur Natur des Denkens. Ibn Bāğğas Theorie der Potenz als Grundlegung der Psychologie* (Scientia Graeco-Arabica 13), Berlin – New York 2014, pp. 475 – 476, who discusses similar problems in the context of Arabic philosophy, and G. Freudenthal, *Aristotle’s Theory of Material Substance. Heat and Pneuma, Form and Soul*, Oxford 1999, pp. 21 – 29. For *inchoatio formae* see the classic study of B. Nardi, *La dottrina d’Alberto Magno sull’ „inchoatio formae“* in id., *Studi di Filosofia Medievale*, Roma 1960, pp. 69 – 101 and S. C. Snyder, *Albert the Great, Inchoatio formae, and the Pure Potentiality of Matter in American Catholic Philosophical Quarterly* 70,1 (1996), pp. 63 – 82.

¹⁶⁵ Albertus Magnus, *De homine, De coniunctione animae et corporis* n. 8, edd. H. Anzulewicz/J. Söder, Münster 2008 (Editio coloniensis 27/2): “Similiter animam est considerare tribus modis, scilicet prout est forma et efficiens et finis viventis corporis, ut supra determinatum est. Si autem consideretur ut forma, tunc est in toto tota; perfectio enim in qualibet parte adest perfecto; non tamen est divisibilis divisione corporis ratione supra assignata. Si autem consideretur ut efficiens operum ipsius animati, tunc consideratur duobus modis, scilicet per potentias, per quas efficit opus, et sic habet aliquas potentias in qualibet parte, quod in una unam et in alia aliam; et aliquas habet quae nullius partis corporis sunt; cuiuslibet tamen potentiae organicae immediata est relatio ad suum organum. Consideratur etiam per

hence Albert proposes three *spiritus*: The natural *spiritus* which serves as an instrument for the vegetative soul, a vital *spiritus*, which enlivens the body and the animal *spiritus*, which animates the body. For our purposes the second *spiritus*, the *spiritus vitalis* is the most interesting. It resides in the heart and with this *spiritus* the soul causes life and pulsation in the whole body¹⁶⁶. Albert claims that the *spiritus* move in the same manner as the celestial bodies do, which has led some to the conclusion, that the *spiritus* is made of the fifth element; a conclusion that is wrong, as Albert explains here and in other places. Instead, this parallel movement of the spirit and the stars is caused by the fact, that the soul moves these *spiritus*. The soul in turn is moved by the stars. What Albert describes here is a structural parallelism between the celestial part of the cosmos and the soul/body-compound of the individual living beings.

Albert basically adopts a neoplatonic model of the cosmos: from a first cause subsequently the other intellects emanate. This process is continuous and extra-temporal. Emanation alone cannot explain any diversity. The first form, emanating from the first cause, is diffracted – like light in a prism – in the other intellects. The first and purest form is split like white light is split into different colours¹⁶⁷. This cascade goes down until the sublunar world. But it would be mistaken to conclude that in spontaneous and “normal” generation the souls of the living beings get by emanation into the body. Albert restricts the emanation of the soul to the generation of human beings: It is the intellective soul that is emanated into the human body. The souls of the other living beings, which are vegetative or sensitive souls, originate in the matter of the body. The phrase *vita infusa a stellis* has thus to be understood in the sense that everything, even the lowest element, earth, is part of a cosmic hierarchy ultimately governed by the first mover. Albert’s famous claim that the work of nature is a work of the intelligence (*opus naturae est opus intelligentiae*) underlines this. It assures the ability of nature to organize itself under the “guidance” of the intelligence. Especially the soul keeps the body in balance, as we have seen above. Souls emerge in bodies the

suam essentiam, et sic iterum est in toto tota, eo quod essentia animae omnibus viris adest, sive sint organicae sive non.”

¹⁶⁶ *Ibid.*: “[...] vitalis vero est ille, per quem anima a corde vitam et pulsum operatur in toto corpore [...]. Motus autem horum spirituum in corpore sunt sicut motus luminarium in mundo, propter quod etiam quidam dixerunt spiritus esse de natura quinti corporis, quod tamen non est verum.”

