

Leiden

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Voss lat 4° 79

Germanicus, *Aratea* (interspersed with sections from Avienus, *Aratea*)

Lotharingia (Aachen ?)

2nd quarter 9th century

The Leiden *Aratea*, as it is known is amongst the oldest and certainly the most widely-known and most intensively studied of the astronomical manuscripts. A product of the Carolingian Court of Louis the Pious (814-40), it is a sumptuous picture book of full-page, full-colour images of the constellations. The images are flanked by text drawn from the so-called 'Z family' of the Latin translation of the *Phaenomena* by Germanicus and are curiously interspersed with sections from the Avienus translation of the poem. The pictures also include representations of planets, the four seasons and a planetary diagram datable to April 816.

Pictorially and, to a slightly lesser extent textually, the Leiden *Aratea* is very closely related to BOULGNE-SUR-MER 188 and BERN 88, though the exact relationship between these three manuscripts remains the subject of debate.

textff. 2r-97v Germanicus, *Aratea* (interspersed with sections from Avienus, *Aratea*)

fol. 2r (in red) AB IOVE PRINCIPIUM MAGNO DEDUXIT ARATUS.
(with initial capital in red and red black)
CARMINIS AT NOBIS GENITOR TU MAXIMUS AUCTOR...
(Germanicus, *Aratea*, cf. Breysig 1867, p. 1; note that there is a second version of the text that reads the same, but is written in black miniscule with initial capitals in black.)

note: There is a transposition of lines on ff. 5v-9r [or v?]. The last line on fol. 5r is v. 64. This is followed on ff. 5v, 6r, 7r, 7v, 8r, 9r [which pages? 6v, 8v have pictures on them] with vv. 90-95. On fol. 9v, the text continues with v. 71 ff., indicating that vv. 65-70 are missing)

[check: do the vv 90-95 reappear alongside the depiction of Bootes (in the proper place), or do they just occur alongside Hercules?]

fol. 5v SEMPER INOCCIDUIS SERUANTES IGNIBUS AXEM
(= Germanicus, *Aratea*, v. 64)

ff. 7r-7v IPSAM HELICEN SEQUITUR SENIOR IACVLOQVE MINATUR—
ARCTURUM DIXERE, SINUS QUA UINCULA NODANT
(= Germanicus, *Aratea*, vv. 90-95)

fol. 9r CLARA ARRIANEO SACRATA EST IGNE CORONA —
(= Germanicus, *Aratea*, v. 71)

note: ff. 15r- 21r has the section in which not only are some of the verses of Germanicus re-arranged, but there are also insertions from Avienus's *Prognosticorum*. Breysig 1867, offers a corrected version of this text on p. 10 (apparatus). See also Avienus, *Les Phénomènes...*, ed. Soubiran, 1981, pp. .

fol. 15r (in majuscule, red initial capitals and text in black):
VIRGINIS AD PLACIDE PRESTANTIS LUMINE SIGNAT
TELLA HUMEROS HELICEN IGNIS NON CLARIOR AMBIT

fol. 16r -16v (second hand in black miniscule repeats original text from ff. 14r-15r and incorporates the 'missing' lines of Germanicus vv. 142-46. For additional information about the original lines that appear to have been scraped off fol. 16r by a later hand (with the letters visible on the right side of the middle of the page on fol.), see the notes below.))

Virginis inde sub est facies cui plena sinistra
Quam te diva vocem tangunt mortalia siti —
Stella humeros helicen ignis non clarior ambit.
Quidque micat cauda quidque armum fulget ad ipsum
Clunibus hirsutis et qua sua sidera reddit
Namque alie quibus expletum cervixque caputque
Vatibus ignoti priscis sine honore feruntur.
(= Germanicus, *Aratea*, vv. 140-146)

fol. 17r (with return to majuscule with miniscule copy beneath it:
AD CAPITI SUBERUNT GEMINI PROLEMQUE TONANTIS

(= Germanicus, *Aratea*, v. 148 and Avienus, *Prognosticorum*, v. 370)

AEGREGIAM ET PROPRIO POST REDDITA NUMINA CAELO
 NAM LACHEDEMONIIS CUM MARS CALVISSET APHIDNIS
 CASTOR A CECROPI^{II} TULIT INCR^LEMENTIA BELLI

fol. 17v: AT FRATER LUCEMQUE ET FATA SUPERSTITIT AEVI.
 PROTINUS ALTERNE GERMANOS TEMPORA VITAE
 IUPPITER ATTOLLIT CAELIQUE IN CELSA RECEPTANS
 AETERNAE FRAGLARE FACIS IUBET IGNIBUS AMBOS

fol. 18r blank
 18v illustrated

fol. 19r: QUA MEDIA HELICE SUBJECTU RESPICE CANCRUM
 (=Germanicus, *Aratea, Prognosticorum*, v. 147)
 QUA POSTERIOR PES ET DURO CONCAVA DORSO
 (= Germanicus, *Aratea*, v. 148 and Avienus, *Prognosticorum*, v. 383)
 TEGMINA CURVANTUR GEMINUS MICAT ARDOR IN AURAS

fol.19v: FORMA SOLET DISPAR CHELARUM FLAMMA CORUSCAT
 NAMQUE TRIBUS STELLIS ADOLETUR DEXTERA CANCRO
 LEVA DUAS PIGRO SUCCĒDIT FOMITE FLAMMAS
 (= Avienus, *Prognosticorum*, 384, 388-90)

fol. 20r blank

fol. 20v illustrated

fol. 21r: O RA HORRENTISQUE IUBAS ET FULVUM CERNE LEONEM
 HUNC UBI CONTIGERIT PHOEBI VIOLENTIOR AXIS —

note: ff. 63r- 63v also has insertions from Avienus's *Prognosticorum*.

fol 63r: AURITUM LEPOREM SEQUITUR CANIS ET FUGIT ILLE
 (= Germanicus, *Aratea*, v. 341)
 URGETUR CURSU RUTILI CANIS ILLE PER AETHEREA
 (= Avienus, *Prognosticorum*, v. 749)
 SIC UTRUMQUE ORTIUR SIC OCCIDIT IN FRETA SIDUS
 (= Germanicus, *Aratea*, v. 341)

PARVULUS IN STELLIS LESPUS EST QUOQUE NAMQUE UBI MAGNUS
(=Avienus, *Prognosticorum*, v. 747)

fol. 63v: EMICAT ORION GEMINA AD VESTIGIA SUBTER
VOLVITUR INSTANTEM PREMIT IGNEO SIRUS ORE
(=Avienus, *Prognosticorum*, vv. 748 and 750)
AT QUA CAUDA CANIS LANGUENTI DESINIT ASTRO –
(= Germanicus, *Aratea*, v. 344)

note: the second hand ends its copying on fol. 81v with:
Hoc opus arcanis si credam post modo musis
Tempus et ipse labor patiaturs facta docebit
(=Germanicus, *Aratea*, vv. 444-45)

fol. 92r
ORION HABET ILLE NOTAS QUAE TEMPORA NOCTES
SIGNIFICET VENTOSUE TRUCES FIDAMQUE QUIETEM
(= Germanicus, *Aratea*, vv. 724-25; cf. Breysig 1867, p. 40)

ff. 94r-94v GRĀDINE PERMIXTUS ARIES NIVIBUSQUE CADUCIS
SPARGUNT VICINA TRISTIS SUPRA IUGA PISCIS;
TAURUS ^{maī} PORTAT AQUAS ET VENTOS EXCITAT ARIES ^{apr}
FULMINA TUM CREBO IACULATUR IUPPITER. ET TUNC //
INTONAT EMISSUS VIOLENTIOR IGNIBUS AETHER. –
ET RIGOR ACCEDIT VENTIS MITISSIMUS ILLE
(cf. Breysig 1867, fragm ii, ll. 1-28, pp. 43-4;

ff. 96r-96v UNA VIA EST SOLIS BISSENI LUCIDA SIGNIS
AC RAPITUR AC PHOEBEE PER IDEM CYTHEREIUS IGNIS –
ANNU^{us} EST VENERI CURSUS. NEQUE TARDIOR ILLA
MERCURIUS. BINOS GRADIUS PERFICIT ORBIS.
(cf. Breysig 1867, fragm. i, ll. 40-55, p. 42; note that of fol. 96v, there is only the
single line (MERCURIUS. BINOS GRADIUS PERFICITORIBUS) and the rest of the page is
blank, perhaps indicating a lost illustration?)

