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Botany as Science and Exegetical Tool in Albert the Great¹

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Abstract. In the 13th century, the availability of Aristotle's treatises of natural philosophy encouraged forms of integration between *libri naturales* and *sapientia biblica*. Instead of diving into allegory and symbolism, several Dominican exegetes began to explore more realistic approaches. The foremost figure is Albert the Great. In his biblical commentaries, philosophy of nature and theology join forces as complementary forms of knowledge. By focusing on Albert's *De vegetabilibus*, this paper is aimed at analyzing in which ways the Dominican master reuses his naturalistic and, especially, botanical knowledge as an exegetical tool to deepen both the historical and the allegorical sense, realism and spiritual interpretation.

Keywords. Albert the Great, philosophy of nature, theology, botany, biblical exegesis.

1. PHILOSOPHY OF NATURE AND THEOLOGY: AN OPEN WORKSHOP

Quite often Albert the Great argues that theology and philosophy are two distinct intellectual endeavors. Philosophy, with its rigorous methods, is capable to explain many aspects of the nature of things but cannot extend to the domain of theological inquiry. Thus, repeating a well-known conviction shared by other university masters of the 13th century, Albert often worded the *caveat* of not transgressing the boundaries of the two domains. Between philosophy and theology, a complementary and hierarchically-ordered relation-

¹ I would like to express my gratitude to professor Stefano Perfetti (University of Pisa), who not only kept me informed of his ongoing research on the reuses of zoological information in Albert the Great's biblical commentaries, but also inspired me to investigate botany on analogous premises and gave me precious advice for this paper. Part of his research on the relationship between philosophical zoology and biblical exegesis in Albert is published as an article in this same issue of "Aisthesis". I am also grateful to dr. Fiorella Fioretto for her insightful suggestions.

ship exists, which on the one side guarantees the autonomy of philosophical investigation, but, on the other side preserves the higher level of theology and its truths. This programmatic distinction has often been mirrored by a separation in scholarship. For instance, most of the studies on Albert's natural philosophy tend to overlook textual and conceptual explorations in his theological and exegetical works. Yet, actually, it is possible to ascertain a significant presence of Albert the "philosopher" in the pages of Albert the "theologian" and "biblical exegete". This paper aims at investigating such interaction by analyzing in which ways and why Albert reuses his naturalistic and, especially, botanical knowledge in his later biblical exegetical works.

The very fact of being entrusted to found and organize a Dominican *studium generale* at Cologne in 1248 marked a turning point for Albert the Great. It was a core tenet of his vision that Dominican friars should be well trained not only in theological disciplines but also in liberal arts, with a philosophical curriculum not inferior to that of the universities. Such project pushed him to provide his students with specific tools, the most relevant of which is his commentary on the entire *corpus aristotelicum* (Weisheipl [1980]). However, commenting on the Latinized works of Aristotle also entailed, at least in certain cases, practices of reorganization of the Aristotelian encyclopedia, often through original integrative treatises. The most eloquent examples are to be found in Albert's *De vegetabilibus et plantis*.

Albert's *De vegetabilibus* is a paraphrastic commentary on a treatise on plants traditionally ascribed to Aristotle, but actually written by Nicholas of Damascus, in the first century AD (Morau [1973]; Hugonnard-Roche [2003]). Albert never explicitly questions the traditional attribution of the treatise to Aristotle, but, within his commentary, he leaves more than one trace of what I will label "pragmatic disavowal". For, through dislocations of textual sections and extensive well-structured digressions, Albert clearly aims at providing a more rigorous and consistent epistemic structure to his discourse on plants, in

order to enhance the incoherent and fragmentary *De plantis* and to bring it in line with the Aristotelian epistemic requirements. And Albert has a model in mind for that, i.e. Aristotle's zoological treatises (*Historia animalium*, *De partibus animalium* and *De generatione animalium*) collectively referred to as *De animalibus*. It is particularly in the central books of his *De vegetabilibus* (II-III-V) that Albert appears to be epistemically and structurally inspired by Aristotle's *De animalibus*, as if he was rewriting the *De plantis* just as Aristotle should (or could) have done.

It is often held by scholars (e.g. Weisheipl [1980]) that Albert's *De animalibus* was composed around 1258, shortly after his the *De vegetabilibus* (1256 ca.) (Anzulewicz [2011]). In fact, as Weisheipl points out, several statements of the *De animalibus* explicitly refer to the *De vegetabilibus* in the past tense. However, it should also be noticed that the *De vegetabilibus* too, in turn, includes many accurate references to the *De animalibus*. This might suggest the hypothesis that Albert worked simultaneously on the two commentaries. While this picture does not entail a reassessment on the chronological order of Albert's finished works, which is still only probable, nevertheless it makes it most likely to imagine a genetic interrelation between these works. By assuming this type of relationship, it is easier to explain why Albert was clearly inspired by the epistemic rigor of Aristotle's zoological treatises in rewriting the *De plantis* into his own *De vegetabilibus* (Albertus Magnus, *De vegetabilibus DV*, VI, II, 1: 472).

