

## Certissima signa

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# *De signis coeli* and *De ordine ac positione stellarum in signis*

## Two Star Catalogues from the Carolingian Age

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**Abstract** *De signis coeli* and *De ordine ac positione stellarum in signis* are two star catalogues produced during the Carolingian renaissance; they represent a contribution of the Aratean tradition to the basic astronomical knowledge in the early Middle Ages. Some characteristics of these texts are discussed, with a special focus on common aspects and differences.

**Summary** 1 Analogies and Differences. – 2 General Characteristics. – 3 The Knowledge of All the Ancient Constellations. – 4 Pagan Mythology in the Sky. – 5 Other Analogies and Differences. – 5.1 Data Selection. – 5.2 Accuracy in Calculation. – 5.3 Omission of the Brightest Stars. – 5.4 Topographical Remarks. – 5.5 Influence of the Images on the Texts.

**Keywords** Ancient astronomy. Medieval astronomy. Constellations. Celestial mythology.

### 1 Analogies and Differences

This paper focuses on two documents of the Carolingian age, two constellation lists with star catalogues and illustrations: *De signis coeli*, falsely attributed to Bede, and *De ordine ac positione stellarum in signis*, anonymous (figs. 1-2).<sup>1</sup> *De signis* and *De ordine* show the same structure and some common characteristics: it is easy to think that the first, more ancient one, was the model for the second.<sup>2</sup>

1 *De signis* is edited by Dell’Era 1979a, 269-30; for *De ordine* (and *Excerptum de astrologia*) editions see Dell’Era 1974b, *Una caeli descriptio* and Borst 2006, 1054 ff.; in part. 1251-60. Images from two of the oldest manuscripts, both dating to the first quarter of the 9th century: for *De signis* Laon, Bibliothèque Municipale ms. 422 (the ms. is reproduced in the digital database of the Bibliothèque Municipale de Laon, <http://bibliotheque-numerique.ville-laon.fr>), fig. 1a-b; for *De ordine* München, Bayerische Staatsbibliothek, cod. Clm 210 (the ms. is reproduced in the digital database of the Bayerische Staatsbibliothek, <http://daten.digital-e-sammlungen.de>), fig. 2a-b. A description of the two manuscripts in Blume, Haffner, Metzger 2012, I, 274-79 (Laon 422), 372-78 (München clm 210).


2 It is not its principal source, as stated by Borst 2006, 1250, no. 143; *De ordine* reveals multiple influences among which Germanicus’ *Aratea* with SB are the most relevant and

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Figures 1a-b. *De signis coeli* (1a: Gemini, Cancer, Leo, Auriga, Taurus; 1b: Centaurus, Serpens, Urna et Corvus, Anticanis). Laon, Bibliothèque Municipale ms. 422, fols 27v and 30v. First quarter of the eighth century (© Ville de Laon, Bibliothèque Municipale)

## 2 General Characteristics

Both the aforementioned writings are products of the Aratean tradition, the rich literary production originated from Aratus' *Phaenomena* together with related commentaries, including materials derived from Eratosthenes – a literature that was popular for centuries among the Roman élites.

Both writings stem from the *Aratea*, but from two different branches of this tradition.<sup>3</sup> *De signis* draws its materials from the *Aratus Latinus* (henceforth AL) a rudimentary Latin translation of a Greek commented edition of the *Phaenomena*, which included extracts from Eratosthenes'

characteristic, see Kauffmann 1888, 80 ff.; LXXI ff. Anyway it must be said that AL and Germanicus with SB occur together in some of the oldest preserved manuscripts of *Aratea* as Parisinus Lat. 7886 (ninth century Corbie) and Basileensis AN IV 18 (820-30 Fulda), which explains frequent contaminations.

3 A global schema of the Aratean tradition is in Le Bourdellès 1985, 15 (fig. 3).



Figure 2a-b. *De ordine ac positione stellarum in signis* (2a: *Auriga vel Agitator*, *Taurus*; 2b: *Cetus*, *Eridanus*, *Piscis magnus*, *Ara*, *Centaurus*). München, Bayerische Staatsbibliothek, cod. Clm 210, fols 117v and 120v. First quarter of the eighth century (© Bayerische Staatsbibliothek)

*Catasterisms*; the translation was made in the Abbey of Corbie and dates to the second quarter of the 8th century.<sup>4</sup> A partial re-elaboration, known as 'Revised AL' (hence *RAL*) was produced later, around the half of the same century.<sup>5</sup>

*De ordine*, on the other hand, draws from a Latin version of the same kind as Aratus' commented edition, the so-called *Germanici Aratea* with its *Scholia Basileensia* (*SB*),<sup>6</sup> a conglomerate which dates back at the latest to the 3rd century AD.

For the sake of completeness at this point we have to remember that during the same period, the Carolingian renaissance, another text was produced on the basis of the *RAL*: it was edited by Maass as *Anonymus Sangalensis*.<sup>7</sup> It reveals no astronomical interest, as opposed to the *De signis*; it

4 Le Bourdellès 1985, 259-63; he dates AL thanks to different arguments, including an analysis of the linguistic aspects of the Latin used in the translation.

5 *Terminus ante quem* is its oldest witness, cod. Köln, Dombibliothek 89, 798.

6 *Scholia Basileensia* are edited by Dell'Era 1979b, 301-77.