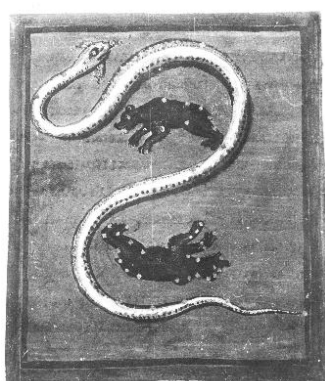
fol. 97r-97v TEMPORE TUM PROPRIO MODULATUR NOCTUA CARMEN
TUM VESPERTINUM CORNIX LONGEVA RESULTAT –
PLURIBUS INDICIIS SOLLERS. FULCIRE MEMENTO;
(= Avienus, *Prognosticorum*, vv. 415-46, 443-44, 447, 544 and 551-52; cf. Breysig
1867, p. 42 (apparatus) and Soubiran, 1981, pp. [redacted] (vv. 1741-62, 1769-70; 1773,
1870 and 1877,78).

fol. 97v

VALE. FIDENS IN DOMINO CHRISTI VESTITUS AMORE.

illustrations

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fol.3v



fol. 3v



fol. 6v



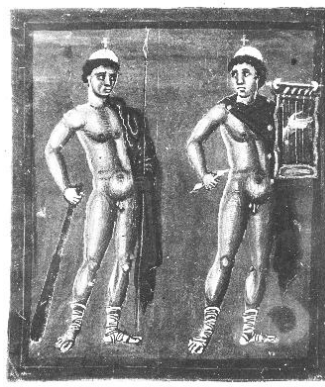
fol. 8v



fol.10v



fol. 12v



fol. 16v



fol. 18v



fol.18v



fol. 20v



fol. 22v



fol. 22v



fol.24v



fol. 26v



fol. 26v



fol. 28v



fol.30v



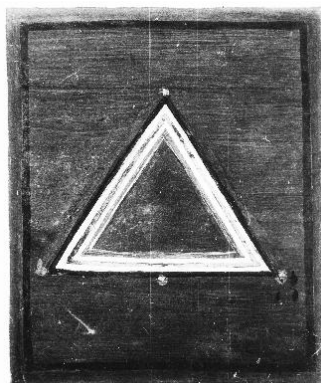
fol. 30v



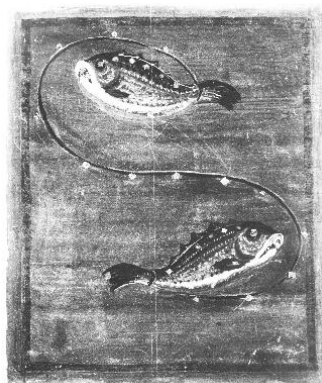
fol. 32v



fol. 34v



fol.36v



fol. 38v



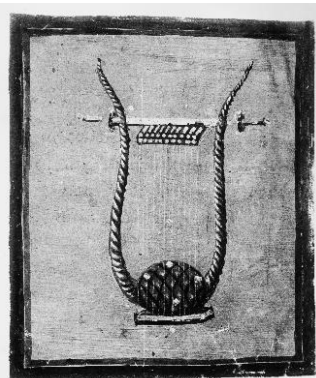
fol. 40v



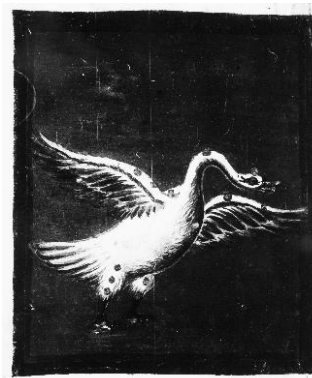
fol. 42v



fol.42v



fol. 44v



fol. 46v



fol. 46v



fol.48v



fol. 50v



fol. 52v



fol. 54v



fol.54v



fol. 56r



fol. 56v



fol. 56v



fol.58v



fol. 58v



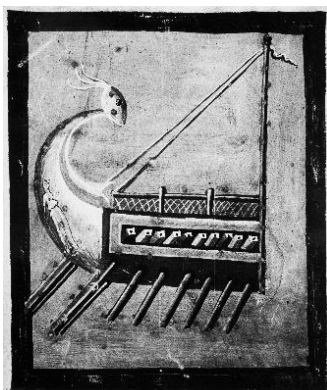
fol. 58v



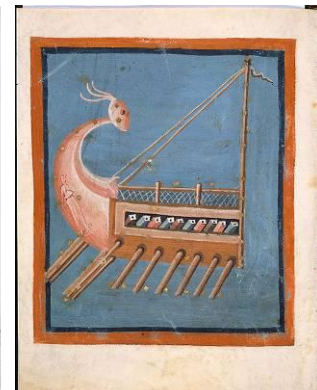
fol. 60v



fol.62v



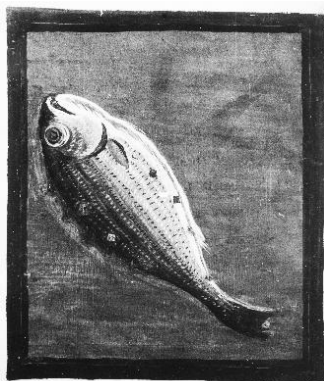
fol. 64v



fol. 64v



fol. 68v



fol.70v



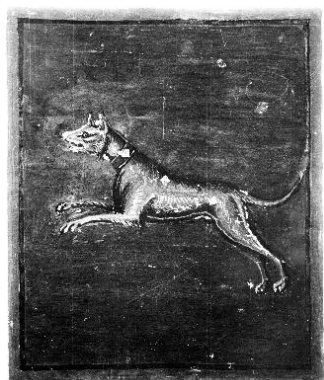
fol. 72v



fol. 72v



fol.76v



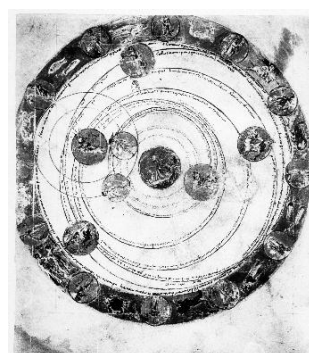
fol. 78v



fol. 80v



fol. 82v



fol. 93v



fol.93v

ff. 3v-78v full-colour illustrations of 42 constellations, plus the Pleiades and with Lepus depicted twice. All of the pictures are set against blue backgrounds and framed within a red frame with a dark blue line on the inside. The missing constellations are: Virgo, Centaurus, Equuleus, Lupus, Corona Austrinus and Libra (noting that Libra and Equuleus are not part of the Germanicus tradition). The stars are marked with small squares of gold leaf. Sometimes, only a tiny trace has been left of the gold leaf and, regularly, it has vanished completely. In spots where the gold leaf is lost, one can often (but not always) see a small brown or tan disc indicating discolouring of the surface by the adhesive. In locating the stars, comparisons have been made between the current state of the illuminations and the set of 16th-

century engravings made by DeGheyn and published in *Syntagma Arateorum* in 1600 by Hugo de Groot. Comparisons have also been made with stars that appear in the 10th-century copy of the Leiden *Aratea* (Boulogne 188). When a star appears in both these comparative copies, but not in the Leiden manuscript, it seems fairly certain that such a star was originally in that location in the Leiden manuscript but has by now completely vanished. On other occasions, however, one can see a dark small disc in the Leiden manuscript, which is absent in both copies. It may be that the illuminator overlooked these dots when he added the gold leaf to the plates. Nevertheless, their absence from the copies suggests that gold leaf was never added to these particular spots. Some of these dots look like ‘drops’ of water or wash and may have no meaning at all. Also note that many of the pictures are flanked by short instructions to the illuminator as to which picture should appear on which folio, such as ‘[arctur]us maior et [mino]r cum serpente’ at the left border of fol 3v. For a full list, see Mutterlich _____, pp. _____.

