De ordine ac positione stellarum in signis

De ordine ac positione stellarum in signis: the textual tradition

The *De ordine ac positione stellarum in signis* is a catalogue of 42 constellations. Each entry consists of the name of the constellation (with variant names sometimes added), followed by a description of the stars, which are described in terms of its position within the body of the constellation itself and, sometimes, in terms of visibility.

The earliest scholarly reference to the *De ordine ac positione stellarum in signis* can be traced back to the work on Book II of Hyginus's *De astronomia* by W. Hasper in 1861 and the version of the text he discovered in the Paris Manuscript, BN lat 8663.[1] In his 1888 study on the dispersion of Pliny's *Naturalis historia*, Rück identified three additional copies of the text and suggested that it had been derived from the *scholia* to the Germanicus Latin translation of Aratus's *Phaenomena*.[2] The *editio princeps* of the tex, however, was first published by Kauffmann in 1888 under the title, '*Excerptum Parisinum*'.[3] Kauffmann claimed that his text was a version of the *scholia Basileesia*, superior to that which had been used by Breysig in his edition. He was also the first to note the divergences from the *scholia Basileensia*: namely, in the addition of several variant names for the constellations, such as:

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[1] HASPER 1861.

[2] RUCK 1888. He mentions Munich clm 210 (which he dates to 818), Vienna ÖNB 887 (which he dates 830), Paris BN lat 8663 and Paris BN lat 12117, both from the 9th century.

[3] KAUFFMANN 1888, esp. pp. 80ff.

- **URSA MAIOR** adds the variant name: *Arcturus maior*
- **URSA MINOR** adds the variant name: *Arcturus minor*
- **HERCULES** adds: *qui et In geniculo dicitur*
- **SERPENTARIUS** adds: *qui Graece Ophiuchus vocatur*
- **SCORPIO'S** horns are called: *vel potius* and *vel labiis*; and the size of the constellation is described as: *id est in spatium duorum signorum*
- **BOOTES** adds: *qui Graece Arctophylax*
- **CANCER'S** nebula is described as: *quae candida coloris*; and the right horn is *vel labio*
- **TRIANGULUS** adds: quem Graeci eltoton vocant
- **PISCES** fish are described as (northern) id est aquilonalis; (southern) qui australis
- **ARA** adds: sive Sacrarium
- **SERPENS** adds: quem Hydrum nominant
- **CRATER** adds: sive Urna

The preface and opening lines of the *De ordine ac positione stellarum in signis* were edited by Maass in 1898,[4] where, following Rück, he cited the text as '*alia caeli descriptio cum stellarum indicibus Hygini libro III similibus coniuncta*'. [5] Manitius published another edition of the text in 1899, ignoring almost all the previous literature.[6] He proposed that the differences between the *scholia Basileensia* and the *De ordine ac positione* texts were the result of the compiler of the latter having consulted a 'caelum pictum', which had '*die griechischen Worte*

[4] MAASS 1898, p. 312.

[5] *ibid.*

[6] MANITIUS 1899, pp. 293- _____.

gehen vielleicht auch auf sog. Fragnment Hygins zurück'.[7] Finally, a somewhat inaccurate transcription of the version of the text that appears in the St Petersburg manuscript (Ms Q v IX, 2) was printed in 1910.[8] The work was then largely ignored for the next 65 years until it was fully re-edited by dell'Era in 1974, using fifteen manuscripts (using Munich clm 210 as his 'A'), as well as the editions of Kauffmann and Manitius[9]

I have traced 14 manuscripts in which an illustrated version of the *De ordine ac positione stellarum in signis* appears. These are as follows:

1. Austin, Texas
   Harry Ransom Humanities Research Center, University of Texas at Austin
   Ms 29
   De ordine ac positione stellarum in signis
   German (Bavaria), mid-11th century

2. Berlin
   Staatsbibliothek
   Ms lat 130 (Phill. 1832)
   De ordine ac positione stellarum in signis (excerpted from the Salzburg Compilation of 810-18 / *Liber calculationis)*
   French (Laon), 873

3. Los Angeles (Malibu), CA
   The J Paul Getty Museum
   Ms Ludwig XII, 5
   De ordine ac positione stellarum in signis
   English, early 13th century

[7] MANITIUS 1899, p. 295 as cited in dell'ERA 1974, p. 11. Dell'Era also notes that the contributions of Kaufmann and Manitius were unknown or ignored by: SAXL 1915, p. 60 (who identifies the text as ps-Bede *De signis caeli*) and MARTIN 1956, p. 40: SOUBIRAN 1972, pp. 108, n. 3 and 111, n. 4 mentions Kauffmann, but not Manitius.

[8] ST PETERSBURG 1910, 1, pp. 240-42.

[9] dell'ERA 1974. As dell'Era notes, the text is scarcely mentioned by Saxl in his 1915 *Verzeichnnis der astrologischer … Handscriften* or by Martin in his 1956 study of the history of the text of the *Phaenomena*. Soubiran mentions the text in his edition of the Ciceronian translation of the *Phaenomena*, but seems to know only Kauffmann's work. See dell'ERA 1974, p. 11 and nn.16-18. I would like to thank Giovanni Fiori of the University of Palermo for obtaining a copy of dell'Era's text for me.