7 Cf. also Dell'Era 1974a.

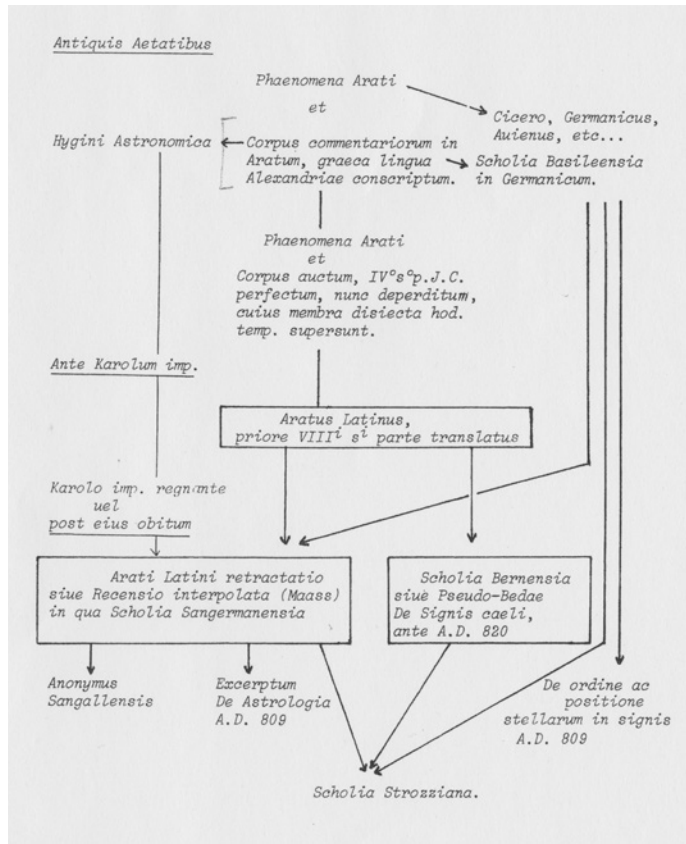


Figure 3. Scheme of the Aratean tradition (source: Le Bourdellès 1985, 15)

focuses totally on celestial mythology and collects myths on the origin of the constellations. Another text, which is strictly connected with *De ordine*, derives from the *AL*: it is commonly called *Excerptum de astrologia*.<sup>8</sup> It shows no interest in star catalogues or in celestial mythology, but draws from *AL* another kind of information: it is a description of the constellations according to their place in the sky, and it was certainly written with the help of a map. From this point of view, the *Excerptum de astrologia* follows the same structure of the first part of Aratus' *Phaenomena*, even if it introduces original remarks.<sup>9</sup>

8 Cf. Le Bourdellès 1985, 85-98 according to which the *Excerptum* was written following a celestial map of the *AL* and the author was a cultivated monk, acquainted with Virgil and Pliny. See also Borst 2006, 1054 ff., part. 1243-50; Dell'Era 1974b.

9 The author indicates the position of some non zodiacal constellations with respect to the Milky Way.

The two aforementioned catalogues, *De signis* and *De ordine*, find their historical value in the cultural frame of the recovery of astronomical data and information from the Aratean tradition in a well-defined geographical and chronological context. In fact, according to the provenance of the most ancient preserved manuscripts, the origin of the two catalogues must be placed in the same geographical area: Northern France, incidentally the same area involved in the production of most manuscripts of Carolingian astronomy between the end of the 8th and the beginning of the 9th century. This is also the date and the area of provenance of the oldest manuscripts containing extracts from Macrobius, Pliny, Martianus Capella and Chalcidius, as shown by Eastwood in his excellent study (fig. 4): places like Corbie, Reims, Fleury, Auxerre are certainly also the places of origin of the oldest manuscripts of the Western medieval Aratean tradition, and of our catalogues.

*De signis* is older than *De ordine*; according to Dell'Era it shares a higher number of readings with the *AL* (42) and other readings with the *RAL* (28); it seems to represent an intermediate stage between the two, probably close to the oldest phase of the *RAL*. Its *terminus ante quem* is Hrabanus Maurus' *De computo* (820), which draws from *De signis* its description of the constellations.<sup>10</sup> Due to its closeness to *AL* and *RAL*, and to the provenance of its oldest manuscripts, its origin must be probably situated at the Abbey of Corbie.

The origin of *De ordine*, by contrast, is connected to the so-called *Liber computi*, the great encyclopedia about time produced during the scholarly gathering promoted by Charlemagne with the purpose of addressing many questions about time, computus, calendar.<sup>11</sup> The *Liber computi* dates to 809-812. *De ordine* seems conceived in order to complete the description of the celestial map in the aforementioned *Excerptum de astrologia*, which is the introductory treatise of section 5 of the *Liber computi*, a section devoted to astronomy.

The connection between the two treatises (*De ordine* immediately following the *Excerptum* in the *Liber computi*) allows to explain some peculiarities of this catalogue compared to *De signis*: the scarcity of topographical descriptions and the absence of a chapter devoted to the planets.<sup>12</sup> In fact a complete topographical description of the constellations can be

10 Hrab. Maur., *De computo* 51, *sunt ergo signa extra ea quae in zodiaco consistunt, ut Arati Phaenomena testantur, numero triginta, quorum alia horoscopus ad septentrionem sequestrat, alia ad austrum sequestrat.*

11 Coordinator was presumably Adhalard of Corbie, cousin and collaborator of Charlemagne, cf. Borst 2006, 1055-57. The authorship of Adhalard and of his entourage in the abbey of Corbie for both *Excerptum* and *De ordine* is suggested by Le Bourdellès 1985, 99-107.

12 A chapter on the planets is in a few manuscripts of *De signis*: Montecassino, Archivio della Badia 3, 9th century and a few others.

found in the *Excerptum*, where, on the other hand, no catalogue of stars is mentioned; furthermore, different treatises on the planets follow the *De ordine* in section 5 of the *Liber computi*.

To sum up, we can date both catalogues between the half of the 8th century and the first years of the 9th, and locate their origin and first diffusion in the monasteries of the Northern Frankish kingdom.

Their diffusion dates to more or less the same time: the two treatises occur in numerous manuscripts (about 20 for each of them) dating from the 9th through the 15th century, and they are especially popular between the 9th and the 12th century; they tend, however, to lose their value as a primary source of information in the 12th century due to the spreading of the Latin translation of Ptolemy's *Almagest*, a text which offered a much more detailed and scientifically advanced catalogue (for instance the position of the stars is measured in grades).

*De signis* and *De ordine* were very popular. *De signis* was not only the source of Hrabanus Maurus in his *De computo*, as we have seen, but it was also used to include information about the number of the stars in the constellation illustrations in manuscripts of two different translations of Aratus' *Phaenomena*: a *Germanici Aratea* manuscript<sup>13</sup> and a *Ciceronis Aratea* manuscript.<sup>14</sup> As for the *De ordine*, its materials have been used to fill in corrupted or lost sections of stellar catalogues in the *RAL*.