- fol. 80v image of the 5 planet gods, each with a halo and attributes (Mercury with wings and caduceus, Venus with a peacock feather and Mars with a soldier’s helmet)
- fol. 82v image of the 4 seasons, each with different headdress denoting the season
- fol. 93v planetary diagram with zodiacal signs and personifications of the months in the outer border.

note: my examination of these stars was carried out jointly with Elly Dekker. She has since published this material in Elly Dekker, ‘The Provenance of the stars in the Leiden *Aratea* Picture Book’, *The Journal of the Warburg and Courtauld Institutes*, LXXIII, pp. 1-37. The reader is directed to that article for a more up-to-date listing.

fol. 3v **DRACO INTER ARCTOS** is depicted with the two bears. **DRACO** has three bends in his body, with his head facing to the right. The Snake has a red crest and a yellow/brown beard on his head. His pink, white and blue body is striped along its length with white and brown dots. His body is marked with 25 stars, 6 of which are in the head

URSA MINOR is enclosed within the second bend and **URSA MAIOR** within the third. Both bears are leaping upwards with the mouths open and their claws bared. They both face away from the Snake, towards the open space. Ursa Minor is placed upright (with its back to the top of the page), while Ursa Maior in placed upside-down (with its back towards the bottom of the page). They are both brown and have humped backs. Ursa Minor has 3 stars in its tail, 4 in the body, 2 in the head

and 1 in the left front foot, or 10 stars in all. Ursa Maior has 5 stars in the head, 2 in the neck, 2 in the hump, 3 on the back/tail, 1 in the chest, 2 in the right fore leg, 3 in the left fore leg, 1 in the top of the left leg, 1 in the belly, 4 in left hind leg and 2 in right hind leg, or 26 stars in all.

fol. 6v **HERCULES** is standing facing the viewer, wearing a pink *exomis* that leaves his right shoulder exposed. The garment is decorated with vertical stripes of gold leaf from the chest to the hem. He lunges to the right, but looks to the left, and holds a curved gold staff vertically in his right hand and the lion-skin (complete with face, paws and tail) over his outstretched left arm. He wears brown boots, which have flapping tops. He is marked by 1 star on his head, 1 on his right shoulder, 4 in the lion's skin, 2 in his right arm, 2 in his right hand, 1 at the tip of his staff, 2 in the middle of his body, 1 in the skirt, 2 in the right leg, 3 in the left leg, 1 in each foot and 1 star between the legs, or 21 stars in all.

fol. 8v **CORONA BOREALIS** is a brown leafy wreath with gold ribbons at the bottom. The three 'jewels' and the ribbons are red. The tips of the ribbons extend into the frame. Inside the wreath, there are 8 stars (some have lost the gold leaf).

fol. 10v **OPHIUCHUS** is nude with brown hair, standing with his back to the viewer and to the left with both feet on the back of **SCORPIO** and with the pink and red **SERPENS** in front of his body (or , on the far side of the figure from the viewer so that it is partially obscured by the man's hips). In his left hand, he holds the Serpent's neck and in his right hand the tail of the Snake forms a loop around the man's right hand. The head of the Serpent faces Ophiuchus and almost touches him. Ophiuchus is marked by 1 star in the head, 2 on each shoulder, 2 in the right arm, 2 on each hand, 2 on his right leg, 1 on his right foot, 8 on his left leg (but one of these has lost its gilt) and 2 in his left foot, or 24 stars in all. Serpens has 18 stars, 6 of which are in the head and 4 in the coil. Scorpio is green with dark shadows/stripes. He faces towards the left and has two front claws set on segmented arms held in a circle and 8 pointy legs. The tips of his left legs extend into the frame. He is marked by 4 stars in the right claw, 5 in the left claw, 2 between the left feet, 3 in the head, 4 in the main body and 12 in the tail, or 30 stars in all.

fol. 12v **BOOTES** stands facing the viewer leaning slightly to the left, wearing a pink *exomis* leaving his chest and left shoulder exposed. The inside of the hem of the back of the dress is marked by stripes. He has brown hair and carries a brown crook covered with gold leaf in his right hand. His left hand is raised in a sort of salute. The tip of his right foot touches the frame. He is marked by 1 star in the head, 1 on each shoulder, 3 on his breast, 4 on his right hand, 1 on his right elbow, 1 on each foot

and 1 between his knees, or 14 stars in all. In addition, there are 4 small black or brown dots or discs, 1 of which is in the left shoulder, 2 are in the middle of the body and 1 is outside the body. These are not stars.

- fol. 16v The **GEMINI** are nude, save the long red *chamlys* they each wear falling over their left shoulders. The red colouring of the left Twin's cape has also been used to colour-in his left hand, in which he holds a spear. The left Twin holds a straight orange-brown club in his right hand. The right Twin holds a golden lyre with white highlights in his left hand, which extends into the frame. He also has a white object that looks like stylised 'lightning', but may be a plectrum, in his right hand near his right hip. They both have brown hair with darker lowlights and wear white caps surmounted by a cross. They also have strapped brown and white sandals on their feet. The left Twin is marked by 1 star in the head, 1 on the right shoulder, 2 in the right arm, 1 on his right side, 2 in his right leg, 4 in his right foot and 1 in his left leg, or 12 stars in all. The right Twin is marked by 1 star in the head, 1 on each shoulder, 1 in his left hand, 1 on his left arm, 3 on his left side, 2 in his left knee, 2 in his left foot and one in his right foot, or 13 stars in all.
- fol. 18v **CANCER** has a rectangular body, slightly wider at the top, long front claws and 8 long, pointy legs. His body is dark brownish black. He is placed vertically on the page, with his head towards the top, and he is marked by 6 stars in the main body, 3 in the right claw, 2 in the left claw, 1 in each of the four right legs, 2 in the first of the left legs and 1 in the third leg, or 18 stars in all.
- fol. 20v **LEO** leaps to the left with his mouth open and his tail raised. He has a naturalistic looking mane and his body is brown. The tips of his front feet and of his tail touch the frame. He is marked by 3 stars on his head, 2 in his mouth, 3 behind his head in the mane, 3 on his chest, 2 on each foreleg, 3 on his belly, 4 on his back, 3 in his right hind foot, 1 in the left thigh, 2 in his left hind foot (1 of which has lost the gold leaf) and 2 in his tail of which one is in the middle and the other at the end. In addition, there is a star outside the constellation below his belly, so that there are 31 stars in all.
- fol. 22v **AURIGA** is standing frontally lunging to the right. He is dressed in a long pink robe, which has bands of gold leaf under the breast, at the waist and along the hem, He wears a long red cloak which billows off to the left and is held by a red button at his neck. He holds a long straight red stick covered with gold leaf in his right hand to which a single red flail is attached. He also has a red crown, also covered with gold leaf, on his head with 6 spikes. There is a blue goat with black contours and white highlighting on his left shoulder and two further blue goats, also with black

contours and white highlighting, in his extended right hand. He is marked by 2 stars in the crown, 2 on the right shoulder, 1 on the goat on the left shoulder, 1 on the right lower arm, 2 on the left elbow, 2 stars in the goats in the left hand, 1 on the left knee, 3 on the robe close to his right leg and 1 on each foot, or 16 stars in all.