4. Madrid
   Biblioteca Nacional
   Ms 3307
   De ordine ac positione stellarum in signis (in the Aachen Compilation of 809-12 / *Libri computi*)
   Murbach, c. 820

5. Monza
   Biblioteca Capitolare
   Ms F. 9 / 176 (246)
   De ordine ac positione stellarum in signis (in the Aachen Compilation of 809-12 / *Libri computi*)
   Niederrhein, c. 850

6. Munich
   Staatsbiliothek
   Ms clm 210
   De ordine ac positione stellarum in signis (in a complete version of the Salzburg Compilation of 810-18 / *Liber calculationis*)

7. Paris
   Bibliothèque nationale
   Ms lat 8663
   De ordine ac positione stellarum in signis (excerpted from the Aachen Compilation of 809-12 / *Libri computi*)
   Fleury, c. 1000

8. Paris
   Bibliothèque nationale
   Ms lat 12117
   De ordine ac positione stellarum in signis (excerpted from the Aachen Compilation of 809-12 / *Libri computi*)
   St Germain des Prés, 1060

9. Paris
   Bibliothèque nationale
   Ms lat nouv. acq. 1614
   De ordine ac positione stellarum in signis (excerpted from the Aachen Compilation of 809-12 / *Libri computi*)
   Tours, after 825

10. St Petersburg
    National Library
    Ms Q v IX, No. 2
    De ordine ac positione stellarum in signis (excerpted from the Aachen Compilation of 809-12 / *Libri computi*)
    probably St Germain des Prés, before 1100

11. Vatican
    Biblitoeca Apostolica
    Ms Vat lat 645
    De ordine ac positione stellarum in signis (in the Aachen Compilation of 809-12 / *Libri computi*)
    around Reims, 830-60

12. Vatican
    Biblioteca Apostolica
    Ms Reg lat 309
    De ordine ac positione stellarum in signis (in the Aachen Compilation of 809-12 / *Libri computi*)
    St Denis, 859

13. Vienna
    ÖNB
    Ms Vindob 387
    De ordine ac positione stellarum in signis (in a complete version of the Salzburg Compilation of 810-18 / *Liber calculationis*)
    Salzburg, 818

14. Vienna
    ÖNB
    Ms Vindob 12600
    De ordine ac positione stellarum in signis (excerpted from the Aachen Compilation of 809-12 / *Libri computi*)
    Prüfening Abbey (nr Regensburg), c. 1150

From this list, it is clear that the chapters of the *De ordine ac positione stellarum in signis* appear in four different contexts. Since an understanding of the context of the catalogue is fundamental to an appreciation of the development and transmission of the illustrations, it is worth reviewing the history and form of these different traditions.

The Aachen Compilation of 809-12 (also known as the *Libri computi* and 'the Compilation in 7 Books')

In 809, Charlemagne commissioned a number of scholars – possibly headed by Abbot Adalhard of Corbie - collaborated at the instigation of Charlemagne to

compile a treatise on the computus.[10] Since this work never received a title, Borst has recently suggested in his extensive studies on the computus and the calendar to call it the *Libri computi*; [11] and since the compilation was made in Aachen during the years 809-812, references to this compilation in the present study will be cited with the *addendum* of 'the Aachen compilation 809-812' to separate it a bit more clearly from the other compilation texts.

In the compilation, the scholars included the *Annalis libellis*, a kind of year-book, written in Verona in 793 by an anonymous author. The *Annalis libellis* consists of 70 chapters, with a short *argumenta* (or formulae for making calculations). To this, they added a selection of excerpts from authors such as Pliny, Bede and Alcuin. All together, the material included in the Aachen Compilation comprises 150 chapters, which have been structured into seven books. For this reason, it is also sometimes called the '7-book computus' or the 'Compilation in 7 books'.[12]

Book V of the Aachen Compilation is devoted to astronomical topics. It is divided into twelve chapters:

1. *Excerptum de astrologia*
2. *De ordine ac positione stellarum in signis*
3. *De positione et cursus septem planetarum*
4. *De intervallis earum*
5. *De absidibus earum*
6. *De cursu earum per zodiacum*
7. *De interlunio*
8. *De eclypsi lunae*

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[10] The literature on these Carolingian compilations is vast. See, for example, the earliest studies that focus primarily on the Pliny extracts found in the compilations, such as RÜCK 1888; RÜCK 1900; MANITIUS 1911-13, I, pp. 407 and 502; and, most recently, BORST 1994/ 1995[2] and BORST 1998, esp. pp. 312-22. For a useful cultural overview of astronomy at Charlemagne's court, see McCLUSKEY 1998, pp. 131-39.

[11] BORST 1995[2], pp. 156-165 and BORST 1998, p. 319.

[12] BORST 1993 esp. 71-73. See also STEVENS 1993, esp. p. 375.

9. *De eclypsi solis*
10. *Quando solis eclypsis visa sit moderna tempore*
11. *Dimensio caelestium spatiorum secundum quosdam*
12. *De presagiis tempestatum*[13]

Most of the material that makes up the star catalogue of chapter 2 has been taken from one of the earliest sets of *scholia* to the Germanicus translation of the *Phaenomena* of Aratus, the so-called '*scholia Basileensia*';[14] but there are a sufficient number of changes in the process of adaption to suggest that the author/s of the text had access to other sources, as well. Traditionally, it the is the star catalogue in chapter 2 (*De ordine ac positione stellarum in signis*) that is illustrated with constellation figures and, as will be seen, the form of these figures can also be used to shed light on the wide range of sources that were consulted during the compilation of these particular manuscripts. In addition, a series of diagrams are often added those chapters concerning other astronomical topics, especially chapters 3, 4, 5, 6 and 9;[15] but, as the figures of the constellations are the primary focus of the present study, the inclusion of these diagrams have been highlighted in the catalogue only when they have a direct relationship to the figures or maps of the constellations.

[13] SAXL 1915, I, pp. 59-66 confirms that these chapters appear in Vat lat 309; McGURK 1966, IV, pp. 52-61 provides a similar confirmation for the Monza manuscript and BOSCHEN 1972, p. 17, n. 27 supplies the data for Madrid BN 3307.