Another common characteristic of the two catalogues is that they are preserved in computistic astronomical collections used by scholars and students (sometimes together with materials concerning the other branches of the Quadrivium: geometry, arithmetic, and music)<sup>15</sup> and in *computus* encyclopedias. They consist of a few pages, a sober list of all the constellations from the North pole through the South Pole, from the *Ursae* to the *Anticanis*;<sup>16</sup> every constellation is described in a limited set of terms: its name (sometimes more names or mythological identifications), a list (not always complete nor precise) of the stars according to their astrothesia, the total number of stars, and finally a small, more or

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13 Bern, Bürgerbibliothek, cod. 88 (ca. 1000; from St. Bertin?): Blume, Haffner, Metzger 2012, 1, 214-18.

14 London, British Library, ms. Harley 2506 (end of 10th century ca.; from Fleury): Blume, Haffner, Metzger 2012, 1, 327-32.

15 For the liberal arts in the Age of Charlemagne see Bischoff 1994, 93-114.

16 As stated before, a few mss of *De signis* also add a final chapter (41) on the five planets. It is following to the same need for completeness that Hervagius edition (I. Hervagius [ed.], *Opera Bedae Venerabilis*, Basileae 1563, 1, 422-56 = *PL* 90, col 948), adds one chapter on the Milky Way and one on Sagitta, both from Hyginus (*Haec Hyginus*); Sagitta is missing in *De signis*, probably because the author had identified it with the arrow of the Sagittarius, mentioned in the catalogue of this constellation (Sagitta followed immediately Sagittarius in the list of his source).

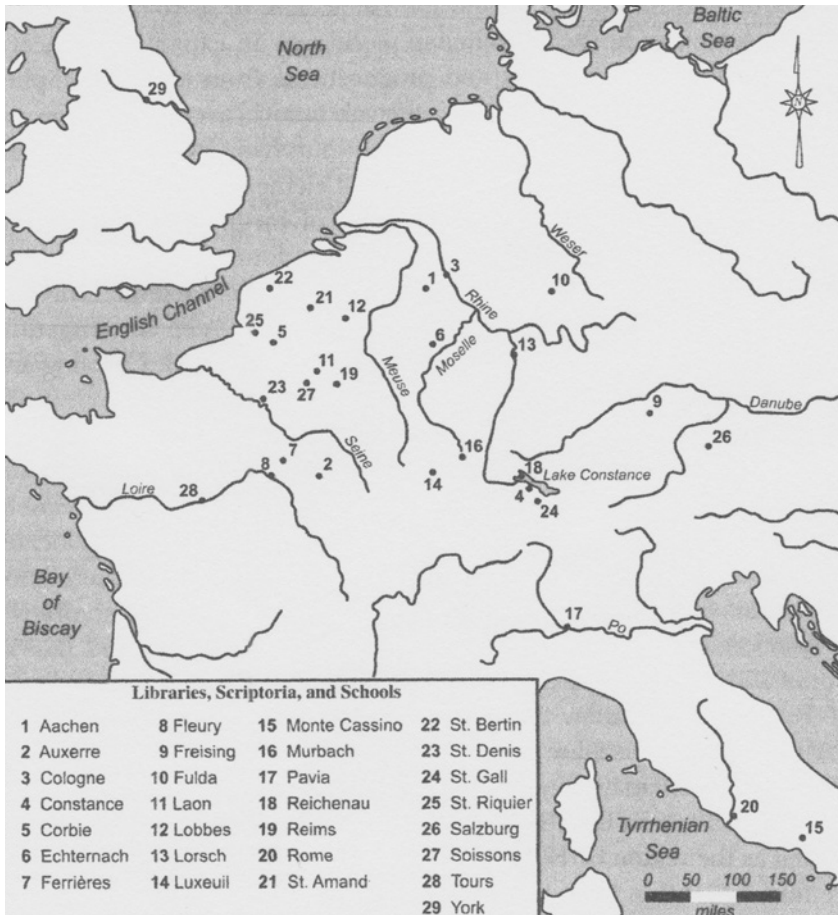


Figure 4. Map of Libraries and Scriptoria (source: Eastwood 2007, 18)

less carefully drawn or painted image. These books are not large documents, and they do not exhibit scientifically sophisticated information: in fact, they could easily be considered trivial and unworthy of any special attention from scholars.

On the other hand, it seems to me that both catalogues, and in general the Aratean tradition, deserve to be allotted a more prominent place in the process of the recovery and the spreading of the knowledge of ancient astronomy; this process flourished in the Carolingian age, and it must be considered part of a larger effort by Charlemagne and his scholars to promote civilisation and to reform education.

### 3 The Knowledge of All the Ancient Constellations

In modern studies about astronomy in the Western world during the Early Middle Ages, *De signis* and *De ordine* are ignored, and generally the same holds true for the Aratean tradition.<sup>17</sup> This general underestimation of all the Aratean tradition is well explained by Eastwood:

Produced primarily for non-technical interest, the various versions of Aratea might best be called catalogues of constellations, names and stories; the description of star positions in each constellation could only be discerned by looking directly at the night sky with the assistance of an instructor who had already learned when and where to find constellations.<sup>18</sup>

Now, it seems to me that we could consider a different point of view. The Aratean tradition, including the commentaries to the *Phaenomena*,<sup>19</sup> provided a typology of astronomical knowledge that Carolingian scholars could not easily find in either Pliny, Macrobius, Martianus Capella or Chalcidius, nor for that matter in their favourite sources of astronomical information, namely Isidore of Seville and Bede.<sup>20</sup> Considering the scarcity of information about the constellations in the text of Capella and its commentaries (Remigius of Auxerre and Johannes Scotus), Eastwood writes:

Not only Martianus' brevity of treatment (sc. of constellations), but also the paucity of Carolingian commentary and supplement make it obvious that a reader or student was expected to have previously read and been instructed in the texts, computistical and sidereal (Aratea, Hyginus), that gave a sound knowledge of the zodiac and the constellations.<sup>21</sup>

In other words, if we consider the complete and systematic description of the constellations of the entire sky, with their stars and figures, a star catalogue and (in some branches of the tradition) a complete synthetic

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17 Both catalogues are not even mentioned in two recent studies on early medieval astronomy in western Europe: McCluskey 1998 and Eastwood 2007.