In addition to the theoretical sections of books II-III-V, Albert's *De vegetabilibus* also annexes two original books, VI and VII, that are devoted to an alphabetical description of herbs and shrubs. Such literary format – the alphabetical catalogue – is not unusual in the Dominican's works: his *De animalibus* and *De mineralibus* too include sequences of that sort. The second treatise of book II of *De mineralibus* is unanimously considered by scholars a lapidary (Riddle-Mulholland [1980]); likewise, book VI of the *De vegetabilibus* can be considered, if not a traditional *herbarium*, at least a draft of it (Stannard [1980]); finally, books XXII-XXVI

of *De animalibus* are an extra-commentary addition, made of an alphabetical catalogue of several groups of animals, ranging from quadrupeds to worms (Kitchell-Resnick [1999]: 1-44).

The alphabetical organization shared by the three treatises, however, is only one of the indicators of the many affinities between the alphabetical sections of those treatises.

Each alphabetical entry has a standardized descriptive structure, aimed at determining the nature of the *res* described therein. The cause-effect paradigm is subverted, since the nature of the particular *ens* is determined from the effect rather than the cause. The effects (i.e. the various *signa* that can actually be experienced) are what is most evident. Thus, in the first chapter of the second treatise of book VI, when introducing the alphabetical order of herbs, Albert states that the nature of herbs and plants can be *generaliter* known only through their *operationes* and external features. Shape, measure, and other qualities are crucial to determining the nature of the plant. In other words, Albert insists, we should deal with herbs using the same approach of a physician investigating the faculties of plants in order to get the drug. Albert draws a comparison between animals and plants: without knowing animal food habits, specific activities, and body parts, one cannot know their nature; likewise, the nature of plants is not known unless their qualities, parts and effects are investigated.

By comparing the alphabetical descriptions of the *De mineralibus*, of *De animalibus* and *De vegetabilibus*, one can clearly perceive structural analogies (although descriptive traits are not always in the same sequence): onomatology, morphology, description of humoral or elemental properties and finally therapeutic and cosmetic uses.

It is quite clear that Albert built his alphabetical catalogues of plants, minerals and animals also by resorting to several extra-Aristotelian sources. Structural affinities in the three works of Albert could be traced back to their sources as follows:

a. Medical tradition: Avicenna's *Canon of Medicine* (with its numerous references to Galen's

physiology and pharmacology) is the main source. From Constantine the African's *De gradibus simplicium* Albert draws information on the interaction between the properties of the elements and their therapeutic uses (Huguet-Termes [2008]).

b. Encyclopedic tradition: Isidore of Seville's *Etymologies* but even more Thomas of Cantimpré's *De natura rerum* (1230-1245 ca.) are the go-to sourcebooks for large sections of the *De vegetabilibus* and the *De animalibus* (Perfetti [2012]: 47-67; Aiken [1947]). Albert's *De mineralibus*, too, reveals many affinities with the mineralogical section of Thomas's *De natura rerum*, which is, however, never explicitly quoted².

Yet another phenomenon deserves particular emphasis. This is the interchange of naturalistic information between the alphabetical sections of the *De mineralibus*, *De vegetabilibus* and *De animalibus*. Seventeen of the precious stones examined in the second book *De mineralibus* find a re-housing in the alphabetical catalogues of the *De animalibus* and *De vegetabilibus*. In the *De vegetabilibus* eight precious stones are mentioned within the sixth book, while in the *De animalibus* the stones are mainly in the alphabetical section of books XII-XXVI.

Table 1 aims at giving a telling sample of such interchange.

The description of the «falcons» in the *De mineralibus* has an extremely specific terminology, aimed at explaining chemical processes affecting minerals, such as calcination and sublimation. What characterizes the sulphurous composition of «falcons» is the fact that it undergoes calcination and sublimation for three or four consecutive times; thanks to such chemical processes, this mineral acquires special features, such as the adustive power, i.e. the property to dry or burn other metals (except gold). As further evidence of such

² Given this silence of Albert, some studies have pointed out that the structural analogies could even be the result of more remote sources shared by the two authors: see Riddle-Mulholland (1980).