[14] MANITIUS 1899, pp. _____.[

[15] For example, BOSCHEN 1972, p.15, notes the diagrams accompanying chapters 3, 4 and 5 and an unfinished drawing in chapter 9 in Madrid 3307; and McGURK 1966, IV, pp. 53-61 describes the diagrams in chapters 3, 4, 5 and 6 in the Monza Manuscript.

In 1969, King traced five manuscripts with the (more-or-less) complete text of the Aachen Compilation.[16] Of these, only four are illustrated. These are:

- Madrid Ms 3307 ff. 5r-80v[17]
- Monza F. 9/176 (246) ff. 7r-92v[18]
- Vatican, Vat lat 645 ff. 1r-92v[19]
- Vatican, Reg lat 309 ff. 2v-120v[20]

All of these manuscripts share the same incipits and explicits:

inc.: Helice arcturus maior habet stellas in capite vii, in singulis humeris singulas, in armo i, in pectore i, in pede priori claras ii, in summa cauda claram unam...

expl.: Anticanis habet stellas III.

According to Borst, one can find Plinian excerpts from the Aachen Compilation (the *Libri computi*) in nearly 70 further manuscripts.[21] At least five of these contain an illustrated star catalogue. These are:

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[16] KING 1969, pp. 54-79. Borst confirms the results of King's research in BORST 1995^2, p. 163 and BORST 1998, p. 319.

[17] Written in Murbach, c. 820. See NEUSS 1941, pp. 113-40, esp. n. 97; KING 1969, p. 49; BOSCHEN 1972, pp. 13-26; BORST 1995^2, p. 163; EASTWOOD 1993, esp. pp. 164, n. 15 and von EUW 1993, esp. p. 261. Note that both Eastwood and von Euw cite Metz as the place of origin for the Madrid codex, but this information has been superseded by Bischoff's study of the manuscript. See BISCHOFF 1966-81, III (1981), p. 97.

[18] From Niederrhein, c. 850. See KING 1969, p. 48; BOSCHEN 1972, p. 17 and BORST 1995^2, p. 163, n. 98.

[19] From around Reims, 830-60. See SAXL 1915, I, pp. 71-76; KING 1969, p. 51; BOSCHEN 1972, pp. 16-18 and BORST 1995^2, p. 163, n. 96.

[20] From St Denis, 859. See SAXL 1915, 1, pp. 59-66; Neuss 1940, p. 115; KING 1969, pp. 49-51; BOSCHEN 1972, p. 17 and BORST 1995^2 , p. 162, n. 95.

- Paris, BN Lat 8663 ff. 20r-24r [22]
- Paris, BN Lat 12117 ff. 131r-137v[23]
- Paris, BN nouv. acq. 1614, ff. 95r-99v[24]
- St Petersburg, Ms Q.V. IX, no 2 ff.1r-7r[25]
- Vienna, Vindob 12600 ff.23r-26r[26]

Given an unfortunately high level of loss in the opening and closing passages of these catalogues, conclusions are rather difficult to formulate, but it seems that two of these manuscripts (Paris BN lat12117 and Pars BN n.a. 1614) share similar incipits and explicits with the other Aachen Compilation manuscripts. The remaining three manuscripts all have differing explicits.

Paris BN lat 8663	Anticanis habet summam stellarum iiii.
St Petersburg Q v IX, no 2	Anticanis habet stellas iii subter Geminos ceteris quarum una spendiorem ceteris et idea anticanis vocatur quot contraria sit cani.[27]
Vienna ÖNB 12600	Anticanis habet in toto corpora stellas iii.

[21] BORST 1995[2], pp. 159-163 and BORST 1998, pp. 317 and 319.

[22] From Fleury, c. 1000. See KING 1969, p. 106 and BORST 1995[2], p. 210, note 4.

[23] From St Germain du Prés, 1060. See KING 1969, p. 113 and BORST 1995[2], p. 210, note 4.

[24] From Tours, after 825. See BORST 1995[2], p. 185, note 48.

[25] Probably from St Germain du Prés, for 1100. See BORST 1995[2], p. 211, note 7.

[26] Prüfening, c. 1150. See BORST 1995[2], p. 237, note 70.

[27] See ST PETERSBURG 1910, p. 242.

The interesting detail to note here is that the St Peterburg manuscript actually preserves the explicit of the ps-Bedan *De singis caeli*.[28]

The *Salzburg compilation 810-818* (also known as the *Liber calculationis* and 'the Compilation in three blocks')

For reasons fully explained by Borst, a second compilation on the computus was produced in Salzburg under the guidance of Abbot Arno of Salzburg (785-821) during the years 810-818. Although this compilation is referred to in its own table of contents as the *Liber calculationis*, the name of the 'Salzburg Compilation of 810-18' is used here to differentiate it more clearly from the Aachen Compilation of 809-12.

The Salzburg Compilation is not only later than the Aachen one, it is also about twice the length. For this reason, it seems prudent to avoid the more common description of this work as being a 'three-book compilation' since such a description tends to mislead the reader into thinking that the Salzburg Compilation is either shorter or, perhaps, earlier than the Aachen Compilation.[29] Indeed, for

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[28] See pp. _____.

[29] Prior to Borst's study of the Compilation texts, many scholars believed that the Salzburg Compilation predated the Aachen one. McGurk, for example, tends to follow this trend. In his comparison of the Plinian diagrams in each version of the Compilation, Eastwood suggested that the Salzburg Compilation is actually an incomplete version of the Aachen Compilation (see EASTWOOD 1993, pp. 161-80, esp. pp. 163-66). Borst's analysis of the texts, however, shows that the Salzburg Compilation is both later and longer than the Aachen one. In his quick overview of the topic, LeBourdellès makes no differentiation between the two manuscript families, but notes the high incidence of a French provenance for several of the manuscripts. See LeBOURDELLÈS 1985, esp. pp. 85-89 (concerning the *Excerptum de astrologia*) and pp. 99-107. See also McCLUSKEY 1998, pp. 135-40.

this reason it is also prudent to follow Borst's practice of referring to the Salzburg Compilation as having three parts or 'blocks'.[30]

Many chapters of Book V of the Aachen Compilation are taken over in the new compilation. For example:

- chapters 7, 8, and 9 of Book V of the Aachen Compilation appear as sections 77, 79 and 78 within the 99 sections of the first block of the Salzburg Compilation
- chapters 1-5 and 11-12 of the Aachen Compilation return as sections 1-5, 6 and 8 within the 11 sections of the second block of the Salzburg Compilation.