18 Eastwood 2007, 13.

19 It is the same material, of remote Eratosthenic origin, which constitutes the source of Hyginus' *De astronomia*, a text that was largely present in monastic libraries of the early Middle Ages; this text was not used to produce our catalogues, but only in the revised version of AL.

20 *De natura rerum* and *Etimologie*, book 3 for Isidorus and *De natura rerum* and *De ratione temporum* for Bede.

21 Eastwood 2007, 222-23.



map of all data, the Aratean tradition was by far the privileged source for this kind of information.

The author of *De ordine* confirms this suggestion; compared to the author of *De signis*, he is more careful about the style and literary form of his text, and he writes the following preface<sup>22</sup> to his catalogue:

Est quidem hic ordo et positio siderum, quae fixa caelo plurium coacervatione stellarum in signum aliquod formata vel fabulose variarum genera formarum in caelum recepta creduntur; quorum nomina non naturae constitutio, sed humana persuasio, quae stellis numeros et nomina fecit,<sup>23</sup> adinvenit. Sed quia iuxta Aratum numerus stellarum unicuique signo adscriptus est, eo quo ab ipso est ordine digesta descriptio proferatur.

In this short preface the author informs his reader about a couple of essential issues: the content of the treatise; the origin of the constellations and of their names (two typical questions on this subject); the fact that, since Aratus had assigned a number of stars to each constellation, the present treatise would comply with the order of the constellations established by Aratus himself.<sup>24</sup> In short, our author states that Aratus is the author of a stellar catalogue.<sup>25</sup> Today if we think of an ancient stellar catalogue, we probably think of Ptolemy, Hipparchus, maybe of Eratosthenes; but the author of *De ordine*, instead, had only AL, which he called 'Aratus', at his disposal. Thus, the information offered by the two catalogues was not decorative nor of secondary importance; it contributed to integrate and define the subject-matter of the discipline, because astronomy did not only include the knowledge and the study of the sun, moon and zodiac, but also those of all the constellations and their stars: the constellations in these texts also have a didactic function, being helpful for memorization and in order to create a mental image of the sky

22 *De signis* has no preface: in ms. Vaticanus lat. 643 (9th century) (and in two of its apographs), an abstract from AL has been inserted as preface to the constellation list: see Kristen Lippincott (*Ps. Beda De signis*, 9-15, <http://www.kristenlippincott.com/the-saxl-project/>).

23 Verg., *Georg.* I 137, *navita tum stellis numeros et nomina fecit.*

24 The order was different from that followed in the *Excerptum*, the text that our *De ordine* had to complete.

25 Obviously, the stellar catalogue was not in Aratus' poem, but in the commentaries to Aratus; but it was common practice to identify under the same name the poem and the commentaries included in the same edition of that poem: also Hrabanus (see note 10) mentioned 'Aratus' as the source of his information about constellations, which actually comes from the *De signis*, i.e. from the exegetical tradition to Aratus' *Phaenomena*. By the same token, Lactantius (*Lact. Inst.* 1.11) quoted as "Germanicus" some data actually stemming from the commentary to Germanicus' poem.

that can be useful for the actual observation of the night sky, and help to locate and recognize the stars.

Included in such contexts as computistic encyclopedias and other miscellaneous collections (these being required text-books throughout the Carolingian schooling system), both our texts contributed for generations to the spreading of the elementary astronomical knowledge; they contributed to perpetuate the description of the sky elaborated by the ancients: names and representations of these forty constellations and of their stars coincide with those that scholars will draw from Ptolemy from the 12th century onwards.

#### 4 Pagan Mythology in the Sky

*De signis* and *De ordine* have also contributed to the survival of ancient pagan mythology of the sky in medieval Christian astronomy (and, in a certain sense, down to our own day). This survival was not to be taken for granted, because Christian scholars - as is well-known - did not generally appreciate pagan mythology, and the ancient sky was full of myths. In his work on Isidore and Visigothic Spain, J. Fontaine explains this very well:

D'autre part, les catastérismes de l'époque alexandrine avaient achevé de peupler le ciel des dieux et des héros de la mythologie païenne. Sous ce rapport également, le ciel nocturne était resté l'un des catéchismes les plus vivants du paganisme classique. Ainsi, la science des étoiles pouvait être doublement suspecte à l'évêque de Seville.<sup>26</sup>

Celestial mythology is deeply immoral; to use the words of a great Christian scholar: pagan constellations represent creatures that have been glorified and put in the sky thanks to their crimes and misdemeanours on the earth.<sup>27</sup> Moreover, this sky, full as it was of pagan gods and heroes, was

26 Fontaine 1959, II, 503.

27 Greg. Naz., *Contra Iulianum* 2 (or. V) Λέγε μοι καὶ σὺ τοὺς σοὺς ἀστέρας, τὸν Ἀριάδνης στέφανον, καὶ τὸν Βερενίκης πλόκαμον, καὶ τὸν ἀσελγῆ Κύκνον, καὶ τὸν ὕβριστὴν Ταῦρον· εἰ δὲ βούλει, τὸν Ὀφιοῦχόν σου, καὶ τὸν Αἰγόκερω, καὶ τὸν Λέοντα, ἄλλους τε ὄσους ἐπὶ τῷ κακῷ γνωρίσας, ἢ θεοὺς ἢ ἀστέρας ἐποίησας. Christian aversion to pagan astronomy is extreme according to Claudius Mamertinus' praise of emperor Julian: "...tu Philosophiam paulo ante suspectam ac non solum spoliatam honoribus sed accusatam ac ream non modo iudicio liberasti, sed amictam purpura, auro gemmisque redimitam in regali solio conlocasti. Susplicere iam in caelum licet et securis contemplari astra luminibus, qui paulo ante pronorum atque quadrupedum animantium ritu in humum visus trepidos figebamus. Quis enim spectare auderet ortum sideris, quis occasum? Ne agricolae quidem, quorum opera ad motum signorum caelestium temperanda sunt, tempestatum praesagia rimabantur. Ipsi navitae, qui nocturnos cursus ad astra moderantur, stellarum nominibus abstinebant.