Table 1

<i>De mineralibus</i> , II, II, 6: 37.	<i>De animalibus</i> , XVI, II, 9: 1135.	<i>De vegetabilibus</i> , VI, II, 17: 564.
<i>Falcones, quod alio nome arsenicum vocatur, et a vulgo auripgmentum, idem significat. Est autem de genere lapidum citrinum et rubeum, quem lapidem unum de spiritibus vocant Alchimici. Habet autem naturam sulphuris in calefaciendo et dissicando, et cum calcinatur per ignem, nigrum efficitur, et statim sublimatione efficitur albissimum. Et si iterum calcinetur, interum efficitur nigrum, et iterata calcinatione efficitur albissimum: et cum hoc ter vel quater iteratur in ipso, tantum efficitur adustivum, quod aeri compositum statim facit foramina per ipsum, et exurit vehementer omnia metalla praeter aurum solum: appositum autem aeri ipsum in album colorem transmutat: propter quod falsarii utuntur ipso quando aes volunt facere simile argento: quia magnum in hoc habet effectum.</i>	<i>Sterilitas igitur ex corruptione creationis in prima mixtura causatur sicut dicit Empedocles sicut est mixtio balbutiens aeris et plumbi quorum utrumque est molle: et sicut est mixtio balbutiens in alkymicis ex lapide quem antiqui philosophi mez vocant et Arabes vocant falcardam, nos autem in latino vocamus ipsum arsenicum rubeum. Hic enim lapis est qui primo calcinatus et deinde sublimatus et interum calcinatus et secundo sublimatus, penetrat omnia metalla et colorata es quando spargitur super laminas eius cadentes et miscetur cum aere, sed non facit cum ipso nisi balbutientem mixturam quia nimis exsiccat aes et facit ipsum quasi assile. Talem igitur confusam mixturam dixit Empedocles fieri ex spermate asini et equae, et ideo id quod nascitur, sterile fieri.</i>	<i>Stafisagria alio nomine dicitur uva passa montana. Et est granum nigrum sicut cicer nigrum, sed est minus illo; et in monte Libano invenitur de ea plurimum. Et est autem calida et sicca, adustiva in operatione, corrosiva et acris in gustu. Interficit pediculos, praecipue cum arsenicum propter quod etiam herba pedicularis vocatur.</i>

properties, Albert adds that those who counterfeit money use the «falcones» to make bronze look like silver.

Instead, in the *De animalibus*, calcination and sublimation of the «falcones», here called «arsenicum rubeum», play an analogical-explanatory role allowing Albert to go deeper into the reasons for a mule being sterile. According to Empedocles, the cause of sterility is the corruption of the «prima mixtura» (thusly called «mixtio balbutiens» or, a little further, «confusa mixtura»). In their English translation of Albert's *De animalibus*, Kitchell and Resnick resolve this expression with «stammering mixture», taking it as an explanatory analogy. Just like the words of the stutterer prevent the production of a clear speech, the «mixtio» between the seminal fluid of the mare and that of the donkey generates an incomplete offspring (i.e., the mule, as such animal is incapable of reproducing). Similarly, a mixture of copper and lead produces a *molle*, namely an ineffective bronze. Clearly, Albert extends Empedocles' analogy by adding this reference to calcination and sublimation, which parallels the detailed explanation of such processes in his *De mineralibus*: they prevent the «arsenicum» from being mixed homogeneously with bronze, so that only a «confusa mixtura» comes out of it.

The mention of «arsenicum» in the *De vegetabilibus* at first seems to be irrelevant. Albert describes «stafisagria», also known as “mountain grape”: an herb that grows in the Lebanese mountains, which is characterized by a warm and dry complexion with dehydrating properties. In describing the dissecting proprieties of the «stafisagria», Albert resorts to the same terms already used to describe the adustive property of the «falcones». On account of such shared properties, the «arsenicum» and the «falcones» can be used in combination in order to suppress lice.

Information-sharing and dynamic textual interchanges between the *De mineralibus*, the *De vegetabilibus* and the *De animalibus* not only reveal an epistemic dialogue between disciplines, but also give an idea of Albert's open workshop and redactional methodology. The dynamic parallelisms of his pages seem to be based on a previous phase of data-collection and classification, according to the descriptive structure seen above.

A comparative inquiry on the alphabetic sections of these three works has been offered by De Asúa (2001). Of course, the author is well aware that this format is alien to Aristotle's epistemology and even to Albert's own scientific methodology. For, Aristotle prescribes to articulate the biological discourse into the common aspects shared by

different species (e.g., the function of “breathing” in man, horse, dog, and so on; see Aristotle, *De partibus animalium* I, 1, 639a 15-29). Alphabetical descriptions, on the contrary, are lists of species, thus they cannot but repeat many times the same characteristics (and this is exactly what Aristotle prohibited).