Chapters 6 and 10 of book V of the Aachen Compilation were not taken over by the Salzburg Compilation. Instead, four new sections are added. The complete list of headings for astronomical chapters of the the second block is, therefore:

1. *Excerptum de astrologia*
2. *De ordine ac positione stellarum in signis*
3. *De positione et cursus septem planetarum*
4. *De intervallis earum*
5. *De absidibus earum*
6. *De caelestibu spatiis secundum quosdam*
7. *De temporum mutatione*
8. *De presagiis tempestatem*
9. *De mensuris ac ponderibus*
10. *De ponderibus*
11. *De mensuris in liquidis*

Although the various excerpts from Pliny in Book V of the Aachen compilation do reappear in the Salzburg Compilation, one one of the accompanying diagrams is maintained: the one for planetary intervals.[31]

[30] KING 1969, pp. 2-27 and BORST 1995[2], p. 171, n. 12.

There are two manuscripts with the complete text of the Salzburg compilation 810-818. Both are illustrated and it is worth noting that they both come from Salzburg and can be dated to 818:

- Munich clm 210 ff. 115v-121r[32]
- Vienna, ÖNB Vindob 387 ff. 117r-120v[33]

According to Borst one can find in a dozen manuscripts excerpts from the *Liber calculationis* (Salzburg compilation). Of these, only one seems to contain an illustrated star catalogue:

- Berlin, Ms lat 130 (Phill. 1832) ff. 82r-86r[34]

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[31] In his description of Munich 210, Rück (1888, p. 9) says that section 5 ends on fol. 122v, with the explicit: *ut subiecta figura demonstra*. He describes two pictures: one diagram of nine concentric circles representing the sphere of the planets on fol. 123r and a second diagram on fol. 123v of twelve concentric rings. He claims that the diagram of nine concentric circles is intended to illustrate the text of section 6, which begins at fol. 124v (for an illustration, see von EUW 1993, fig. 15). Eastwood (1993, pp. 165-66), however, correctly notes that this diagram is actually connected to section 4 and that it illustrates the planetary intervals. This pairing also appears in the Aachen Compilation. A similar misplacement of diagrams can be found in Vienna ÖNB 387, where there is a schema with the heads of Luna and Venus on fol. 123r and an unfinished picture with twelve concentric circles on fol. 123v. For descriptions and illustrations, see SAXL 1927, II, p. 80 and McCLUSKEY 1998, p. 137.

[32] From Salzburg, 818. See KING 1969 pp. 3, 23-27; BOSCHEN 1972, p. 244-245; and BORST 1995^2, pp. 145, note 55 (stating that the manuscript has the same origin as Vienna ÖNB, Vindob 387) and 174, note 22.

[33] From Salzburg 818. See KING 1969, pp. 3 and 23-27 and BORST 1995^2, pp. 145, note 22 and 174, note 22.

[34] From Laon, 873. See BORST Plinius 1995^2, p. 175 note 23.

Interestingly, the only manuscripts that contain an illustration of a planispheric map of the heavens are two that are connected with the Salzburg tradition: Munich 210 (where it appears on fol. 113v, between the first and second block) and Berlin lat 129 (where it appears on ff. 11v-12r), which, as Boschen has noted was originally part of the Salzburg Compilation manuscript, Berlin lat 130.[35] Of course, it may be a bit too bold to draw any conclusions from this fact, but since similar maps are not found in any of the surviving manuscripts belonging to the earlier tradition of the Aachen Compilation of 809-12, the appearance of the planispheres in these two manuscripts might be cited as another one of the examples in which it is evident that the Salzburg Compilation drew on a wider range of sources.

The constellation groupings are listed as follows:

1. Helice /Haelice/ Henrice; Arcturus maior
2. Cynosura/ Cinosura; Arcturus minor
3. Serpens
4. Hercules, qui et In geniculo dicitur
5. Corona
6. Serpentarius, qui Graece Ophiuchus vocatur
   a. Serpens (is mentioned in the text as a separate constellation, but is always illustrated as being held by the Serpentarius)
7. Scorpius
   a. Chelae; Librae (mentioned but never illustrated with Scorpio)
8. Bootes, qui Graece Arctophylax vocatur
9. Virgo
   a. Spica named
10. Gemini
    a. Propus named
11. Cancer
    a. Praesepium named
    b. Asini named
12. Leo

[35] Berlin lat 129 (Phillips 1830) was originally the first part of Berlin lat 130 (Phillips 1832). This first part also has the unillustrated text of Germanicus's translation with *scholia* on ff. 86r-90v and also has a few non-astronomical illustrations on the first pages. See BOSCHEN 1972, p. 25, n. 82 and BORST 1995^{2}, p. 173, n. 19. For a description of the Germanicus sections of Berlin lat 129, see LeBŒUFFLE 1975, p. xxxvii.