strictly connected to astrology, a form of knowledge and practice that Christians generally did not approve of. Half a century before Isidore, Gregory of Tours wrote a treatise in which he explained to his monks how to observe the night sky in order to recognise the right time for the nocturnal prayer, the *matutinus*. Gregory stated at the outset that he would not consider the names given to constellations by Virgil and the other poets, but would instead mention the star-names they were using in his own day, because – so he wrote – “he did not teach astrology and did not mean to investigate the future”.<sup>28</sup> Thus, he cited just a few constellations, under names often so different from those of the ancient tradition that it is not always easy to identify the stars he is talking about.<sup>29</sup>

On the other hand, despite Gregory’s claims about the danger of glorifying pagan culture and religion, and about the link with astrological practice, it proved very difficult to discard the ancient constellations and their names altogether, not only because they were used by ancient astronomical texts, but also because Christian scholars found them in the Bible, for example in the book of Job, where God crushes the poor wretched Job asking him if he can tie the bands of the Pleiades or loose the reins of Orion, if he can lead out the constellations in their seasons or guide the Bear with its cubs.<sup>30</sup> In his *De natura rerum*, Isidore of Seville, following other Christian scholars,<sup>31</sup> seems perfectly aware of the problem and warns

Prorsus terra marique non ratione caelesti sed casu ac temere vivebatur” (*Paneg. Lat.* XI.8.4-5).

28 *De cursu stellarum ratione*, fol. 78v, 15-16 Haase. “Set nomina, quae his vel Maro vel reliqui indiderunt poetae, postpono, tantum ea vocabula nuncupans, quae vel usitate rusticitas nostra vocat vel ipsorum signaculorum expremet ordo, ut est crux, falcis et reliqua signa: quia non ego in his mathesin doceo neque futura perscrutare premoneo, sed qualiter cursus in dei laudibus rationabiliter impleantur exhortor, vel quibus horis qui in hoc officio adtente versari cupit, debeat nocte consurgere vel dominum deprecare”.

29 Some show Christian names as *Signum Christi*, or names related to agriculture as *Falx*; we also come across *Crux Maior* and *Crux Minor* (or *Alfa*), *Omega*, *Rubeola*, *Quinio*; *Plaustrum* vel *Septentrio* and a few others. About their identification see McCluskey 1991, 8-22.

30 *Job* 38.31-2; see also 9.8-9.

31 In his commentary to Amos, who mentioned Arcturus and Orion, st. Jerome wrote: “Quando autem audimus Arcturum et Oriona, non debemus sequi fabulas poetarum, et ridicula ac portentosa mendacia, quibus etiam coelum infamare conantur, et mercedem stupri inter sidera collocare... Sed scire Hebraea nomina, quae apud eos aliter appellantur, vocabulis fabularum gentilium in linguam nostram esse translata, qui non possumus intelligere quod dicitur, nisi per ea vocabula quae usu didicimus et errore combibimus”. (Hieron., *Comm. in Amos* 2.5 = PL 25, 1042). And here is Gregory the Great about Job: “Nequaquam sermo veritatis vanas Hesiodi, Arati et Callimachi fabulas sequitur, ut Arcturum nominans, extremam stellarum septem caudam Ursae suspicetur, et quasi Orion gladium teneat amator insanus. Haec quippe astrorum nomina a cultoribus sapientiae carnalis inventa sunt; sed scriptura sacra idcirco eisdem vocabulis utitur, ut res quas insinuare appetit notitia usitatae appellationis exprimantur. Nam si astra quae vellet per ignota nobis

his readers that the use of pagan constellation names must not imply acceptance of the immoral stories that these names represent; he also tries to explain why these names are nonetheless used in the Holy Scriptures.<sup>32</sup>

In actual practice, both Isidore<sup>33</sup> and Bede,<sup>34</sup> when speaking of constellations in their astronomical treatises, use the ancient names and indeed sometimes even explain the names by referring to the underlying myths. After all, etymological interest is an essential part of knowledge, for both Isidore and medieval culture in general. However, we do not find a systematic description of the constellations, nor a systematic list of their myths; a few myths are mentioned in a few cases only, and with explicit contempt for the *fabulae gentilium*.

Suspicion towards the pagan constellations of ancient astronomy was never totally abandoned, even in the Carolingian age: still, by that time we can witness a genuine interest for celestial mythology, e.g. in the aforementioned *Anonymus Sangallensis*. At the same time, we also find efforts to impose a Christian meaning to ancient images of constellations; for example, in some manuscripts we find that the *Anonymus Sangallensis* is paired with the *De astronomia more christiano*, a treatise in which zodiacal constellations are interpreted according to a Christian symbology.<sup>35</sup> After describing the ancient constellations (largely based on Aratus, i.e.

nomina diceret, homo pro quo haec eadem scriptura facta est, nesciret procul a dubio quid audiret. Sic igitur in sacro eloquio sapientes Dei sermonem trahunt a sapientibus saeculi". (Greg. Magn. Mor. 9.11.12, CCSL 143; 464).

**32** Isid., *De Nat. Rerum*, 26: "*De nominibus astrorum*. Legitur in Job, dicente Domino: Nunquid conjungere vales micantes stellas Pleiades, et gyrum Arcturi poteris dissipare? Nunquid producis Luciferum in tempore suo, et vesperum super filios terrae consurgere facis? Et iterum alibi: Qui facit Arcturum, et Orionem, et Hyadas. Haec nomina stellarum dum in Scripturis legimus vanis deliramentis assensum non praebeamus, qui falsis opinionibus vocabula ista in astris ex hominum nominibus, vel aliarum creaturarum vocabulis imposuerunt. Ita enim stellarum quarumdam gentilium sapientes nomina, sicut et dierum, indiderunt. Quod vero eisdem nominibus sacra utitur Scriptura, non eorum idcirco vanas approbat fabulas, sed faciens ex rebus visibilibus invisibilium rerum figuras, ea nomina pro cognitione ponuntur quae late sunt cognita, ut quidquid incognitum significat, facilius per id quod est cognitum humanis sensibus innotescat".