fol. 24v **TAURUS** is depicted as $\frac{1}{2}$ a brown bull facing to the left with his right leg extended and his left leg tucked under his body. He has a large hump in his back and short curved horns. He is marked by 5 stars in his face, 2 on his right ear, 1 on each horn, 2 in his right leg, 1 on his chest, 1 on his left knee, 1 on the top of his left leg (included as a dot, so may not be a star), 2 in his neck, 7 in the hump, 1 in the main body, 2 on his back and 4 at the cut-off, or 30 stars in all. A number of the stars listed above look like a brown dot: one of the stars in the neck, one of those in the hump and the one on the top of his left leg. These dots are similar to the one on the right hoof, on which there are traces of gilt, so these have assumed to be stars. In addition, there are some dots-discs in the middle of the body which differ in size from the one in the right hoof. These have not been included in the list of stars above since it is not clear whether these represent stars.

fol. 26v **CEPHEUS** is bearded, stands frontally lunging slightly to the right with his left knee bent. He is dressed in oriental garb, consisting of a short, light grey-brown dress with long tight sleeves and which is decorated with red and gold bands at the wrists, shoulder, chest and lower hem. He wears red hose and a long pink cape that covers his chest and then flows out to the left behind him. He has a pointed red hat with a vertical gold stripe and holds his hands out to either side. He has 3 stars on his head, 1 on his left upper arm, 1 connecting his cape, 2 in his right upper arm, 1 at his right elbow, 1 on each hand, 1 on his right side, 3 on his dress, 1 on his right thigh, 2 on his left knee, 1 on each foot and 1 outside the figure below his right elbow, or 20 stars in all.

fol. 28v **CASSIOPEIA** is seated on a square brown throne that is almost completely covered by gold leaf, leaving some dark brown lines. The chair has a red footrest and faces slightly to the left. She is dressed in a long garment that has a white top and red skirt. The dress exposes her right breast and shoulder. She wears a tall gold hat and pointed gold shoes. Her arms are stretched out to the sides. She has 1 star on the head, 1 in each shoulder, 1 in the middle of her chest, 1 on her right breast, 1 between her breasts (missing most of the gold), 1 on her stomach, 2 on her left lower arm, 1 in her right lower arm, 1 in the right elbow, 1 in each hand, 1 on her right thigh, 3 on her left thigh and 1 star on each corner of the back of the chair. There are 19 stars in all. In addition, there are 2 small dots or discs above the right thigh outside the constellation.

- fol. 30v **ANDROMEDA** is standing frontally with her arm outstretched and tied by black chains to columns of lumpy grey rocks at either side. She wears a tan piece of cloth with a brown waistband and brown hem hanging on her hips and nearly exposing her pudenda. Her torso and arms are bare, save some gold bracelets she wears on her upper arms, and gold earrings. She has long black hair, and tips her head slightly to the right. She is marked by 1 star on the head, 1 at each shoulder (one of which has lost its gold) , 3 are the right upper arm, 3 at the right hand, 2 in the left lower arm, 3 on her chest, 1 outside her body at her right side, 1 on the left thigh, 3 on the right thigh (of which 1 has lost most of its gold), 4 in the middle of the lower part of the dress and 1 on the left foot, or 24 stars in all. In the right foot, there is some trace of gold in the second toe indicating that was once at least 1 star there, which would give a total of at least 25 stars.
- fol. 32 **PEGASUS** is depicted as half a light brown, winged horse, flying to the right with his forefeet stretched out in front of him. The tip of his right wing extends into the frame. He has 2 stars in his mouth, 3 on his head, 1 on each ear, 2 above the head almost outside the constellation, 3 in his manes, 2 on his chest, 1 in the middle of the body, 2 at the cut-off, 3 in his right wing, 1 on his left knee, 2 on his right knee and 1 in each front foot, or 25 stars in all. In addition, there are 4 stars in front of his head, forming a floating trapezoid. They seem not to be part of the figure and may represent Equuleus.
- fol. 34v **ARIES** leaps to the right, while looking backwards over his-shoulder. He has a long tail, curly horns and large testicles. He has a gilt ring around his middle (most of the gilt is now vanished). His tail touches the frame. He is marked by 2 stars on the right horn, 3 on his nose, 1 below his nose in the ring, 1 on his mouth, 1 on his neck, 1 on his left front foot, 1 on his right front knee, 1 in the middle of the body, 1 on the back, 3 on the belly, 2 on this hind part, 3 in his tail and 2 on his right hind leg, or 22 stars in all.
- fol. 36v **TRIANGULUM** is an equilateral triangle made of five bands of colour (from inside to outside: light brown, pink, gold, pink, dark brown). It is marked by 1 star in each corner and 1 in the middle of the base, or 4 stars in all.
- fol. 38v **PISCES** are brown fish, swimming in opposite directions, with both their backs towards the top of the page. They are connected at their tails to a black cord that forms a large 'S' shape. Their mouths are open. The fish at the top is marked by 2 stars in his mouth, 1 on the eye, 7 at his belly and 5 at his back, or 15 stars in all. The fish at the bottom has 1 star in his mouth, 1 on the eye, 2 at his belly, 5 at his

back and 1 in the tail, or 10 stars in all. The line connecting them is marked by 13 stars. In all, there are 38 stars.

- fol. 40v **PERSEUS** appears flying to the left, with his back to the viewer. He is nude except for a red *chamlys* that he wears fastened with a red button from his right shoulder. The cloak flows down his left arm and then crosses his back, above his exposed buttocks, ending in a flourish at the right. He wears a red Phrygian cap and holds a brown stick in his upraised right hand, which extends into the frame. He holds the severed Medusa's head by the hair in his left hand in front of his left thigh. The Gorgon's head has twisting (snaky?) hair. Perseus is marked by 1 star on the head, 1 on each shoulder, 1 on each elbow, 2 on his right hand, 2 on his back, 3 on his middle, 2 on each thigh, 2 on his left lower leg, 4 on his right lower leg, 2 in his left foot and 4 in the head of Medusa, or 28 stars in all.
- fol. 42v The **PLEIADES** are represented as 7 busts of women supported by wavy white/blue clouds. The middle one has a white headdress. The others are bare-headed, with brown hair adorned with a dark disc which could have been a marking of a star or a jewel. Each of the heads bears a square gilt star.
- fol. 44 **LYRA** is a harp with two dark brown and white striped oxen horn at either side. The sounding board at the bottom is a dark brown criss-cross pattern reminiscent of a brown turtle's shell. The crossbars hold 10 strings. There are 4 stars on the top cross bar, 4 on the sounding board, 1 on the strings above the sounding board and 1 below it outside the constellation figure, or 10 stars in all.
- fol. 46v **CYGNUS** stands facing the right with its neck bent in a 'U'-shape and its mouth open. His wings are outstretched to either side. The tip of his left wing extends into the frame. He is coloured light brown with darker brown for the feathers in the wings. He has 1 star in his beak, 1 on his head, 1 on his neck, 2 in his body, 1 on his tail, 3 on his left wing, 4 on his right wing (of one of these, only a trace is visible), 3 on his right leg, 2 on his left leg and 1 on each foot, or 20 stars in all.
- fol. 48v **AQUARIUS** stands frontally, leaning slightly to the right. He wears a red hose and has a brownish black scarf that runs from his left knee over his left shoulder, around his back, over his right thigh and then through his legs, with its end trailing behind him by his feet. He is nude from the waist up and wears a tall red Phrygian cap. He holds the urn in an awkward manner, with his right arm crooked over the top of his head holding the base, and his left arm bend upwards to shoulder height holding the handle. The urn itself is coloured brown with yellow highlights on the neck and shoulder. A stream of water flows from the urn to the ground. Aquarius

himself has 1 star on his hat, 2 on his right shoulder, 1 on his right upper arm, 1 on his right elbow, 3 in his right hand, 1 outside the body on his right side, 2 on each side below the waist, 1 on each thigh, 2 on each lower leg, 1 in each foot and 4 on the part of the scarf on the right side, or 25 stars in all. The stream of water is marked by 24 stars. In all, there are 49 stars. The page is damaged above the end of the shawl on the left side.