    a. Coma Berenices not named, but is mentioned as ‘7 obscure stars near the tail’
13. Auriga; Agitator; Erichthonius
14. Taurus
    a. Hyades mentioned
    b. Pleiades; Atlantides mentioned
15. Cepheus
16. Cassiepia / Casiepia
17. Andromeda
18. Equus; Pegasus
19. Ariues
20. Triangulus, quem Graeci deltoton vocant
21. Pisces (borius id est aquilonalis and notius qui australis)
22. Perseus
    a. Caput gorgonis mentioned
23. Lyra/Lira; Fides/ Fidis
24. Cignus / Cygnus
25. Aquarius
26. Capricornus
27. Sagittarius
28. Aquila
29. Delphinus
30. Orion
31. Canis
    a. Canicula is named as the bright star
32. Lepus
33. Navis, quae apud Graecos Argo nominator
34. Cetus / Coetus
35. Fluvius, quem Eridanus dicunt
36. Piscis magnus
37. Ara, sive Sacrarium
38. Centaurus
    a. Bestia mentioned
39. Serpens, quem Hydrum nominant
40. Corvus
41. Crater, sive Urna
42. Anticanis

In general, the constellations always follow this order, apart from a peculiar transposition of the Cepheus- Cassiopeia- Andromeda grouping in the Berlin and

Monza manuscripts. Since each manuscript represents a different compilation tradition, the similarity underlines how certain features can be passed through the textual tradition and others through the pictorial corpus.[36]

As one can see, there is a high degree of consistency in the texts across this family of manuscripts. Perhaps this is not too surprising, given that most of the manuscripts fall within relatively tight chronological and geographical boundaries. Eight of the manuscripts date from the 9th century, and three can be dated to the 11th century. Beyond this, the majority of the manuscripts can be traced to French *scriptoria*; with three other being Austro-Bavarian and two from the lower Rhine Valley. The only manuscript to fall well outside of this neat circumference is the 13th-century English manuscript in the Getty Museum – though, even there, one an easily surmise an easy connection to the manuscripts that were copied at the French *scriptoria*.

[36] In Vienna ÖNB 387, the order only appears to be skewed on account of a missing folio which should have fallen between the current 117v and 118r and contained the ten constellations between Bootes and Andromeda.

The pictorial families of the *De ordine ac positione stellarum in signis* / Compilation of 810 manuscripts

For all the consistency one sees in the texts of these manuscripts, the illustrations that accompany the texts are markedly less uniform. Using quite loose criteria, the illustrative cycles can be divided into five groups. Once again, as seem a regular habit in these constellation manuscripts, the division into pictorial families fails to accord with what one might expect from the philological evidence.

De *ordine ac positione* I:

The first group consists of four manuscripts:

a
- Berlin 130 (Phillips 1832)
- Madrid 3307
- Monza F.9/176

b
- Vat lat 645

These manuscripts share a number of defining characteristics. For example, in each of the manuscripts:

1. The **URSA MAIOR**, **URSA MINOR** and **DRACO** are presented as individual constellations groups. Draco is placed vertically and has four bends in his body and has a comb and a beard.

2. **CORONA** is a leafy wreath.

3. **HERCULES** is nude and seen from the front, kneeling on his left knee, with a lion's skin over his left arm and a club upraised in his right hand.

4. **SERPENTARIUS** is nude and seen from the rear and the **SERPENS** faces away from him

5. **BOOTES** leans on a staff with the curved end resting on the ground and raises his right hand above his head.

6. In the **GEMINI**, the left Twin holds a lyre and the right Twin holds a spear in his right hand (except in the Monza manuscript, where the lyre has been replaced the folds of the left Twin's cloak)

7. **CANCER** faces to the left of the two **ASELLI**, who stand facing a square manger.

8. **LEO** leaps to the left with his tail raised behind him.

9. **AURIGA** is depicted driving a *biga*.

10. **TAURUS** is drawn as a whole animal, lying down.

11. **CEPHEUS** wears a short tunic and his legs are exposed.

12. **ARIES** looks forwards and has a belt around his middle.

13. **PERSEUS** is nude and rushes to the right, holding Medusa's head in his right hand
14.
15. **CYGNUS** is standing firmly on his feet and faces frontally (except in Vat lat 645, where is it shown in profile alongside a decorative heart (stems?).

16. **AQUARIUS** stands facing the viewer, with a cloak covering his left arm and holding the urn at its bottom in his extended right arm.

17. **SAGITTARIUS** is a satyr.

18. **AQUILA** is standing on the arrow, which points to the left.

19. **ORION** stands facing the viewer, rests his left hand on the end of his scabbard and raises his right hand as if he were trying to loosen the collar of his tunic.

20. **NAVIS / ARGO** is a ship with two oars and a tri-prong bow.

21. **ERIDANUS / FLUVIUS** is depicted as a classical river god, leaning on his urn with his right elbow and holding a reed in his left hand.

22. **CENTAURUS** holds a dead rabbit by its heels in his outstretched left hand and the spear he carries in his right hand has foliate decorations at both ends.

23. **HYDRA** is drawn with **CRATER** and **CORVUS** on his back and **CORVUS** is looking towards hydras tail

24. **CRATER** and **CORVUS** are also shown individually.

Of these four manuscripts, three are remarkably close, both iconographically and stylistically: Berlin 130, Madrid 3307 and Monza F. 9/ 176. This observation is somewhat disconcerting as the texts in these manuscripts represent two different philological traditions (the Madrid and Monza manuscripts representing the Aachen Compilation of 809-812 and the Berlin manuscript is derived from the Salzburg Compilation of 810-818), unless one interprets it as possibly providing an example of what the manuscript that served as the basis for the Salzburg Compilation manuscripts may have looked like. Also, it is interesting to recall that both the Berlin and Monza manuscripts share a slight mid-ordering of the Cepheus-Cassiopeia-Andromeda grouping of constellations – especially since it provides evidence of how and in what form this family of manuscripts moved between the French *scriptoria* and those in the Lower Rhine Valley during the 9th century.