**33** Isid., *Etym.* 3.71: the section concerning constellation names presents the explanation of some of them; the list is not systematic: 71.4-14 *Ursa, Bootes, Orion, Hyades, Pleiades, Canis*; 71.22-32 the zodiac, starting with *Aries*; 71.33-35 other non zodiacal constellations (*Perseus, Andromeda, Auriga, Ursa maior* and *Bootes, Lyra, Centaurus*); some myths are mentioned; the section is a miscellaneous compilation from different sources, as the double treatment of *Ursa* and *Bootes* suggests. It seems relevant that the closure of this section consists of a strong attack against astrology (71.37), in support of which Isidore recalls the authority of the greatest scholars of the pagan world Plato and Aristotle.

**34** Bede, *De nat. Rerum* 17, lists the 12 zodiacal signs, the names of which he explains; he starts by saying that the names originate sometimes from seasons and sometimes from pagan stories (*gentilium fabulae*) and touch upon some myths for some constellations.

**35** Le Bourdellès, 1991, 385-444.

on the *De signis*), Hrabanus Maurus warns his pupil: *et mira gentium stultitia, quod sidera, quae Deus ad honorem nominis sui creavit et in coelestibus constituit, ea ipsi sceleratis hominibus et brutis animalibus in terra adscripserunt* (*De computo* 51).

Nonetheless it is in this time, also thanks to our catalogues and to the cultural context of the Carolingian renaissance, that the ancient pagan constellations with their names and figures are entirely recovered and included in didactic and normative encyclopaedic texts. From the 8th through the 12th century, all students learned the pagan constellations, from the Bears to Procyon, they learned their names and the underlying myths, because – as Christian authors had seen – the names carry the myths with them. This led to the preservation of the pagan constellations in the frame of a Christian sky.

## 5 Other Analogies and Differences

To conclude, we come back to the analogies and differences between *De signis* and *De ordine*. A detailed analysis and comparison between the two texts would require a long discussion, far too long for this article. We shall see here just some common points and some differences, with special reference to the following aspects: data selection; accuracy in calculation; omission of the brightest stars; topographical data; influence of images on the text.

### 5.1 Data Selection

Neither author is indebted to his ancient sources just for the mere catalogues occurring in the commentaries to Aratus or Germanicus, neither wants to produce a rough inventory of names. On the other hand, both texts include the mythological names of the constellations and, especially the *De signis*, details about their position in the sky, so as to create a well informed, elaborated text, with an effort towards literary accuracy (*De ordine*), and sometimes embracing even some original translations (*De signis*).

The author of the *De signis* draws information both from the mythographic part of the commentary and from Aratus' poem itself.<sup>36</sup> In several instances, he adds for each constellation a second name and a short presentation; these data are often in the mythographic commentary<sup>37</sup> or in

<sup>36</sup> For *AL*, see Maass 1898, 175-312.

<sup>37</sup> *Serpentarius qui et Asclepius dicitur* (*De signis* 6); *Equus, qui et Bellerofons dicitur* (*De signis* 18).

Aratus' text.<sup>38</sup> That seems to suggest that the author knew and used the entire AL. In at least two cases we find some information that we do not find in the Aratean tradition.<sup>39</sup> Moreover, it is remarkable that the text preserves some original translations of the Greek original, different from AL: the stars close to the Ursa Minor, called *Circenses* in AL (and *Choreutae* in SB and Hyginus, according to the Greek name), are termed *Ludentes* in *De signis*; this name has no parallels;<sup>40</sup> Hercules is called *Qui stans genu flexu*, which apparently translates the Greek name *Engonasi* and is probably an interpretation of Aratus' text in AL *Ingeniculo...quod in genu laborat* (l. 66); in any case, it is an original name for the constellation.

More complex are the contributions to the *De ordine*. The variety of influences and sources in this text can be seen in the names of the constellations, often quite different from those of the *De signis*.<sup>41</sup> The author draws some information from the mythographical part of the SB and probably from Germanicus' poem,<sup>42</sup> but the text also presents lexical consonances with the *Excerptum* (and, through the *Excerptum*, sometimes with AL).<sup>43</sup> He demonstrates his high-brow literary education

38 *Delfinus non multum supercurrit Capricorno... Orione obliquus quidem Tauro* (*De signis* 29-30, cf. AL v. 316 and 322); *Cetus sub Ariete et Piscibus gradiens* (*De signis* 34, cf. AL vv. 357-58).

39 *Eurus* (sic!) and *Geon* for the River (*De signis* 35); *Geon* is mentioned in the book of *Genesis* (2.10-4), and generally identified with the Nile in Christian authors; see also *Farus* for the Ara (*De signis* 37).

40 *Ludentes* has been preserved in the *Scholia Stroziana*: see Dell'Era 1979c, 147-65.

41 This confirms the variety of sources and the varying degree of elaboration of the material, for instance: *Phoenix qui et Arcturus Minor* (*De signis* 2) is *Cynosura*; *Arcturus Minor* (*De ordine* 3); *Hercules qui Stans genu flexu* (*De signis* 5) is *Hercules, qui et Ingeniculus dicitur* (*De ordine* 6); *Serpentarius qui et Asclepius* (*De signis* 6) is *Serpentarius qui Graece Ophiucus vocatur* (*De ordine* 7); *Arcas qui et Bootes* (*De signis*) is *Bootes qui Graece Arctophylax vocatur* (*De ordine* 9); *Virgo qui et Iustitia* (*De signis* 9) is *Virgo* (*De ordine* 10); *Agitator* (*De signis* 13) is *Auriga vel Agitator quem Erichthonium* (*De ordine* 14); *Equus qui Bellerofons* (*De signis* 18) is *Equus, quem Pegasus* (*De ordine* 19); *Lyra* (*De signis* 23) is *Lyra quae Fidis* (*De ordine* 24); *Canicula* (and *Sirium stellam, Canem*) in *De signis* 31 is *Canis* (and *Canicula stellam*) in *De ordine* 32; *Eurus, qui et Eridanus et a quibusdam Nilus, qui et Geon* (*De signis* 35) is *Fluvius, quem Eridanum* (*De ordine* 36); *Sacrarium qui et Farus* (*De signis* 37) is *Ara sive Sacrarium* (*De ordine* 38).