¹⁶⁷ Albertus Magnus, *Liber de causis et processu universitatis a prima causa* I,4,1, ed. W. Fauser, Münster 1993 (Editio coloniensis 17/2): “Istum modum fluxus antiquissimi Peripatetici et primi ‘processionem’ vocaverunt eo quod in ipso ipsa prima origo formae simplicis communicando se de se emittit formam a se procedentem sine sui diminutione. Sicut a luce procedit radius, et ipse radius in eo cui incedit, per sui diffusionem et multiplicationem et reflexionem constituit lumen simile primo fonti luminis, quantum possibile est.”

following way¹⁶⁸: The power of the stars informs the body in such a way that a soul develops from the body. This process can be analogously described as the work of a craftsman. The craftsman has the form of the house in his mind and with his instruments he begins to build it. In the generation of the soul, the process is similar, i.e. the spirit serves as an instrument for the *virtus formativa*, which finally brings a soul about. In the *spiritus* are the powers of the heavenly bodies and – in the case of sexual reproduction – of the soul of the father. In the case of spontaneous generation, where parents are absent, the soul of the father seems to be replaced by the soul of one of the heavenly bodies. These powers “penetrate” the body and inform it (in literal sense) with the soul.¹⁶⁹ More precisely, the *virtus formativa* carried by the *spiritus*, triggers a development towards the soul. This theory necessitates *inchoatio formae*. Without the idea that within particular configurations of matter there are particular forms in potency, generation (neither sexual nor spontaneous) in Albert could not work. *Spiritus*, in conclusion, is not a substance that is receptive for a form emanated from an intellect, but is rather a medium of transport for the powers that enliven a body. In this sense, the function of the *spiritus* in the living body and in the generation of living bodies does not differ.

IV. Possible sources for Albert’s theory of *spiritus*

The notion of πνεῦμα or its Latin equivalent *spiritus* has an extremely complex history. Starting with the Greek pre-socratics and the medical schools of ancient Greece it made its way through Aristotle into the Latin west. The big problem here is that several traditions intermingle: ancient medicine, peripatetic and stoic philosophy and their Arabic and Byzantine successors. This situation renders it very complex to identify the

¹⁶⁸ One should note that Albert reduces spontaneous generation to the normal sexual reproduction; therefore we can use his considerations on sexual reproduction in the context of spontaneous generation. Compare Albertus Magnus, *De spiritu* I,1,5: „Scimus iterum omnem generationem ex convenienti esse, ita etiam quod generatio univoca est ad quam reducitur aequivoca generatio.“

¹⁶⁹ Albertus Magnus, *De animalibus* XVI,1,6: „Hanc autem virtutem caelestem adhuc ultimo informat virtus animae, sicut motus instrumenti archyctectoni informatur ab arte archyctectonica: per quam informationem animae incipit operari ad vitam sive quod verius est, ad vivum et ad animatum: et istae virtutes simul collectae sunt in spiritu et calore spermatis: et quia operantur ad substantiam animatam in quantum sunt caelestis corporis et animae, ideo dicuntur hee virtutes esse sicut ars et sunt in semine sicut ars est in instrumentis artis: et quia sunt animae et operantur ad animatum, ideo sicut artifex statuarius secundum totam virtutem artis statuariae est in manibus et instrumentis quibus operatur statuam, ita anima et caelestis influxus secundum totam virtutem animandi et formandi sunt in spiritu et calore spermatis, et hoc est quod dixerunt peripateticorum quod anima est in semine non ut enthelechia corporis potentiam vitae habentis, sed potius sicut artifex et ars sunt in instrumentis in quibus fit artificatum.“

sources of those authors who already stand within this tradition. Furthermore, this intermingling makes it harder to understand all the notional strands one author employs for the concept of πνεῦμα or *spiritus*.¹⁷⁰

We can find all these traditions in Albert; for example, he explicitly mentions the *medici* in *De homine*. I have already said that Albert proposes the existence of three *spiritus*: *vitalis*, *naturalis*, and *animalis*. Each of these spirits serves a different function and has different proper place. To begin with the *spiritus naturalis*, Albert writes that it is mainly responsible for the digestion of food. Its role is to distribute the nutriments throughout the whole body, in order that every organ and limb can be nourished. It is mainly located in the liver¹⁷¹.