The Vatican manuscript (another Aachen Compilation manuscript) is slightly removed from the other three in a number of details. For this reason, it should be part of a second sub-group, **De *ordine ac positione* Ib**.

These differences include:

1. The way in which the **SERPENS** wraps itself around the **SERPENTARIUS** is different, with the snake curled several times around his left arm. Also, his stance differs from that found in the other three.

2. **VIRGO** has no attributes, is not winged and raises her right hand in a salute (she is winged, she holds a plant in her left hand and has her right hand lifted making the sign of a benediction in the ***De ordine ac positione* Ia** manuscripts).
3.
4. **AURIGA** does not have the Kids on his extended left forearm.

5. **CYGNUS** faced to the left (in the **De *ordine ac positione* Ia** manuscripts, the bird is frontal, with his long curved neck bent to the right).

De *ordine ac positione* II:

The second group of manuscripts consists of the two twin Salzburg manuscripts:

- Munich 210
- Vienna ÖNB 387

The defining characteristics of this family are:

1. The **URSA MAIOR**, **URSA MINOR** and **DRACO** are presented by individually. The bears are faced in the opposite direction from the ***De ordine ac positione* I** manuscripts and **DRACO** is a snake, which stands on its tail and has neither beard nor comb.

2. **HERCULES** in depicted as if he were running to the right, with an animal skin having four legs and a tail flying behind him. He also holds a branch in his right hand.

3. **SERPENTARIUS** faces the viewer, holding the snake in front of his body. The **SERPENS**'s body runs horizontally and then curves up at a right angle after it passes through the Man's left hand.

4. **SCORPIO** has no legs (only claws).

5. **CEPHEUS** has no attributes (lost from the Berlin manuscript).

6. **TAURUS** is drawn as a whole animal (lost from the Berlin manuscript).

7. **EQUUS** as whole horse without wings

8. **TRIANGULUS** is upside-down

9. **PISCES** are depicted swimming in same direction, connected by 3-shaped stream.

10. **PERSEUS** holds the Medusa head upright in his left hand and has a palm frond resting over his right shoulder.

11. **CYGNUS** is set against the background of a coloured square.

12. **AQUARIUS** holds the bottom of the urn with both hands and a large, oval stream gushes out from it.

13. **ORION** stands with a curved stick in his right hand and his left shoulder and arm are completely covered by his cloak.

14. **ARGO / NAVIS** has a 3-pronged open structure at one end.

15. **CETUS** looks back and upwards.

16. **ERIDANUS / FLUVIUS** is bracketed by his stream beneath him and a long, flowing plant above him. He holds his right hand out, palm upwards.

17. **CENTAURUS** holds a rabbit by its heel in his right hand and, in his left, he holds a thyrsus and a two-legged animal skin flies behind him.

18. **HYDRA** is drawn without **CRATER** and **CORVUS** on his back.

19. There are also individual depictions of **CRATER** and **CORVUS**.

The similarities between these two manuscripts extend to the way in which the text and the constellations are placed on the page. The drawings in Vienna ÖNB 387 are notably finer than those in the Munich manuscript, suggesting that – whether they were both copied from the same model or if the Berlin manuscript is actually a copy of the Vienna one – the artist of the Vienna manuscript was the more talented one.

De ordine ac positone stellarum III:

The third group of *De ordine ac positone stellarum* manuscripts, ***De ordine ac positone stellarum* III**, consists of three manuscripts:

- Austin TX, Ransom Ms 29
- Paris BN, n.a. 1614
- St Petersburg, Q.V. IX, no. 2

The defining characteristics of the **DOA III** group are:

1. **URSA MAIOR** and **URSA MINOR** lost the humps that characterise **Groups I** and **II**.

2. **HERCULES** is nude and seen from the rear, kneeling on his right knee. He holds a lion's skin with back legs and tail visible over his left arm and a club in his right hand.

3. **BOOTES** holds a curved club/plant in one hand (towards the right side of the page) and has the other hand outstretched towards the other side of the page.

4. **VIRGO** holds the scales in her left hand and a plant in her right (in the Austin manuscript, the plant is missing, however).

5. G**EMINI** hold spears in their outer hands and gesture to each other with their inner hands.

6. **PISCES** are placed perpendicularly to each other (though not actually in the same way in the pictures) and are connected by a wavy string.

7. **Cygnus** is depicted as flying.

8. **ORION** rests his right hand on the hilt of his long sword, which is worn at his waist. He makes the same sort of gesture towards his neck as one sees in the **Group I** manuscripts.

9. **NAVIS** is shown with a 3-pronged end and two oars; the Austin and St Petersburg manuscripts also have a similar arrangement of the sails and rigging.

10. **CETUS'S** snout is markedly curved upwards in the Austin and St Petersburg manuscripts

The manuscripts do have some significant differences, however, including:

1. **SERPENTARIUS**: In Austin and St Petersburg the SERPENS faces the man and in Paris BN n.a. 1614 it does not.

2. **SCORPIO**: the three Scorpios are very differently structured and oriented.

3. **CANCER**: the three crabs are very differently structured and oriented.

4. **ARIES**: St Petersburg looks back over its shoulder and the Austin and Paris BN n.a. 1614 it does not.

5. **PERSEUS**: in St Petersburg and Austin, he holds his club out in front of him and the Medusas head behind his buttocks while in Paris BN n.a. 1614 he holds a straight sword and a circular disc with a female head in front of him. In the Paris manuscripts, he also wears a helmet.