42 See *Auriga, vel Agitator, quem Erichthonium dicunt* (*De ordine* 14), *Equus, quem Pegasus vocant* (*De ordine* 19) and *Quae (Argo Navis) non tota caelo, sed a gubernaculo usque ad malum figuratur* (*De ordine* 35): these passages for instance find their parallel in the mythographical part of SB. As for *qui Graece Arctophylax vocatur* (*De ordine* 9), we find the Greek name of the constellation in the poem (Germ. v. 91); as for *Triangulus, quem Graeci Deltoton vocant* (*De ordine* 21), the Greek name is in Germ. 235 e 239, but also in Cic. 34.5. Consonances with Germanicus' poem suggest the use of a manuscript containing the poem and the SB as well: cf. Dell'Era 1974b, 30.

43 *De ordine* 2 and 3: *Helice, Arcturus maior* and *Cynosura, Arcturus minor*; cf. *Excerptum* 5: *Helice, Arcturus maior, Cynosura minor appellatur*. *De ordine* 4: *Serpens*, as in the *Excerptum*,

through a Virgilian reference in the preface as well as by some references to Cicero's *Aratea*.<sup>44</sup>

## 5.2 Accuracy in Calculation

Another common characteristic of the two catalogues is the accuracy in calculating numbers: the total number of the stars of each constellation is carefully reconstructed, and it is consistent with the description in the text, as can be verified in various instances. The total has been corrected when the author has modified his description as opposed to the original one, and when the total number was damaged or incorrect in the original. This common characteristic of the two corresponds to the centrality of calculation in early medieval astronomy.

## 5.3 Omission of the Brightest Stars

Even if the two catalogues show a high precision in counting the number of the stars for each constellation, on the other hand they show a certain inaccuracy in listing these stars. Sometimes they omit stars which are really relevant for their brightness, which one would never omit if only he had observed the sky according to the Aratean description. Both authors reveal total inexperience in the observation of the sky, at least according to the description they are transcribing.<sup>45</sup>

The *De signis* omits Arcturus in Bootes and Altair in Aquila, two stars mentioned in his source AL; moreover, he confuses Hyades with Pleiades and locates them on the face of the Taurus; finally, he omits an entire constellation (Sagitta), probably identifying it with the arrow of the Sagittarius' bow. The *De ordine* omits Deneb in Cygnus and the great star of Canis

not *Draco* as in SB. *De ordine* 5 *In geniculo dicitur* is not in SB, but it is in *Excerptum* 14 "Ille vero, qui in geniculo stat, quem Herculem dicunt". *De ordine* 7: *Serpentarius, qui Graece Ophiucus vocatur*, cf. *Excerptum* 43, l. 18 *Serpentarius vero qui a Graecis Ophiucus vocatus*. *De ordine* 34: *Navis, quae apud Graecos Argo nominatur*, cf. *Excerptum* 46, l. 81 *Navis quam Argo dicunt*. *De ordine* 36 *Eridano Fluvius, quem Eridanum dicunt*, cf. *Excerptum*, 46, l. 82 *Fluvius, quem Eridanum vocant*. *De ordine* 38 *Ara sive Sacrarium*, cf. *Excerptum* 45, l. 69 *Haec Ara, a quibusdam Sacrarium vocatur*.

<sup>44</sup> *Lyra, qui et Fidis appellatur* (*De ordine* 24), cf. Cicero 34.42 and 34.381; 34.461 *clara Fides*. in *De ordine* a certain care of the style might be seen in the variation of a simple formula like this: *Hercules... dicitur; Serpentarius qui...vocatur; Auriga...quem vocant; Lyra qui et ... appellatur; stellam ...quam Caniculam appellant; Navis quae...nominatur; Fluvius quem...dicunt*.

<sup>45</sup> As we have already seen in Gregory of Tours, other, simplified models of constellations existed, and an elementary observation of the sky in everyday life was certainly practised.

Minor.<sup>46</sup> Both catalogues do not reproduce the description of Perseus' head in the fog (*Via Lactea*) which they certainly found in their sources.

Being the only one to preserve the name of a certain number of stars, the *De ordine* can be said to carry a more complete description,<sup>47</sup> even if the *De signis* alone preserves at least a couple of other star names.<sup>48</sup>

#### 5.4 Topographical Remarks

On the other hand, the *De signis* presents more often remarks on the position of constellations and stars;<sup>49</sup> this makes the catalogue more complete from this point of view:<sup>50</sup> there was no need for the author of *De ordine* to include this kind of information, as it was largely reported in the *Excerptum*.

#### 5.5 Influence of the Images on the Texts

At last some textual choices in the *De signis* seem to indicate fidelity to illustrations rather than to the literary tradition. For instance the Auriga is described as follows:

Agitator habet stellam in capite I, in utroque humero I (sed ea est clarior, quae in sinistro humero est), in utroque cubito I, in dextra manu I, in summitate manus sinistrae II et super ipso brachio Hedulos II: in utroque Hedulo stellam I. Sunt omnes X. (*De signis* 13)

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46 The *De ordine* does not mention the bright star Vega in *Lyra*, but it must be said that this star cannot be found in SB.

47 It reminds the Claws and *Libra*, and argues that *Scorpio* is so large as to occupy *duo domicilia* in the zodiac (*De ordine* 8); it preserves in *Bootes inter genua utraque claram* I, which is *Arcturus* (*De ordine* 9); it mentions *Spica* in *Virgo* (*De ordine* 10); *Propus* in *Gemini* (*De ordine* 12); *Aselli* and *Praesepe* in *Cancer* (*De ordine* 11); the *Pleiades* are located in their correct place: *dicunturque in cauda Tauri positae* (*De ordine* 15); the central star of *Aquila*, namely *Altair*, is mentioned as the brightest one (*De ordine* 29). Furthermore, in the *De ordine Sagitta* is listed and described as a constellation, together with *Aquila* (*De ordine* 29), whereas *De signis* omits it (see *supra* fn. 14).

48 *Ropalon* in *Hercules* (4) and the *Ludentes* in *Ursa minor* (3).