It is quite clear that Albert very selectively picks extra-Aristotelian information for the alphabetical sections, and limits moral and allegorical explanations drawn from traditional encyclopedic sources. However, it is still to be explained (i) what was the reason for inserting the alphabetical books into his commentaries on Aristotle? (ii) and why Albert felt the need of describing animals, plants, and minerals as catalogs of species?

It is my opinion that the intertextuality above described might give us a double cue. First, plants, animals and minerals reveal analogies that can be investigated by crossing the boundaries of the single treatises and the alphabetical entries provide a powerful tool for to do so. Secondly, natural particulars are not investigated *per se* by the Dominican master, but as tools for further intellectual and spiritual endeavors. For, by looking at Albert's later literary production, especially in the exegetical field, it is evident that the naturalistic *postillae* are not confined within the commentaries on the Aristotelian *corpus*. In fact, many of the botanical descriptions (both from the alphabetical sections and the theoretical books of the *De vegetabilibus*), find their way into his later biblical commentaries, particularly in the *Postilla super Isaiam* (1260 ca.) and in the *Commentarii in Iob* (1272-74 ca.), and, to a lesser extent, also in his *Super Mattheum* (1257-64 ca.).

2. THE *LIBER NATURAE* AND THE *LIBER SCRIPTURAE*

In Albert's theological works botany offers its services to exegesis in three ways: (i) sometimes a biblical commentary simply repeats a botanical description already outlined in the *De vegetabilibus*; (ii) other times, though, when dealing with

naturalistic subjects within his biblical commentaries, Albert takes the opportunity to broaden his description of a particular plant by adding new details; (iii) finally, in some passages of his exegetical works, Albert mentions new plants, that he never dealt with in the *De vegetabilibus*.

These manifold forms of textual interchange and the uncertainty as to the chronological order of Albert's works prompt us to imagine that Albert wrote his works in parallel, by resorting to note cards where he used to record, catalog, and reorganize information. The existence of such source-notes is further witnessed by several passages in his later biblical commentaries, where naturalistic information seems to parallel that of naturalistic treatises, albeit by adding new or different traits.

Albert's biblical commentaries, in fact, are the expression of a new exegetic season in which the very availability of Aristotle's treatises of natural philosophy encouraged a comparison between *libri naturales* and *sapientia biblica*. Instead of diving into allegory and symbolism, 13th century exegetes began to explore a more realistic approach. Allegorical interpretation, which characterized biblical exegesis in previous centuries, gives way to a new realistic outlook aimed at connecting the words, the events, and the natural things mentioned in the Scripture with *this* world (Smalley [1952]).

This realistic outlook can be illustrated by examining some passages of Albert's commentary on the *Book of Job* and on the *Book of Isaiah*.

2.1 *Two types of hope (spes): Commentarii in Iob, 14:7-10*

In the fourteenth chapter of the *Book of Job*, the Satan puts Job to test once again, this time by torturing him in the flesh. Job is now broken both in the spirit and in the flesh; he utters a painful meditation on the fragility, precariousness, and mortality of the human being. In such context he makes a comparison between the hope of human beings and that of plants. Human life reveals to be ephemeral, when compared to the lives of plants: they «may seem brief and fleeting, but because of

the plant's potential for regeneration, are not. The plant only *seems* to die, but really goes on living» (Pelham, [2012]: 119). «At least – Job states – *there is hope for a tree: If it is cut down, it will sprout again, and its new shoots will not fail*» (Job, 14:7). The Divine Providence, Job concludes, shows its mysterious workings in the complex phenomena of plant regeneration: «Lignum habet spem, si praecisum fuerit rursus virescit et rami eius pullulant si senuerit in terra radix eius et in pulvere emortuus fuerit, truncus illius ad odorem aquae germinabit et faciet comam quasi cum primum plantatum est» (Job, 14:7-9).

Albert's commentary on these verses can be divided into four sections:

I. Commentarii in Iob 14: 7, 182-183:

Hic ab impossibilitate redeundi ad hanc vitam post mortem hominis exaggerat miseriam. Et dicit duo, sc. quod plantis homo miserior est, quae infimam habent vitam, et quod ex se ariet et resurgere non valet nisi divina potentia. [...] Lignum habet spem, hoc est naturalem expectationem, sc. quod reviviscat, unde Aristoteles in libro de plantis dicit quod a planta redit iuventus eius. Et explanat spem subdens: si praecisum fuerit, in ramusculis sc., rursus virescit, per insitio-nem sc. [...] et rami eius pullulant, exorti sc. ex flagro inserto. [...] Et iste est unus modus plantae redeundi ad iuventutem.