The *spiritus animalis* is responsible for the distribution of the higher faculties, that is, the senses. To accomplish this task, this *spiritus* needs to be very pure and therefore receptive for the sensible forms. It is mainly located in the head. Interestingly, this spirit is located in three different ventricles of the brain: Into the first two flow the senses and imagination, into the third flows memory. This spatial differentiation is accompanied by a qualitative differentiation: The first two ventricles contain a relatively liquid substance, apparently for the ease of impression, whereas the third chamber of the brain contains a dryer substance to allow for the long-term memory. A marble statue cannot be as easily destroyed or altered as a wet clay figure. We see here a very materialistic theory of sense and memory.¹⁷²

The third and the most important spirit, is the *spiritus vitalis*. It originates from the heart and serves as the immediate instrument of the soul. It enlivens the body by the distribution of the *actus procedens ab essentia animae*¹⁷³. But besides this very basic function, it is also the *causa proxima*, so to speak, of the other two spirits. As this spirit flows from the heart through every part of the body, the heart is *sedes animae*. This spirit is the origin of the other two insofar as every power of the soul originates from the heart. The *spiritus vitalis* flows into those organs, which are responsible either for nutrition or for the senses. These two secondary spirits have their origin therefore in the heart, but their organ is the liver, the stomach or the head. What we see here, is a repetition of Albert's neoplatonic cosmic scheme on the level of sublunar living beings.

¹⁷⁰ Cf. D. Wirmer, *Vom Denken der Natur*, pp. 378ff. for an analogous situation in the Arabic tradition. Albert discusses the opinions of several authors in *De spiritu* I,1,2-3.

¹⁷¹ See Albertus Magnus, *De spiritu* I,2,2 *passim*.

¹⁷² *Id.*, *De spiritu* I,2,4 *passim*.

¹⁷³ Albertus Magnus, *De spiritu* I,1,1: „Vita enim est actus ab essentia animae procedens [...]“

The heart is the source of the *spiritus*, and it differentiates itself when it is coupled with different organs¹⁷⁴.

As already noted, the history of this concept is complicated. Albert mentions several authors in *De spiritu*: Plato, Apuleius with his *De Platonis dogmate*, Galen, Aristotle, Avicenna, Averroes etc¹⁷⁵. For Plato and Apuleius, the different levels of the soul have different places in the human body. This resembles the Galenic doctrine of the different spirits, which originate in different organs. For Galen, the *spiritus naturalis* originates in the liver, the *spiritus animalis* in the head viz. the brain, and the *spiritus vitalis* in the heart. These Galenic spirits are not from the same substance. Against these theories, Aristotle argues that it is unnecessary to assume different souls in one body, rather one must hold that since a body can have only one form and one soul, different souls would lead to different forms in the same body. This is impossible. We further know that for Aristotle only two πνεύματα exist. One is the breath and the other is the natural heat. The fact that Albert mentions the *medici* in his *De homine* gives us a first hint: The editio Coloniensis mentions Constantinus Africanus as a possible source for Albert. Constantinus proposes, just as Albert, three different spirits, and moreover, he gives them the exact same names: *naturalis*, *vitalis vel spiritualis*, and *animalis*. As it is to be found in Albert, Constantinus holds that the *spiritus vitalis* originates from the heart and is distributed through the whole body. The *spiritus animalis* has its place in the head, but comes finally from the heart. The same is true for the *spiritus naturalis*, which resides in the liver, but is made from the *spiritus vitalis*. These similarities are sufficient to identify Constantinus as one of the sources¹⁷⁶ Another source, not mentioned in the editio Coloniensis at the respective place, could be Nemesius, to whom Albert frequently refers as Gregorius of Nyssa. In chapter XXIII in the Latin translation by Burgundio of Pisa (*De pulsibus*) of his *De natura hominis* we find a neat description of the inter-relation

¹⁷⁴ Albertus Magnus, *De spiritu* I,2,3 *passim*.

¹⁷⁵ See Albertus Magnus, *De spiritu* I,1,1.