fol. 50v **CAPRICORN** faces towards the right, with his right leg tucked under his body and his left leg extended so that it touches the frame. His forepart is light brown and his body is grey, with his mane, beard and long curved horns dark grey. The slim end of his tail is grey and white and the trefoil fin, which extends into the frame, is pink, red and white. He has 1 star in his face, 1 in his beard, 2 on the lower part of the left horn, 1 on the tip of each horn, 3 on his manes, 3 on his chest, 1 in each knee, 1 in each front foot, 2 at his back, 2 at his belly, 3 at the coil, 4 in the tail and 3 in the trefoil end of the tail (with a trace of gold on the rightmost lobe of the tail which could be another star), or 30 stars in all.

fol. 52v **SAGITTARIUS** is depicted leaping to the right, with his forelegs raised. He wears a light brown spotted animal's skin from his right shoulder and the equine part of his body is brown. He holds the bow extended in front of him with his left hand, pulling back the string with his right hand. The bow and arrow are in gold, but the string is dark brown. The tips of the arrow and his tail extend into the frame. He has 4 stars on his head, 1 in each shoulder, 1 in the right elbow, 1 in the left upper arm, 1 in the left hand, 1 in the waist, 3 in the body of the horse, 3 in the left lower front leg, 1 in the right front foot, 1 in each of the hind legs, 3 in the tail, 2 in the animal skin around his neck, 1 at the tip of the arrow and 1 on the bow, or 26 stars in all.

fol. 54v **AQUILA** stands with his body to the right, but his head looking back over his shoulder to the left. Both of his wings are outstretched and raised. His body is brown with darker brown feathers, and he has brown talons and a brown beak. He stands on a brown **SAGITTA**. Aquila has 1 star on his head, 1 on the chest (of which only a trace of gold is now visible), 2 on each wing, 2 in his back and 1 in his tail, or 9 stars in all. Sagitta has 1 star at the tip of the arrow and 2 at the end, or 3 stars in all.

fol. 56v **DELPHINUS** is a classical dolphin swimming to the left. He has the integral dorsal fin-beak-bottom fin so common to these images. He has a brown body and the dot on his tail is white. The trefoil tail is red, pink and white. He has 1 star on his mouth, 3 in his fin (the one in the tip having lost most of its gold), 3 on his back, 2 in the tail and 5 in the trefoil at the end of the tail, or 14 stars in all. The eye of

Delphinus shows a trace of gold on a brown dot, so it may represent another star, giving a total of 15 stars.

fol. 58v **ORION** stands with his back to the viewer, lunging to the right. His head is set in left profile. He is dressed in a short pink *exomis*, which is caught at the waist by a red belt. He wears a red scabbard and sword on his left hip and holds a curved white club (outlined in brown) upraised above his head in his right hand. The brown animal skin he wears is draped over his extended left arm and has dark brown markings in it. There are reddish highlights on his legs and on his boots. He has 1 star on his head, 2 in his left shoulder, 1 in his right shoulder, 1 in his right elbow, 1 in his right hand, 4 in the middle of his back, 3 in his belt, 3 in his scabbard, 1 in his right knee, 1 in his right foot, 1 in his left lower leg, 2 in his left foot (one hardly visible now), 1 in the middle and 1 on the tip of his staff and 10 in the animal skin (most stars have lost the gold leaf), or 33 stars in all.

LEPUS is placed between the legs of Orion and leaps to the right, also turning his head backwards to the left. He has a brown body marked with dark brown spots and long straight ears. He is not marked by stars (but see below).

fol. 60v **CANIS MAIOR** leaps to the left with both forepaws and his tail raised. His mouth is open and he has a brown tongue sticking out. His body is pink, with a very shaggy, leonine mane and the 7-rayed starry disk that surrounds his head is light pink with a brown outline. There are gilt rectangular marks at the border of the disc as decoration of the beginning of the rays. The tip of his tail extends into the frame. He has 1 star on his head, 2 in his manes, 1 on his chest, 1 in his back, 1 in his belly, 3 in his tail, 1 in his right hind leg, 1 in his right forefoot and 2 in his left forefoot, or 13 stars in all.

fol. 62v The second, individual image of **LEPUS** is very much like the one that appears on fol. 58v, but in mirror image. Here he has 1 star in the eye, 2 stars on his mouth, 1 in his left forefoot, 6 in the main body, 1 in the tail and 1 in each hind foot, or 12 stars in all.

fol. 64v **ARGO** is half a ship with the stern at the left. The ship has a brown body with a white netting along the deck and green, red and white panels on the side. The mast is brown and connected to the deck by 2 brown and white rigging ropes. It has a brown dot at the top, and bears a brown with white flag. It has two long steering oars and 6 shorter pulling oars. The tip of the left steering oar extends into the frame. The stern is pink and there is a red-line figure of a female wearing a long dress with her left hand raised holding a stick or sword (?) and her right hand down

by her side holding some kind of frond or plant, which is reminiscent of figures of Virgo. The mast of Argo is marked by 12 stars (some have lost the gold leaf), the shorter oars by 7 and the two steering oars by 8 stars, the stern (or curved end of the ship) by 10 stars and the main body of the ship by 5 stars, or by 42 stars in all. In addition, there are 2 stars outside the constellation, which makes a total number of 45 stars. The star in the netting on the deck of the ship is not a star, it is a drip.

- fol. 66v **CETUS** is a classical sea monster that faces to the left, but turns his head back to the right and stretches its neck backwards towards his raised tail. He has tufted ears and the end of his tail is shaped like an acanthus leaf. He has paws on his forefeet. His body is green-grey, with a red-brown tail-end. His chest is coloured by a striped band in red and brown. The trefoil tail extends into the frame. He has 1 star on his nose, 3 in his mouth (of 1 only a tiny trace is left), 2 in his face, 1 in his neck, 3 on his chest, 3 in the main body, 5 in his coil and 3 in the trefoil end of his tail, or 21 stars in all.
- fol. 68v **ERIDANUS** is depicted as a classical river god facing towards the left and leaning on an upturned brown urn with his left forearm. He holds out his right hand. A small whitish stream of water pours from the urn. The god has a brown beard and brown hair with a number of straggling tendrils. His chest is bare, and he wears a long green/grey skirt with brown highlights. He holds a brown plant in the crook of his left arm. The right side of the urn extends into the frame. He has 6 stars on and around his head, 2 on each upper arm, 6 on his chest, 10 on the right side of his skirt, 1 in the right foot and 5 on the left side, 32 stars or in all. There is 1 star outside the constellation figure above the right knee, which makes a total number of 33stars.
- fol. 70v **PISCIS AUSTRINUS** is placed upside-down, at an angle of 45° off the vertical with his open mouth uppermost. He has a blue body with a white belly with a brown line in it and brown eyes and he is white around the mouth. He has 1 star in his mouth, 4 on his back, 5 on his belly and 1 in the tail, or 11 stars in all. One might question whether or not the gold dot on its eye is intended as a star. If so, the total amounts to 12 stars.
- fol. 72v **ARA** is shaped a bit like an hour-glass, with two triangular shapes meeting at a narrow middle point. Its main body is brown with gold leaf. At the rims and in the middle it is marked by a brown band with a green line in the middle. It stands on three brown (animal) feet and has red flames coming out of the top. There are 2 stars at the base and 4 in the flames, or 6 stars in all.

- fol. 76v **HYDRA, CORVUS** and **CRATER** are contained within one frame. Hydra is a long snake, with a beard and a comb that slithers to the right with his head held at right angles to his body. He is coloured grey and green on his back and pink on his belly and decorated with white dots. The tip of his nose extends into the frame. He has 1 star on his mouth, 4 on his head, 3 in his neck, and 17 in the main body, or 25 stars in all. The brown Crater sits on his back, and is shaped like an urn with two handles. There are 3 stars in the mouth of the vase (?), 1 on each handle, 2 in the body, and 3 on the foot (just as shown in De Gheyn), or 10 stars in all. Corvus is dark grey (almost black) and stands near the Snake's tail, facing towards the tip of the tail and is pecking at it. He is marked by 10 stars.
- fol. 78v **CANIS MINOR** is a sharp-nosed hound that leaps to the left with his forepaws raised. He is brown in colour and wears a brown collar. He is marked by 3 stars, 1 of which is in the collar.
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notes

The manuscript has been associated with Louis the Pious by numerous scholars. If correct, it would date it to between 814 -40. This is the date with which most people have become comfortable. The date of 816 cited by HAFFNER 1997, pp. 24 and 90, comes from MOSTERT and MOSTERT 1990, pp. 248-61.