Albert points out that, although plants live a lower level of life, man is more miserable (*miserior*) than plants, because he cannot regenerate himself like the plants do. Here Albert clearly refers to the Aristotelian ladder of nature, according to which the plants are in the lower (or first) step of animate things. Thus, Albert glosses the biblical text by inserting well-chosen references to botany. The hope (*spes*) for plants is their natural expectation (*naturalis expectatio*) of renovation and regeneration of parts. The first mode of regeneration is effected by grafting (*insitio*) a new bough (by emphasizing this artificial mode, Albert disregards the spontaneous springing of twigs from a cut branch suggested by the biblical verse).

II. Commentarii in Iob 14: 8-9, 182-183:

Et subdit secundum: Si senuerit in terra radix eius, hoc est, si senectute confecta per obstructionem pororum aruerit. Et hoc explanans subdit: et, id est in pulvere, hoc est terra frigida et sicca, fuerit emortuus, ut sc. frondere, florere, fructificare non possit truncus illius. [...] ad odorem aquae, hoc est ad fumalem evaporationem, germinabit, hoc est, germinare incipiet. Ier XVII, (8): "Ad humorem mittit radices suas, et non timebit, cum venerit aestus. Et erit folium eius viride". [...] Et faciet comam, frondium sc. florum et fructuum, quasi cum primum plantatum est.

In this second section we see that, however, when aging is due to dryness at the roots, caused by the obstruction of the pores (a physiological process dealt with at length in the *De vegetabilibus*³), the stump seems «to die in the soil» (Job, 14: 8b). Albert explains that a dry old plant do *ies* not bring forth leaves (*frondere*), flowers (*florere*), and fruits (*fructificare*) anymore. Still, the Bible writes that «at the scent of water» that plant «will bud and put forth shoots» (Job, 14: 9a). In interpreting «ad odorem aquae germinabit», Albert first reduces the poetical «scent» (*odor*) of the Bible to a more physical «evaporation of fumes» (*fumalis evaporatio*) (Albertus Magnus, *Commentarii in Iob*, 14:9, 183, 20-22); then he picks a quasi-botanical quote from the *Book of Jeremy* (17: 8) where the Latin term *humor* occurs («*Ad humorem mittit radices suas*»: «He is like a tree planted by water»). Quite possibly this *aqua/humor* connection refers to Albert's own physiology of plants. Both in the *De vegetabilibus* and the *De animalibus*, the term *humor* is often synonymous with the term *nutrimentum*. Through these subtle associations (or replacements) of terms, Albert reads the biblical poetic language in the terms of natural physiological processes.

III. Commentarii in Iob 14: 9, 183:

Et tangit opus rusticanum, quod et Aristoteles in libro de plantis et Palladius in libro de agricultura tangunt,

³ For example, see Albertus Magnus, *De vegetabilibus*, II, I, 1, 11-13: 107.

quod sc. in arbore vetusta, in cuius radice cortex induratus et in poris obstrictus humorem ad intima mittere non potest, et sic arbor aret et infructuosa efficitur, si maiores radices denudentur et securi findantur, lapisque in fissura ponatur, ne interum claudi possit, et stercora ponantur et terra cooperiantur, in fissuris incipit trahere humorem, et redit ipsam iuventus et comatur foliis, ornatur floribus, et fecundantur fructibus.

In the same vein of the previous extra-biblical reference to the grafting (*insitio*), here too Albert goes beyond the *littera* and the proper exegetical needs, by describing another possibility of plant regeneration through agricultural practices. In an aging tree (whose pores are obstructed), the roots stop taking moist nourishment (*humor*) and, accordingly, the tree stops producing fruits (*fructificare*). A remedy for this can be found in agricultural practices (*opus rusticanum*), as witnessed in Palladius' *Opus agriculturae* and the pseudo-Aristotelian *De plantis*. One must remove the bark from the largest roots, cut slots in them, wedge stones into the slots, to prevent them from closing; then, having filled the slots with manure, they can be covered with soil. This artificial cut allows the tree to take nourishment again and to be restored. Thanks to this treatment, the plant returns to a *new youth*, signified by a positive reversal of the same terms whose privation denoted the death of the plant: *frondere, florere, fructificare*.

There is no trace of this Palladian practice in Albert's *De vegetabilibus*. Not so unexpectedly, however, traces of it can be detected in the alphabetical section of his *De animalibus*, XXI: «[...] et ideo potius sunt circa fundum parum mota et sugentia humorem sicut plantae: et quod in plantis facit divisio radicum et divaricatio ut e latiori loco sugant nutrimentum» (Albertus Magnus, *De animalibus*, XXI, I, 6: 1341).

IV. *Commentarii in Iob 14:10, 184:*

Et per contrarium ostendit miseriam condicionis humanae subdens: Homo vero cum mortuus fuerit privatione animae et nudatus virtutibus et spiritus expiratione atque consumptus corporis putrefactione.