¹⁷⁶ Constantinus Africanus, *Theorica IV,19, De spiritibus* nn. 2 – 6, ed. C. Burnett, *The Chapter on the Spirits in the Pantegni of Constantine the African* in edd. C. Burnett/D. Jacquart, *Constantine the African and ‘Alī ibn al-‘Abbās al-Mağūsī. The Pantegni and Related Texts* (Studies in Ancient Medicine 10), Leiden – New York – Köln 1994: “Omnis ergo spiritus est tripartitus. Est enim naturalis, est vitalis vel spiritualis, est et animalis. Naturalis nascitur in epate, unde per venas ad tocius corporis vadit membra, virtutem naturalem regit et augmentat, actiones eius custodiens. Hic igitur ex perfecti sanguinis fumo nascitur, qui in epate mundificatus et digestus ex omnibus humoribus clare depuratur. Spiritualis qui et vitalis spiritus dicitur in corde nascitur, vadens per arterias ad tocius corporis membra, spiritualem virtutem seu vitalem augmentans atque regens actionesque eius custodiens. Spiritus animalis in cerebri nascitur ventriculis, per nervos tendens ad membra tocius corporis, unde animalis virtus regitur et augmentatur actionesque eius custodiuntur. Hic ex sprirituali spiritu procreatur qui in corde generatur. Hic enim a corde ad cerebrum per arterias ascendit quae iuveniles dicuntur.”

between all three spirits, which bear again the same names as those in Albert's descriptions of the spirits. Nemesius describes the pulse as the vital (*zotica id est vitalis*) power. This movement originates, as in Albert, from the left ventricle of the heart. From there the inborn and vital heat is dispersed through the whole body via the arteries. Nemesius distinguishes three different "distribution systems" in the body: arteries, veins, and nerves. These different systems are responsible for the distribution of heat/life, nutrition, and sense and movement. Moreover, these systems are interdependent: The one cannot exist without the other, although the passage leaves the impression, that the *virtus vitalis* coming from the heart is the primary power. One important terminological difference to Albert has to be noted: the only substance called *spiritus* in this passage is the one coming from the heart. Again as in Albert, the *spiritus* is the third element connecting body and soul, that is, the spirit, the blood and the nerves serve as instruments for the soul. In his chapter on the imagination, Nemesius contends that the organ of the imagination is the anterior part of the head, filled with *spiritus animalis*.¹⁷⁷ We can therefore identify Nemesius as another source.

V. Conclusion

We have seen that the theory of *spiritus* in Albert not only plays a prominent role in the generation of animal life, but also in the very actions that signify life: nutrition, self-movement, sensual perception etc. It is the *spiritus vitalis*, that has a long tradition in Constantinus Africanus and Nemesius for example, that ultimately renders the actualization of the soul's faculties possible. *Spiritus* is a substance present in every part of the body and vivifying it by distributing life through the whole body. All other activities of the soul are dependent on the *spiritus vitalis*. The soul's faculties therefore differentiate themselves through the *spiritus*. The function of the *spiritus* is transportation and differentiation of the soul's power. Hence, it is a necessary means for a body to become alive. We have seen that, with the exception of the human soul, the vegetative and sensitive souls are, so to speak, not a result of an external influence (i.e. a direct transmission of the soul into the receptive body). The souls of lower animals and plants emerge from matter itself, though directed by the stars and the celestial intellects.

¹⁷⁷ Nemesius of Emesa, *De natura hominis*, Ch. XXIII (*De pulsibus*) (Corpus Latinum Commentatorium in Aristotelem Graecorum Suppl. 1), edd. G. Verbeke/J. R. Moncho, Leiden 1975: "Pulsualis autem motus vocatur quidem et zotica (id est vitalis) virtus. [...] Coexistentia vero sibi invicem, eas quae ab invicem sunt utilitates fructificant".

Albert's system is therefore not entirely emanationist, but still it is true for him that every work of nature is a work of the intelligence. In this question Albert separates himself from Avicenna and finds an ally in Averroes. In Albert's conception life is the primary and essential act of the soul; but the soul could not act at all if there was no *spiritus* – it is, consequently, a precondition for life¹⁷⁸.

¹⁷⁸ One important restriction has to be made here: This does not hold true for the intellectual part of the soul. But for the human being as a natural being, that is a terrestrial being with a body, *spiritus* is as necessary as for every other living being.