For additional comparative information about the positions of the stars and the iconography of the figures in the Leiden *Aratea*, see Boulogne 188 and Bern 88.

Many of the pictures are flanked by short instructions to the illuminator as to which picture should appear on which folio. These are:

- fol 3v: [arctur]us maior et [mino]r cum serpente
- 6v: [...Hercul]es.
- 8v: [coron]a.
- 10v: [serp]entarius sub pedibus eius [scor]pius.
- 12v: [Boote]s.
- 16v: [gem]ini.
- 18v: [canc]er.
- 22v: [auri]ga
- 26v: [cep]heus.
- 28v: [cassi]epia.
- 30v: [andro]meda.
- 48v: [aqua]rius.

50v: [capricor]Nus

56v: [delphi]nus.

76v: [...cor]uus.

78v: [canic]ula

bibliography

For a fuller bibliography to 1989, see the facsimile edition of the manuscript, pp. 195-98. See also BLUME, HAFFNER, METZGER 2012, I, p. 298.

GROTIUS 1600.

KIEHL 1853, pp. 82-95, esp. p. 86.

BREYSIG 1867.

BUNTE 1875, p. 11.

RIEGL 1889, pp. 61-2.

BETHE 1893, pp. 94 and 101.

THIELE 1897.

notes that number of stars far outnumber other Carolingian mss.

THIELE 1898, pp. 77-142.

framed drawings that are fairly accurate copies of 4th century originals

SWARZENSKI 1902, pp. 81-90.

BYVANCK 1931, pp. 65 -67.

SAXL and PANOFSKY 1933, p. 236.

talks about how the ‘Carolingian renaissance’ was just a series of improvements in art, literature, calligraphy, administration, etc, so better to call it a ‘renovation’; really little more than a continuation of Merovingian tendencies; they conscientiously and often successfully imitated their prototypes in style and technique; ‘closer to the spirit of

Pompeian frescoes than anything else made in the West in medieval times'. (p. 236, n. 9) discussed *in extensio* by Thiele. Byvanck (pp. 65 ff) agrees with Swarzenski, who attributes it to the school of Reims (*Jb d. k. preuss Kunstsamml*, XXIII, ii, pp. 88ff) but Prof Morey of Princeton believes it should be connected with the school of St Denis. (p. 240) discuss how Perseus is a beautiful classical figure. (p. 242) small size of planet busts 'exactly repeat the figures appearing in the famous "chronograph of the year 354", which in turn correspond to usually Greek and Roman deities; same types appear in **Vat Reg lat 123**, but slightly degenerated.

NORDENFALK1936, pp. 28-30.

SHAPIRO 1940, pp. 270-72.

WEITZMANN 1947 (1970), pp. 105, 157, 161 and 190.

p. 105: the easiest way to do this is to place the column-picture in a frame, which fills a full page, or if there was already a frame before the picture left the writing column, to increase its height correspondingly. i.e.: **Leiden Voss lat q 79**: in which Aquila is surrounded by a frame, higher than it is wide, so that the wings push hard against the sides of the frame, so had to be shortened, while there is still much empty ground above the eagle's head. (cites Thiele, Gasiorowski, Byvanck, Bethe); vs the **London Cicero (Tib BV)**, where the eagle is placed in the middle of the writing column [no, it's not] and spreads its wings unhampered by decorative limitations, (p. 106) 'represents obviously the more original stage in the development of constellation pictures'.

p. 157: Because of their frequent copying from the Hellenistic period to the Middle Ages, the constellation pics in the Aratea 'are striking examples of alterations due to fashion'. **Leiden Voss lat q 79** has Cassiopeia as a woman enthroned whose drape consists of a chiton fastened over one shoulder and leaving one breast free and a himation taken around the hips and legs. Clearly reflects a Hellenistic model; in the 10th c copy **St Gall 250**, she sits in a similar pose, though is more frontal, but she wears a long-sleeved tunic and (p. 158) an upper garment with ½ length sleeves that fall down to the feet and is richly embroidered around the neck and down the front. The headdress (which before was a conical tiara) is now a crown with connecting bows. All attires for the period are typical for the period of the copy. Must be thought of as replacements for the original type, which has been obliterated.

p. 161: kind of error when scribe writes a whole text and leaves pictures to be illustrated later, sometimes illuminator puts pictures in the wrong place: **Boulogne 188** from the 10th c depicts youth clad in an *exomis* and holding a skin and a *lagobolon*, so this is not the figure of Hercules described in the text as a kneeling figure; also in **Madrid 19** from the 12th century,

represents Hercules as a nude kneeling figure in the Garden of Hesperides ‘... and this is undoubtedly the original constellation type’. The picture in the Boulogne ms cannot be described as a disguised or corrupted type of Hercules, but must have originally represented another constellation type, which by mistake has been inserted here. Thiele has convincingly shown that this is really a representation of Bootes, for whom exomis, lagobolon and striding position are more characteristic (Thiele, pp. 92-93, fig. 19). A special group of mss all share this mistake, showing them to be of the same recension (**Leiden, Boulogne and Bern** - from the 11th c)

p. 190: manner of discovering a genealogy: identical alterations in corresponding miniatures are hardly ever made independently of each other (i.e **Leiden, Bern and Boulogne**); also, it is essential to recognise that often people use more than one model for a copy, the scribe or illuminator choose variants from two sources and combine them into a third version;(p. 191) in making a stemma, must separate iconography from style;(p. 192) ‘a miniature stemma should be based exclusively on iconographic and not on stylistic evidence, which is only of subsidiary help for the dating of single documents and cannot be used for questions of descent’. The transmission of style and iconography often follow very different paths.

BYVANCK 1949, pp. 169-235, esp. pp. 170-73 and 214 (no. 37).

STERN 1953, *passim* and esp. pp. 27-31.

MARTIN 1956 p. 40.

9th century; is in reality a collection of pictures attached to a mixture of texts from Germanicus and Avienus; extracts do not follow each other in good order; He says must conclude that these images do not illustrate either Germanicus or Avienus texts, but possibly come from the original Aratus text itself (?!); the 95 folios have obviously lost at least 4 folios; the Jupiter on the eagle has been lost (but one sees it was there from the copy in Boulogne-sur-mer 188); picture style reveals fidelity to a source that is really ancient; also the later copies contain the sun and the moon, which are missing here.

WEITZMANN 1959, pp. 97-98.

made in Reims, 2nd ¼ of the 9th c; semi-nude Andromeda, relaxed, well-articulated derives from a very good classical model; Nordenfalk relates it to Calendar of 354 and says the fact that this also has text from Avienus supports idea that its model can be traced back to 4th century

Harley 2506 depends in text and illustration on Harley 647 has 19 dark stars and three light ones. He says’ certain stars have been added but this manuscript may contain stars which

have faded from Harley 647'. [??] the right foot on Harley 2506 has a star in exactly the same place that it does on the **Leiden Aratea**, and it is on the corresponding left foot of Harley 647; a slightly darker spot [where?] indicates that a star was originally on that foot also, so perhaps it was not noticed by the later scribe who wrote the total number of stars on the figure in Harley 647, not by the artist of Harley 2506. Hipparchus and Ptolemy mention stars on both feet; therefore, there has been a conflation of 2 sources and Harley 647 preserves part of the 3 Hellenistic versions of the stars 1) Cicero, 2) Rustic capitals from Hyginus that date back to a model from the 4th century and 3) the stars from the rival catalogue of Hipparchus and Ptolemy (therefore prototype no later than 161-26 BC).