[...] ubi, quaeso, est? Nec per insitionem neque per cultum redit ad ipsum iuventus eius.

The last part of Albert's exegesis returns to the miserable human condition: at the time of his death, man will be deprived both of his soul and his virtues; unlike the plants, neither grafting nor any other natural cure can regenerate him.

The division of Albert's analysis into four parts clearly shows a certain circularity. The initial comparison between the miserable human condition and the hope for the plant (section I) is mirrored by the last section. The theme of *renovatio* offers the opportunity to explain the causes of obstruction of the pores and, thus, to deal with the aging of the plants (section II). Knowledge of the causes of aging in plants enables to identify remedies, such as grafting (section I and III). The description of grafting, even if it may seem unjustified and out of context, plays a crucial role in Albert's discourse. Artificial remedies, like grafting, make the difference between plants and humans even sharper (section IV). In fact, while the chance to regenerate themselves belongs to plants' nature, through both natural and artificial methods, this does not apply to the human being, neither through grafting (*neque per insitionem*) nor cures (*neque per cultum*).

2.2 *Job sicut scirpus: Iob 8: 8*

In Job 8, another of the so-called friends, Bildad, takes the floor and, following the thread of the retribution principle already formulated by Eliphaz in ch. 4, he reaffirms that God always rewards the righteous and punishes the wicked. Bildad goes on to stating that Job was surely being punished for some sin he had committed, even if inadvertently. Those who forget God, he insists (8: 11-13), are like a papyrus plant without water: «Can papyrus grow where there is no marsh? Can reeds thrive without water?» («Numquid vivere potest scirpus absque humor aut crescere caretum sine aqua?»; Job, 8: 11).

When commenting on this verse, Albert gives a very specific description of the *scirpus*, also known

Table 2.

<p>(<i>De vegetabilibus</i>, II, I, 3: 117)</p> <p>Cirpus tamen <i>nodum non habet</i>, et fere omnia genera juncorum, propter hoc, quod sunt debilis substantiae valde acquosae; et ideo nutrimentum ejus est aquosum et terrestre valde rarum [...].</p>	<p>(<i>Commentarii in Iob</i>, 8:8, 124, 30/ 125, 1)</p> <p>Scirpus est iuncus magnus, quia <i>absque omni nodo est</i>, nihil habet in quo stet nutrimentum, et ideo non viret, nisi continue trahat humorem. Nodus enim in calamo vel planta ad hoc est, ad quod est stomachus vel intestinum [...], sc. ut stet et digeratur nutrimentum et non cogatur continue sollicitari pro cibo. [...] Et intendit dicere quod Iob fuit sicut scirpus extra virens, intus vanus, et continue sumens humorem et nutrimentum per avaritiam.</p>
<p>(<i>De vegetabilibus</i>, VI, II, 4: 503)</p> <p>Cirpus est iuncus in locis palustribus crescens, sicut et carectum et est latius cirpo. Est autem cortex eius valde viridis, et plenus medulla; [...] Haec herba in se <i>nodum nullum habet omnino</i>, et succus eius est indigestus et aquosus valde.</p>	

Table 3.

<p>(<i>De vegetabilibus</i>, VI, II, 8: 522)</p> <p>Gladiolus est herba ad modum gladii disposita et habet tantum folia ex radice, et non stipitem, et est duorum generum. Quoddam enim crescit in siccis locis, et hoc habet florem altum iacinctinum mollem et aromaticum; et quoddam enim crescit in locis aquositate et habet florem similiter altum, sed croceum paludosi odoris cum aliquantula aromaticitate, redicem autem habet nodosam, totam in superficie terrae quasi denudatam iacentem, et est alba radix. [...] Attendendum etiam est quod locus, in quo crescit multitudo gladioli aquosi, vocatum carectum, et aliquando per metonymiam locus pro locato ponitur et <i>gladiolus aquosus carectum vocatur</i>.</p>	<p>(<i>Commentarii in Iob</i>, 8:11-14, 125, 5-39)</p> <p><i>Carectum gladiolus est</i>, qui etiam nodum nullum habet in foliis, et viret extra, et est intus vanum; et per eandem causam qua scirpus non potest esse sine continuo tractu aquae et humoris, sed in hoc differt, quod dilatatur in foliis, quod non facit scirpus, omnia tamen folia proicit ex radice, nullum ex stipite, quia stipitem non habet, propter quod in scientia de plantis inter herbas et non inter olera computatur. [...] et attende quod duplex est carectum: maius e minus. Maius in extremis folii planum est et lene, minus in extremis foliorum dentatum est et asperum et valde incisivu, sicut falx metentis. [...]</p>
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as *cirpus* in *De vegetabilibus* VI, II-4. It is helpful to compare these two descriptions (Table 2).