6. **AQUARIUS**: in the St Petersburg and Austin manuscripts is nude and holds the up-turned urn in his left hand, while holding the end of his cloak in his right hand; in Paris BN n.a. 1614 he is dressed in a long robe and holds the up-turned urn

7. **SAGITTARIUS**: Paris BN n.a. 1614 is horned and has a long cape and in the St Petersburg and Austin manuscripts drawing, he has no attributes

D*e ordine ac positone stellarum* IV:

The fourth group of *De ordine ac positone stellarum* manuscripts consists of two manuscripts:

- Paris BN 12117
- Vat Reg lat 309

The defining characteristics of the cycle are:

1. **URSA MAIOR** and **URSA MINOR** are nestled within the curves of **DRACO**, whose head is at the bottom of the picture.

2. **HERCULES** is nude and walking to left with lion skin (with a face, legs and a tail visible) over his left arm in front of him and stick held behind his head in his right hand.

3. **SERPENTARIUS** is nude and walks to the left. He holds the **SERPENS** so that its body runs horizontally and his head faces away from the Man's. Also, Serpentarius looks backwards over his shoulder.

4. **SCORPIO** is placed on the page so that his head is pointed towards the top.

5. **BOOTES** is dressed in a short tunic and knee-high boots, holding a sickle in his right hand and holds his left hand palm upwards at shoulder height.

6. **VIRGO** holds the scales in her left hand and a palm leaf (?) in her right.

7. **GEMINI** are in short tunics with knee boots. They embrace with their inner arms and hold spears in their outer arms.

8. **CANCER** is placed on the page so that his head is pointed towards the top.

9. Both **TAURUS** and **EQUUS/PEGASUS** have their tails tucked under.

10. **CASSIOPEIA** wears a cloak over her head.

11. **PERSEUS** rushes to the left with a long cloak blowing behind him, with a sword held aloft in his left hand and he holds Medusas head at buttock-level behind him.

12. **CYGNUS** flies to the right.

13. **AQUARIUS** holds his urn in his left hand and holds the end of his mantle in his right.

14. **AQUILA** stands on an arrow, which points to the right.

15. **DELPHINUS** has a very large horn on the top of its head.

16. **ARGO / NAVIS** has an animal head on one end of the ship.

17. **CETUS** is peculiarly shaped as a pointy-nosed walrus or soft crocodile.

18. **ERIDANUS / FLUVIUS** is horned and depicted lying alongside a stream, holding a fish in his left hand.

19. There is a combined image of **HYDRA**, **CORVUS** and **CRATER**, with **CORVUS** facing hydras tail.

20. There also are individual representations of **CORVUS** and **CRATER**.

For two manuscripts that are so close, it is interesting to note the dissimilarities between the two. For example:

1. **LEO**: In Vat Reg lat 309, Leo stands to the left with his head slightly lowered; in Paris BN 12117, his head is raised and he raises his left paw.

2. **AURIGA**: In Vat Reg lat 309, the charioteer is beardless and is not accompanied by the Goat or the Kids; in Paris BN 12117, he has a long flowing beard and has the Kids on his right forearm.

3. **ORION**: In Vat Reg lat 309, he has no attributes; in Paris 12117, he carries a long sword in his right hand.

4. **ARGO / NAVIS**: In Paris BN 12117, the illuminator has added the feature of two disembodied hands using one of the oars to paddle the boat. Also the animal head on one side of the boat has the extra feature of a bell hanging from its tongue.

As was pointed out by Vieillard-Troiekouroff in her 1966 study of these manuscripts, the two are sufficiently close in their style and iconography – sharing a number of details such as the similar manner in which the stars are depicted – that it seems certain that the earlier Vatican manuscript served as the source for the later Paris one.[37] Both manuscripts also have a Parisian provenance: the Vatican manuscript has been identified as being by the hand of Ingelhard, a well-known scribe at St Denis;[38] and the Paris manuscript comes from Saint-Germain-des- Prés. As there are a few differences between the two, it is difficult to argue that they are direct 'mother/daughter' manuscripts. Instead, it suggests that the illuminator of Paris BN 12117 might have had access to another illustrated stellar catalogue, from which he could have drawn details, such as the kids in the depiction of Auriga, Orion's sword and Leo's raised paw. As for the addition of the paddling arms and the bell in his depiction of Argo / Navis, one can either credit an alternative source or the artist's own imagination.

D*e ordine ac positone stellarum* V:

The fifth group of *De ordine ac positone stellarum* manuscripts consists of two manuscripts:

- Los Angeles, Getty Ludwig XII, 5

[37] VIEILLARD-TROIEKOUROFF 1966. She also uses Madrid 3307, Leningrad QV no.2 and, oddly, Leiden Voss lat Q 79.

[38] See NIVER 1928, pp. 398-400 and subsequent authors.

- Paris BN lat 8663

They are not really very close to each other, but they do share a number of features that distinguish them from the other *De ordine ac positione stellarum* manuscripts. These include:

1. URSA MAIOR and URSAM MINOR are shown individually and as part of the ***DRACO INTER ARCTOS*** grouping (note that the *DRACO INTER ARCTOS* grouping is placed so the snake runs horizontally across the page, rather than vertically as is usually the case).

2. **HERCULES** is nude and trots to the left. He holds a club that looks like a cross between a bowling pin and a kitchen spoon. He holds a skin in his right hand in front of him.

3. **BOOTES** has a plant in his outstretched left hand and his right shoulder is completely covered by his cloak.

4. **VIRGO** holds both a plant and the scales.

5. **CANCER** has an image on one or more of the **ASELLI** on its shell.

6. **AURIGA** does not have a chariot, nor the Goat (but does have two small animals on his outstretched right arm).

7. **CASSIOPEIA** has a cloak over her head.

8. **ARIES** looks backwards.

9. **SAGITTARIUS** is a satyr

10. **ORION** has a long sword in his right hand and a long scabbard at his waist. His right shoulder is covered by his cloak.