NORDENFALK 1965, pp. 300-01.

BISCHOFF 1967, II, p. 44.

SWARZENSKI 1967, fig. 167.

PHILLIPS 1968, pp. 18-19.

first Andromeda type has partially draped figure standing with arms outstretched between two 'rocky' posts, in the **Leiden Aratea**; says similar to Venus de Milo (2nd C BC). All of these types preserve an earlier tradition of showing Andromeda between two uprights (stone or posts) which can be seen on Athenian models and most of the southern Italian vases, therefore consciously rejecting the more theatrical pose of Andromeda against a cliff, known at Alexandria through Euanthes's painting, Rocks must be the twin rocks at Joppa which are specifically mentioned by Lycophron in his *Alexandra*, 836-38. so they are Alexandrine in conception, but more conservative; (p. 20) the depiction of Cepheus indicates a precise knowledge of ancient dress

WEBSTER 1970, pp. 13-14.

KOEHLER and MÜTTERLICH 1971, IV, pp. 79-81 and 108-16.

DeMEYIER 1975, pp. 186-89.

LeBOEUFFLE 1975.

NORTH 1975, pp. 381-98.

GAIN 1976.

MÜTHERICH/GAEDE 1976, pp. 68-71.

REEVE 1980, pp. 508-22, esp. p.518.

descendant of 'Z' stemma; 9th century in rustic capitals; some have believed that lines 142 and 144b were omitted, therefore *not* source for Bern 88 and Boulogne 188; but - according to Reeve - these people have failed to notice that these lines were erased by the later author who added his new version to the text to manuscripts. See also the scheme by OBBEMA 1989, p. 20.

VERKERK 1980, pp. 245-87.

full descriptions of the mss recently published by Mutherlich (1971) and de Meyier (1975); 95 parchment leaves, the last two are wholly blank; all of the leaves with miniatures on the verso were originally blank on the recto; believes that the insertion of lines from Avienus made it an acceptable text for Christians; also believes that the text of Germanicus (which came into being after Avienus?) was already embellished with pictures; missing illustrations are: Jupiter (on missing fol. 1); Virgo (on missing fol. 13), Centaurus (on missing fol. 74) and the Sun, Moon, cites Boulogne as an exact copy (p. 253); does not believe Thiele's suggestion that either fol. 95 of the ms had both the Sun and the Moon on it, or the Sun was on 95v and the Moon was on a loose leaf next to fol. 81; he believes that the last quire of the manuscript must have had 10 leaves rather than 8 leaves; so the original was not 99 leaves, but was 101 leaves; notes obvious difference in artistic handling between the constellations and the planetarium; notes that splendidly uniform lettering is somewhat abandoned after fol. 65; two possible scribes?; Planetarium legends are in thinner, brown ink in Carolingian miniscule; says the poem has verses 1-445; he misses the point of the fact that the whole poem has been recopied in Gothic hand of the thirteenth or fourteenth century; notes that everyone since Bethe in 1893 has commented on the connection with antiquity (i.e.: Homer to Justinian).

He cites 4 or 5 groups of writers who associate it with different periods:

- 1) the supplement of the poem by Avienus provides a *post quem* of the end of the 4th/early 5th c See Byvanck, 1939, p. 611 and 1949, p. 173; Grabar and Nordenfalk (1957);
- 2) Thiele (1898, pp. 81-2) believed that the lines from Avienus were added in the 9th c by the Carolingian scribe, whom, he said showed tremendous independence, and he dated the exemplar no later than the 5th c—comparing it with the Vienna *genesis* and the Milan *Ilias* and the way things are framed come from papyrus rolls;
- 3) Bethe and Weitzmann have countered in their studies of these rolls saying the style is different Stern (1953, p. 304) says that narrow frames are a convention of the 5th c, so the model must be 4th c;
- 4) Bethe (1945, p. 127) and Gassiorowski (1928, p. 14) says that must date ea 4th century because the constellation of Orion only appears at this point [??] Erwin Rosenthal tries to date it according to stylistic grounds and calls it late classical re: light an shadows; Carolingian in pure classical manner; numerous references to Pompeii;

5) Byvanck says that these illustrations originated in Germanicus's time; but Bethe (1945, p. 50) says that neither Aratus nor his translations were ever illustrated and that the pictures can only be dated back to a 4th-century exemplar. Byvanck says that planispheres and loose illustrations were the inspiration and this is followed by Mutterlich (1971, p. 80);

6) Byvanck (1939) reverts to the idea that there was an antique tradition behind this and Rosenthal (1953) picks this up and argues they must reflect the original Aratus; both Bethe (1945) and Saxl (1927) remark on the blue background as evidence that there is an antique prototype because Ptolemy says paint the sky blue;

Verkerk says that the list collated in Byvanck's article of 49 of astronomical mss 'appears to be complete'; very convoluted explanation of Thiele's assertion that **Boulogne 188** cannot come from Vossianus (pp. 272-75); Traces the assignment of **Boulogne 188** to St Bertin and Odbert to 1924 (Lesne, 1938, and de Moreau), but he notices that the 1104 inventory of S Bertin doesn't mention it.

He goes through all the proposals of the dates and suggests that second ¼ 9th c is as good as we are going to get; Swarzenski is the first to suggest Reims; the attribution gets increasingly weak until Braunfels (1968) suggests Lotharingia and Kohler and Mutterlich use this to connect it to Louis the Pious and place it near Aachen where there was a scriptorium next to the palace

BISCHOFF 1966-81, II, p. 44 and III, pp. 170-81.

LOTT 1981, II, pp. 147-58.

McGURK 1981, p. 318.

illus w/ pictures from Germanicus and Avienus (text is Germanicus with some Avienus); reproduces style and format of Harley 647; also comes from same area (Middle Kingdom = Lotharingia), links with Calendar of 354 in month medallions; p. 322: derivation from antiquity obvious; large number of stars marks seem to indicate knowledge of a Ptolemaic star catalogue (only trace of this possibility)

MUNK OLSEN 1982, I, p. 407.

WEITZMANN 1982, pp. 217-46.

is identifying the constellation panels, cites the Leiden *Aratea* as having the best preserved classical forms, dates mid-9th c, and has been repeatedly, but with no good reason associated with Reims; panther skin on Sagittarius; Cites also Perseus with his *harpe* (=combination of sword and sickle).

EASTWOOD 1983, pp. 1-40.

Le BOEUFFLE 1983, p. xlii.

parchment in quarto; neither incipit nor *scholia*, but beautiful figures full page; he says each illustration has two versions of the poem: one in minuscule and one in majuscule, rarely different from each other

REEVE 1983, pp. 18-21, esp. pp. 20-21.

here says, in agreement with his other paper, Boulogne copied from Leiden (REEVE 1980, p. 74).

KÖLN (exh. catalogue) 1987.

GUD GEZEIN (exh. catalogue, Leiden) 1987, no. 59.

AUTENREITH 1988, pp. 30-32.

KATZENSTEIN and SAVAGE-SMITH 1988.

9th-century copy, earliest and most beautiful of surviving mss; 22.5 x 20 cm, parchment 99 ff, four ff were already missing in 1600, presumed to be a copy of late-Antique model because of the assimilation by the artistic of the illusionistic style of their period; narrow condensed script is called rustic capital; convention of framed drawings as if reproducing individual paintings is also late antique; a faithful copy of a manuscript probl made in the 4th or 5th centuries; stylistically recalls miniatures in psalter of Emp Lothar I (795-855), made c. 843 in Lorrain (n-eastern France) which had scriptoria in both Aachen and Metz; thesis of origin supported by idea that it was certainly in monastery of St Bertin at Saint-Omer by early 11th c because of copy in Boulogne.

MUNCHEN (exh. catalogue), 1989.

ARATEA KOMMENTAR (facsimile) 1989.