It is apparent that the commentary on Job shares just one detail with the *De vegetabilibus* (the absence of stem knots), but adds other botanical information that can be useful for the exegetical endeavor. The papyrus is a big reed, i.e. a plant without the knots where gathering of nutriment and digestion takes place. Due to such morphology, the papyrus cannot thrive without a constant and ample supply of water. Without abundant moisture, from a very humid ground, the plant quickly withers and dies. The laconism of the Bible (*humor, aqua*) is complemented by Albert by resorting to a plethora of physiological references: stem knots (*nodus*), stomach or intestines (*stomachus vel intestinum*), moisture (*humor*), nourishment (*nutrimentum*), food (*cibus*), digesting (*digerere*), and flourishing (*virere*).

All this naturalistic information is aimed at drawing a comparison with the main character of the biblical book: according to Bildad's logic, Job could be compared to the papyrus, since he was flourishing outside but was empty inside («extra virens, intus vanus»). In other words, he was a man whose appearance did not correspond to his inner nature. Like a papyrus that needs constant water, Job was greedy (*avarus*). For, while that need is physiologically necessary for a plant without stem knots, its *analogon* in Job is the sign of a twisted morality.

At this point, there is one more task for Albert. He has to explain the second part of Bildad's question: «Can reeds thrive without water?» (Job, 8: 11b). Albert specifies that the «carectum» (i.e. the reed) mentioned in the biblical verse is a species of *gladiolus*. It is useful to compare the two descriptions (Table 3).

In the alphabetical section of the *De vegetabilibus* Albert does not devote a specific entry to the «carectum», but simply identifies it as a subspecies of the «gladiolus» (i.e. «gladiolus aquosus»). Also, while in the commentary on Job Albert distinguishes between two types of reed (i.e. «maior» and «minus»), in the *De vegetabilibus* an analogous distinction depends on the habitat. Besides the ecological aspect, the relevant difference is the blooming of two different kinds of flowers (similar in shape, but different in smell and taste).

Clearly, the entry of the *De vegetabilibus* and the biblical description of the «carectum» do not overlap. In several regards, the description of the «carectum» in the *Commentarii in Iob* shows unique features. The «carectum» is a knotless plant, like the papyrus, thus unable to survive without taking abundant moisture from a very humid environment. Albert specifies that, differently from the naked papyrus, the reed has many leaves that spread directly from its roots.

When at 8: 12 Bildad adds that the papyrus «while still in flower and uncut, withers more quickly than grass» («Cum adhuc est in flore, nec carpatur manu, ante omnes herbas arescit»), Albert underlines that the inflorescence on top of the papyrus is not properly a flower, but a fan of herbaceous filaments and spikelets (then fruits), that has only the appearance of a flower.

Et attende quod verum florem non habet scirpus, sed loco floris in summitate sui emittit virgulas parvas et breves, in quarum summitate formantur quaedam grana vana, quae sunt loco fructus». (Albertus Magnus, Commentarii in Iob, 8: 12, 125, 25-30)

No mention of the papyrus spikelets appears in the *De vegetabilibus*. So, this addition, too, can be considered a *hapax*.

Eventually, each naturalistic trait is bent to moralizing analogies: the constant need of water of the «carectum» is the image of those who are worn-out by their thieving tendencies⁴; the sharp-

⁴ Albertus Magnus, *Commentarii in Iob*, 8: 11, 125, 19-21: «Et per carectum intendit filios et familiam, qui propter continuum tractum rapinae consumpti sunt».

edged «carectum» cannot be hand-harvested («non carpitur manu»), because it would cut the harvester's hand, like a person who is so intolerant of correction, that cannot even be touched by the corrector's hand⁵. In Bildad's logic, just like the papyrus flower-shaped spikelets are not properly flowers, Job's honesty was not true but only ostensible («honestas, qua videbatur florere Iob, non fuit vera, sed apparens»; Albertus Magnus, *Commentarii in Iob*, 8: 12, 125, 30-32).

2.3 *Iuncus vanus*: Isaiah 19:7-9

In his commentary on Isaiah, 19: 6b («calamus et iuncus marcescet») ⁶ Albert devotes a short digression to reed and rush/papyrus that deserves to be examined since its details differ from those of the *De vegetabilibus*:

Calamus est planta vacua, exterior decora et dura, ex qua quaedam nactae pulcherrimae complectuntur, quae ad ornatum lectis circumponuntur. Iuncus autem scirpus parvus, qui quidem videtur habere medullam, sed debilis est et inutilis. [...] Iuncus enim super omnia pabulum est ignis, et est iuncus aculeatum et spinatum habens angulum in sublimi. (Albertus Magnus, Postilla super Isaiam, 242, 15-19 and 29-31)

If compared to the descriptions of tables 2-3, the above shows several different features. The commentary on Isaiah (like the one on Job) describes the reed stem as empty, a feature that is not even mentioned in the *De vegetabilibus*. In describing the rush/papyrus marrow (*medulla*) in the *Postilla super Isaiam*, Albert clearly draws from his *De vegetabilibus*; however, while in the

⁵ Albertus Magnus, *Commentarii in Iob*, 8: 12, 125, 41-42: «Et intendit dicere quod ita odovit correptionem, quod tangi manu corripientis non potuit».