49 For instance: *Triangulus, qui iacet super caput Arietis* (20); *Delfinus non multum supercurrit Capricorno* (29); *Orion obliquus quidem Tauro* (30); *Cetus sub Ariete et Piscibus gradiens* (34); *Eurus... a meridianis partibus habens initium, ad Orionis pedem tendens* (35); *Piscis magnus... a Capricorno usque ad Pisces eius longitudo protenditur* (36); *Sacrarium... Hoc signum sequitur caudam magni Scorpii* (37); *Serpens... fertur enim ut caput submittitur Cancro et caudam ad Centaurum tendat* (39); *Anticanis dicitur sub Geminis bene parere*(40).

50 In this sense one might accept the note in Blume, Haffner, Metzger 2012, 1, 252, according to which *De ordine* has been replaced by the *De signis* in the ms. Freiburg am Breisgau, Archiv des erzbischöflichen Ordinariats, ms. 35, in a context of *Liber computi*, because it represented *eine etwas ausführlichere Version*.





Figure 5. *De signis coeli*, Auriga. Laon, Bibliothèque Municipale ms. 422, fol. 27v  
(© Ville de Laon, Bibliothèque Municipale)

The author lists two unnamed stars on the left hand of the Auriga (in his source he found that they are named Kids (*Haedi*),<sup>51</sup> then he adds two other stars on the same left arm and calls them *Heduli*, Kids. And in accordance with his usual accuracy, he corrects the total by adding two units.

Thus, in ms. Laon 422, a manuscript that generally respects and reproduces the textual description in its illustrations, we find the figure of Auriga with two stars on his left hand and two kids on his left arm (fig. 5). But in fact, all the Aratean tradition, starting with Aratus' verses themselves, placed the Kids on Auriga's hand.<sup>52</sup> It seems possible that the author of *De signis* was inspired by an illustration of Auriga carrying the two kids on his arm; it is a type well represented in illustration series,<sup>53</sup> probably because the two kids were too large to be placed on one hand. An example occurs in ms. München clm 210 of the *De ordine* (fig. 2).

This instance suggests that a general analysis of the relationship between text and images in the two documents might prove useful to understand the process of their composition.

51 Maass 1898, 210, ll. 14-5 *Habet autem stellas in capite unam, in utroque humero unam, per singula cubita unam, super dextram manum unam, in sinistrae summitate duas, quae vocantur Heduli.*

52 Arat. *Phaen.*, 166 λεπτά φαείνεται Ἐριφοὶ καρπὸν κάτα χειρὸς; Germ., 169-70 *hanc Auriga umero totam gerit, at manus Haedos / ostendit, nautis inimicum sidus; Schol Bas. 14 : Qui Haedi dicuntur in sinistra manu eius sitae stellae sunt II; Catasterismi ch. 13 ἐν ἄριστερᾶς χειρὸς β', οἱ καλοῦνται Ἐριφοὶ.*

53 It can be found in a variety of manuscripts, see the Iconographic Database of the Warburg Institute: [http://iconographic.warburg.sas.ac.uk/vpc/VPC\\_search/subcats.php?cat\\_1=9&cat\\_2=71&cat\\_3=32&cat\\_4=40&cat\\_5=33](http://iconographic.warburg.sas.ac.uk/vpc/VPC_search/subcats.php?cat_1=9&cat_2=71&cat_3=32&cat_4=40&cat_5=33) and the Saxl project database of Kristen Lippincott: <http://www.kristenlippincott.com/the-saxl-project/illustrations/constellations/>.

These short notes are far from exhaustive about the different aspects and problems posed by the two texts, but I hope they can demonstrate the historical value of these texts, and the need for a more detailed study in the near future.

## Bibliography

- Bischoff, B. (1994). *Manuscripts and Libraries in the Age of Charlemagne*. Transl. by M.M. Gorman. New York: Cambridge University Press.
- Borst, A. (2006). *Schriften zur Komputistik im Frankreich von 721 bis 818*, 3 Bd. Hannover. Monumenta Germaniae historica, Quellen zur Geistesgeschichte des Mittelalters.
- Blume, D.; Haffner, M.; Metzger, W. (2012). *Sternbilder des Mittelalters. Das gemalte Himmel zwischen Wissenschaft und Phantasie*. Berlin: Akademie Verlag GmbH.
- Dell’Era, A. (1974a). *Un riassunto mitologico dell’Arato latino interpolato*. Palermo: IRES.
- Dell’Era, A. (1974b). *Una caeli descriptio d’età carolingia*. Palermo; Roma: Tip. S. Pio X.
- Dell’Era, A. (1979a). “Una rielaborazione dell’Arato Latino”. *Studi Medievali*, sr. 3, 20, 269-301.
- Dell’Era, A. (1979b). “Gli ‘Scholia Basileensia’ a Germanico”. *Atti della Accademia Nazionale dei Lincei*, sr. 8, 23, 301-77.
- Dell’Era, A. (1979c). “Una miscellanea astronomica medievale: gli ‘Scholia Stroziana’ a Germanico”. *Atti della Accademia Nazionale dei Lincei*, sr. 8, 23, 147-65.
- Eastwood, B.S. (2007). *Ordering the Heavens. Roman Astronomy and Cosmology in the Carolingian Renaissance*. Leiden; Boston: Brill.
- Fontaine, J. (1959). *Isidore de Seville et la culture classique dans l’Espagne Visigotique*. Paris: Études Augustiniennes.
- Haase, H.A.F. (1853). *Gregorii Turonensis Episcopi liber De Cursu Stellarum*. Breslau: J. Max.
- Kauffmann, G. (1888). *De Hygini memoria Scholiis in Ciceronis Aratum Harleianis servata*. Breslau: Koebner.
- Le Bourdellès, H. (1985). *Aratus Latinus. Etude sur la culture et la langue latines dans le Nord de la France au VIIIe siècle*. Lille: Université de Lille III.
- Le Bourdellès, H. (1991). “De Astronomia more Christiano”. *Studi Medievali*, 32, 385-444.
- Maass, E. (1898). *Commentariorum in Aratum Reliquiae*. Berlin: Weidmann.
- Mazal, O. (1993). *Die Sternenwelt der Mittelalters*. Graz: ADEVA Verlag.
- McCluskey, S. (1991). “Gregory of Tours, Monastic Timekeeping, and Early Christian Attitudes to Astronomy”. *Isis* 81, 8-22.
- McCluskey, S.C (1998). *Astronomies and Cultures in Early Medieval Europe*. New York: Cambridge University Press.