36 miniatures, 5 planets, 4 seasons, planetarium, Reims, 2nd ¼ mid 9th century

Obbema (pp. 9-29): belongs to the Z family with Boulogne, Bern and the unillustrated Einsiedeln; for a long time was considered to be from the school of Reims, but in the more recent literature has been seen as a product of the court of Ludwig the Pious (810-40); must have spent a longer time in N France as in the year 1000, is in the French cloister of S Bertin, where it was copied; It's whereabouts between then and arriving in Flanders is unknown (perhaps part of the religious upheaval of the 16th C); Thiele as best study, with Byvanck first identifying pictures as late Roman; Nordenfalk saw parallels with Calender of 354 and

the medallions in the 'planetarium' and Eastwood said they record the date of 28 March 597 but later came back to this and accepted the result of Mostert and Mostert = 816

Obbema (p. 12) rejects the suggestion (by Le Boeuffle and Gain and Soubiran?) that Boulogne 188 is not a direct copied from Leiden Voss. Q. 79. Although he accepts that the relationship between the two manuscripts is not fully clear, he notes with Reeves (see below) that hard evidence is lacking. The corrections in Boulogne 188 by the second hand cannot always be separated from the main hand, and the two manuscripts are more closely connected than is suggested by Le Boeuffle. Moreover, there is in Boulogne 188 at least one phrase which can be explained by a correction in the Leiden manuscript

MOSTER and MOSTERT 1990, pp. 248-61.

MUTHEREICH 1990, pp. 593-604.

STUCKELBERGER 1990, pp. 71-81.

ERNST 1991, p. 584.

von EUW 1993, pp. 263-64.

KAT UTRECHT 1996, pp. 8, 200-1.

BORST 1994, p. 169 ff.

HAFFNER 1997 *passim*.

STEVENS 1997, pp. 454-56.

BLUME 2000, pp. 11ff, 237, 242.

BLUME 2002, pp. 251 ff.

OBRIST 2001, p. 23.

EASTWOOD 2007, pp. 146 ff.

DEKKER 2008.

BLUME 2009, pp. 524-5 and 536-7.

DEKKER 2010, pp. 1-37.

p. 1: one of 4 luxury codices produced for Louis the Pious (814-40) shows antiquarian interest in the court; primarily a picture book to which text has been added; towards end has additional representations of planets, 4 seasons and a planetary diagram datable to April 816.

p. 2-3: 36 pp, 42 constellations plus Pleiades (missing Virgo, Centaurus and Lupus and Corona Australis; check against Boulogne-sur-Mer for examples); constellations as seen from the sky (<east/ west>); stars marked with gold leaf squares; text does not explain 1) distribution of stars 2) why Aries is looking backwards and 3) why Aries is jumping through a circle. (circle represents the vernal colure acc. to Eudoxus (see DEKKER 2008, pp. 213-28; Hipparchus says it passed through the horns instead). She says ring is a Eudoxan feature and that the roots of these pictures was first and foremost pictorial; most studies follow THIELE 1898, pp. 77-142 who says stylistically and iconographically based on a 4th century exemplar

p. 4: HAFFNER 1997, p. 118 says that derived from Germanicus illustrations (late antique model) as well as other cycles; used early medieval sources, but carefully designed in an antique style; BLUME 2007, p. 76 agrees saying that previous scholars were seduced by the antique look of the pictures; but evidence suggests subtle compilation - therefore, the question of the antique origin is still open to question
textually = BAEHRENS 1879, pp. 18-24 divided into O and Z families with O having the omission of vv 583-725 and frags iii and ii; notes also that SAVAGE SMITH 1998, p.14, says that the stars are not astronomically correct

p. 5: STUCKELBERGER 1990, pp. 77-81 says there is a Ptolemaic origin for positions (150 AD) and based on a reliable star map and not on a medieval star catalogue (he only discusses Sagittarius, though). CARRUTHERS 1998, pp. 25-26 describes star shapes as aide-memoires; relative position of stars remembered re: position of the figure and the position of the stars determine how constellations should be shown; myths of stars before the maps; pictures had their own development that was independent of astronomical issues;

p. 11: Ptolemaic star cataloguer suggested as provenance of Leiden stars; Ptolemy provides verbal description as well as ecliptic co-ordinates; KUNITZSCH 1974, p. 76 suggests that Ptolemy used pictorial sources and may have had access to a globe;

p. 12-16: places stars according to descriptions against a figure based on Leiden Aries (notes 3 stars in tail and absence of stars in belly as very different from *scholia Basillensia* and the *De signis caeli*) - but notes that Leiden Aries has 3 stars in the belly and three stars in the tail

= therefore must be a combination of Ptolemaic and star catalogue information.; notes that some images cannot be studied in detail = especially Eridanus, Draco, Serpens, and the water of Aquarius's stream. Eleven constellations are 'unfit to be analysed: Draco, Serpens, Pisces, Lyra, Aqua, Eridanus, Piscis Austrinus, Hydra and Corvus and Crater. Or 29% of the total stars in the manuscript

p. 17: eight constellations have stars from Ptolemaic catalogue and not star catalogues (Ursa maior, Scorpio, Andromeda, Triangulum, Sagittarius, Aquila, Canis Maior and Ara); while over 50% show the influence of both traditions.

pp. 18-20: Next in importance is the *Epitome*

pp. 20-24: problems of right and left = Hipparchan rule

pp. 24- 26: were the two Greek catalogues used for marking the stars in the Leiden *Aratea* (Ptolemy and the *Epitome*) illustrated? Stars in front of Leiden Pegasus = Ptolemaic Equuleus; first referred to in Geminus 'according to Hipparchus' - but they are not drawn in the Leiden manuscript, therefore the Ptolemaic source was not illustrated. In Orion notes that the four stars in his back are presented vertically (whereas in fact they are horizontal), therefore second proof that Ptolemaic source was not illustrated.

pp. 26-28: source seems to be odd mixture of Ptolemaic and *Epitome* catalogues; there s no evidence that the Ptolemaic catalogue was available to Carolingian astronomers; even Ptolemy's *Handy Tables* only mentions a limited number of stars 10° north or south of the ecliptic. She suggests that merging of traditions occurred sometime after 150 AD and well before 800 and that the stellar configurations were transmitted pictorially [but did not have stars marked on them, but serves as basis for where one could plot the stars from the catalogue?]; contents would have been: 1) constellation images, 2) descriptive star catalogue corresponding to the Leiden placements and a copy of the Ptolemaic catalogue, 3) texts of Germanicus and Avienus. Byzantine links via Aachen, or Italy (Rome)?

pp. 28-31: Hercules/Bootes problem: star between legs on fol. 6v = Arcturus, but other stars = Hercules; an adaptation by the author who mingled the texts (noting that St Gall 902 Bootes also carries a skin); also notes differences between *Aratea* illustrations and Basel AN IV 14 = this calls into question HAFFNER's claim that two mss are based on the same exemplar; and also notes that the following are not either: Bears and Draco, Auriga, Cepheus, Pisces, Cetus, Orion, Eridanus and Ara; instead suggests that there was more than one antique exemplar involved in the transmission of the Germanicus *Aratea*. See BISCHOFF 1989, p 89 for this suggestion. Must have been an extensive corpus of illustrations.

pp. 31-32: notes description of Louis the Pious's astronomer, and perhaps he was responsible for the planetary diagram, see DEKKER 2008, p. 86; suggests that represented 'the best of all

possible skies', but was not a reliable presentation of the night sky and was not useful for star-gazing; only the descriptive part of the Ptolemaic catalogue was passed on so there was no mathematical or cartographic precision. (notes BLUME 2007, p. 77 mistake in assuming that this use of Ptolemy indicates exact positions); mistakes in copy = only 518 of 875 stars marked in the Leiden *Aratea* can be tied to a specific tradition; also combination of globe-view and sky view creates problems

pp. 33-37: description of star positions (DEKKER and LIPPINCOTT)

BLUME, HAFFNER, METZGER 2012, pp. 53-67 and 292-98.