⁶ As prof. Stefano Perfetti pointed out to me, whereas the Hebrew Bible had just one term (‘arot, meaning “paper reeds”), the Vulgate has «calamus et iuncus», which is patterned on the LXX: καὶ ἐν παντὶ ἔλει καλάμου καὶ παπύρου (*and in every marsh of reed and papyrus*). Albert is aware of this, since he writes: «loco iunci LXX papyrus transtulerunt», see Albertus Magnus, *Postilla super Isaiam*, 242, 28-29.

De vegetabilibus the *medulla* was given a precise collocation, here in the biblical commentary its position is not significant enough to be accurately indicated. However, the fact that the *iuncus parvus* of *Postilla super Isaiam* XIX has an «aculeatus et spinatus angulus in sublimi» parallels what *Commentarii in Iob* 8: 12 says of the «carectum minus» (i.e., that «in extremis foliorum dentatum est et asperum et valde incisivum»; Albertus Magnus, *Commentarii in Iob*, 8:12, 125, 35-39). Such descriptions of the rush/papyrus prickles and spines are not to be found in the *De vegetabilibus*. As for the expression «pabulum ignis», “food for fire”, this seems to echo the chapter *De papyro* in Bartholomaeus Anglicus’ *De proprietatibus rerum*:

Papyrus dicitur quidam iuncus, qui desiccatus ad nutrimentum ignium in lucernis et lampadibus est valde aptus et dicitur quasi pabulum ignis: πῦρ enim ignis dicitur [...] et est herba viridis et rotunda, et exterius valde plana, interius habens mollem medullam, albam, siccam, bibulam et porosam. (XVII.126 = Bartholomaeus Anglicus [1601]: 906)⁷

In the context of commenting on Isaiah 19: 6, all these naturalistic details are instrumental in expanding the biblical dictate by sketching moral analogies. Nodding to Jerome’s interpretation, Albert suggests that the empty stem of the reed may hint at idle and futile deeds and words: «unde per calamum, ut dicit Hieronymus, opus vel verbum otiosum intelligitur» (*Postilla super Isaiam*, 242, 19-20)⁸.

3. FINAL REMARKS

As one can recognize from all these examples, the botanic details mentioned by Albert in

his exegetical commentaries are appropriate, well-balanced, and often subtly reshaped in order to explain biblical issues. Far from showing off of a *vana curiositas*, Albert does not go into verbose descriptions, but draws from his *De vegetabilibus* only those traits that may be useful to deepen the exegesis. In such perspective, Albert’s *philosophia naturalis* is a viable tool for a thorough understanding of the biblical verses, in their realistic aspects and in the metaphorical ones as well.

Therefore, Albert’s commentaries on Aristotle are already designed for the new exegetical perspective. Thanks to the Aristotelian analytic language underlying his commentaries and treatises, the Dominican master aims at a biblical interpretation that does not discard the traditional encyclopedic and Patristic sources, yet integrates them as parts of a new format. The alphabetical books, which are the result of an intense re-elaboration of extra-Aristotelian sources, nevertheless find their place within the framework of the commentaries on Aristotle. They are designed to be an exegetical tool through which the friars of the *Ordo Praedicatorum* can look for a new balance between the historic and allegorical sense, between realism and spiritual interpretation of Scripture.

Within biblical exegesis, natural philosophy and theology join forces as complementary forms of knowledge. Additionally, pieces of information drawn from natural philosophy fulfill a double task: they give fresh foundation to allegorizations or moralizations (which are less extended but not absent) and confirm the truth of the biblical text in order to foster a fruitful cross-reading between the *liber naturae* and the *liber Scripturae*.

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⁷ The Franciscan author wrote the nineteen books of his encyclopedia in the period 1234-1245 ca. See Van den Abeele-Meyer (2005).

⁸ Here Albert refers to Jerome, *In Isaiam*, PL 24, 252B: «Calamus autem iuxta tropologiam est sermo vacuus, et nihil in se solidum habens; et papyrus qui videtur quidem habere medullam, et non est vacuus, et tamen fragilis est, citoque marcescit».

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