Other notable features that appear in the individual manuscripts include:

Paris BN 8663:

1. **URSA MINOR** has a hunched posture and looks over his shoulder in a manner similar to that found in the ***De signis in caeli*** **I** manuscripts.

2. The skin held by **HERCULES** has been transformed into a piece of cloth.

3. **SERPENTARIUS** is standing on **SCORPIO** and a second **SCORPIO** appears on the following folio (both depictions of Scorpio show him with human hands instead of claws).

4. **GEMINI** are nude without attributes, but they point to each other with their inner hands.

5. **ANDROMEDA** is nude to the waist with large breasts.

6. **ARIES** has a ring around its middle.

7. **PERSEUS** has winged feet and wears a loin cloth. He carries a scimitar in his upraised left hand and Medusa's head in his right.

8. **CYGNUS** is depicted in a manner similar to those found in ***De ordine ac positione* I** manuscripts.

9. **AQUARIUS** walks to the right on the stream he pours from the upturned urn he holds in his left hand.

10. **AQUILA** turns his head so it is placed in front of his right wing, as in several of the *De signis caeli* manuscripts.

11. **ORION** has tufts of hair that look like horns.

12. **DELPHINUS** has two ears or horns that rise from his jawbone.

13. **NAVIS** has a building on board (as in almost all of the *Revised Aratus latinus* and some of the *De signis caeli* manuscripts); and its bow ends in an animals head (as in the *De ordine ac positione* IV and Cicero *Aratea* (!) manuscripts).

14. A youthful **ERIDANUS / FLUVIUS** sits in his stream and looks upwards.

15. **HYDRA**, **CORVUS** and **CRATER** are shown as once constellation grouping, but **CORVUS** and **CRATER** are also shown separately.

<u>Los Angeles, Getty Ludwig VII, 5</u>

1. **CORONA** has a cross in the middle of the circlet.

2. In **AURIGA**, the Kids are actually shown as rabbits and the illuminator has misunderstood the significance of the flail and turned it into a lamprey-like creature.

3. **EQUUS/ PEGASUS** is not winged, but is his back legs are missing.

4. **TRIANGULUS** is upside down.

5. **PERSEUS** is nude, save a cap on his head, and he carries a club in his right hand and Medusas head in is left.

6. **LYRA** is an Irish harp

7. **AQUARIUS** holds an upside-down urn behind his back in his left hand and raises his right hand in salute.

8. **LEPUS** is depicted as a lion.

Despite their differences, the most striking aspect of these two manuscripts is the similar way in which the individual chapters and their pictures are placed on the page. The images are – very roughly – arranged in two columns and the individual bits of text are written so that it fills the gaps between them. Quite easily, one is able imagine how something closely connected to the Fleury manuscript in all its formal elements served as the starting point for the English one.

De ordine ac positione – singleton

Finally, one must consider the 12th-century manuscript from Prüfening: Vienna ÖNB Vindob 12600. In many ways, it is pictorially closest to the ***De ordine as positione* I** manuscripts; but there are a number of radical departures.

1. **SERPENTARIUS** seems to be seen from the front.

2. **Virgo** is winged and holds the scales in her right hand and a palm in her left, which is closest to the **Group V** manuscript, Paris BN 8663.

3. The **Gemini** have no attributes and the left Gemini chucks the right Gemini under his chin.

4. **Cancer** has neither asses nor the manger and is shaped slightly like a crayfish, as is seen in the **Group III** ms in St Petersburg.

5. **Leo** runs to the right.

6. **Auriga** holds his flail in the same hand he holds the reins (his left)

7. **Andromeda** is seen from the rear and holds her right hand pointing upwards, as in the manuscripts, as one sees in a large number of the Hyginus manuscripts.

8. **Pisces** are positioned nearly perpendicular, as one sees in the **Group III** group, Austin 29, Paris BN 1614 and St Petersburg Q.V. IX, no. 2.

9. **Perseus** has a sickle upraised in his left hand, a bit like the **Group V** manuscript, Paris BN 6443.

10. **Lyra** is depicted upside-down.

11. **Aquarius** rushes to the right with his right hand held above his head and his left in front of him holding an upturned urn. A similar posture appears in the **Group V** manuscript, Getty Ludwig XII, 5, but it is also close to depictions found in the Hyginus manuscripts.

12. **Delphinus** has a huge horn growing upwards from his bottom lip.

13. **Erdanus / Fluvius** carries a spear. He also carries a spear in the *Revised Aratus latinus* illustrations in Paris BN n.a. 1614.

14. **Centaurus** carries a trident in his right hand.

There could be several reasons for these anomalies. First, the amount of space left for the pictures by the scribe has meant that many of the images have been 'cut-off' due to lack of room to complete the figure. In some instances, such a restriction could have led the artist to invent or re-orient some of the figures. Second, though, the artist appears to have had access to a second manuscript for some of his figures, such as the trident-carrying CENTAURUS or the walling ANDROMEDA. It is also possible that, for some of these figures the artist could have had access to a celestial globe or to a series of pictures based on a globe. Again, the figure of ANDROMEDA shown from the back and with one arms raised; the sickle-wielding PERSEUS; and – in particular – the upside-down

LYRA are much closer to the globe-based constellation iconography than to the genre of pictures most often found in the western medieval manuscripts under discussion.

Conclusion

To summarize, the illustrated manuscripts of *De ordo ac positione stellarum in signis* typify a number of the challenges one faces in trying to create a system for studying the development of constellation iconography. In this instance, the text remains remarkable consistent across the family of manuscripts and yet, even though the majority of the manuscripts themselves can be traced to a relatively circumscribed era and location, the variation in the illustrations shows an extremely high level of borrowing from other pictorial cycles and a certain degree of unbridled artistic invention. At the very least, this suggests that the scribes and artists who worked on these productions did not see the relationship between the text and a given picture cycle as integral.