

Pseudo-Māshā'allāh  
*On the Astrolabe*

Part III:  
Lists of Stars

edited by

Ron B. Thomson

Version 1.7

Toronto, 2022

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## Sigla

- Aα Assisi, Biblioteca del Sacro Convento, Fondo Antico Communale, ms. 174, ff. 105<sup>r</sup>-113<sup>v</sup>
- Bθ Bologna, Biblioteca Universitaria, ms. 132 (154), ff. 98<sup>r</sup>-119<sup>v</sup>
- Bι Brugge, Openbare Bibliotheek Biekorf, ms. 522, ff. 60<sup>r</sup>-74<sup>r</sup>
- Cδ Cambridge, University Library, ms. Hh.6.8, ff. 185<sup>r</sup>-190<sup>v</sup>; 193<sup>r</sup>-196<sup>v</sup>; 199<sup>v</sup>
- Cε Cambridge, University Library, ms. Ii.1.13, ff. 84<sup>v</sup>-94<sup>v</sup> (*olim* 75<sup>v</sup>-85<sup>v</sup>)
- Cζ Cambridge, University Library, Additional ms. 6860, ff. 66<sup>v</sup>-76<sup>r</sup>; 76<sup>r</sup>-77<sup>r</sup>
- Cη Cambridge, University Library, ms. Ii.3.3, ff. 61<sup>r</sup>-79<sup>r</sup>
- Cι Cambridge, Gonville and Caius College Library, ms. 174/95, pp. 24<sup>a</sup>-53<sup>b</sup>
- Dγ Darmstadt, Universitäts- und Landesbibliothek, ms. 2661, ff. 146<sup>r</sup>-168<sup>r</sup>
- Dη Dublin, Trinity College Library, ms 403 (D.2.29/502), ff. 57<sup>r</sup>-78<sup>r</sup>
- Eδ Einsiedeln, Stiftsbibliothek, ms 29 (878), pp. 103-136
- Eε Erfurt, Universitäts- und Forschungsbibl. Erfurt/Gotha, ms Amplon. F<sup>o</sup> 38, f. 2<sup>v</sup>
- Eζ Erfurt, Universitäts- und Forschungsbibl. Erfurt/Gotha, ms Amplon. F<sup>o</sup> 376, ff. 82<sup>v</sup>-95<sup>v</sup>
- Eμ Erfurt, Universitäts- und Forschungsbibl. Erfurt/Gotha, ms Amplon. Q<sup>o</sup> 355, ff. 49<sup>r</sup>-62<sup>r</sup>
- Eο Erfurt, Universitäts- und Forschungsbibl. Erfurt/Gotha, ms Amplon. Q<sup>o</sup> 369, ff. 184<sup>r</sup>-190<sup>v</sup>
- Eπ Erfurt, Universitäts- und Forschungsbibl. Erfurt/Gotha, ms Amplon. Q<sup>o</sup> 367, f. 99<sup>v</sup>
- Eτ Erfurt, Universitäts- und Forschungsbibl. Erfurt/Gotha, ms Amplon. Q<sup>o</sup> 386, ff. 130<sup>r</sup>-150<sup>v</sup>
- Lα Leyden, Bibliotheek der Rijksuniversiteit, ms. Scaligerani 64, f. 120v
- Lε London, British Library, ms. Harley 3647, ff. 63<sup>r</sup>-81<sup>r</sup>
- Lζ London, British Library, ms. Royal 12.C.ix, ff. 38<sup>r</sup>-49<sup>v</sup>
- Mη Milano, Biblioteca Pinacoteca Accademia Ambrosiana, ms. H.75.Sup., ff. 34<sup>r</sup>-51<sup>v</sup>
- Mθ Milano, Biblioteca Pinacoteca Accademia Ambrosiana, ms. H.109.Sup., ff. 1<sup>r</sup>-7<sup>r</sup>; 17<sup>v</sup>
- Mκ Milano, Biblioteca Pinacoteca Accademia Ambrosiana, ms. R.47.Sup., ff. 126<sup>r</sup>-132<sup>v</sup>; 119<sup>v</sup>; 112<sup>r</sup>-117<sup>v</sup>
- Mλ Montpellier, Bibliothèque Interuniversitaire, Section Médecine, ms. H 323, ff. 74<sup>r</sup>-98<sup>v</sup>
- Mv München, Bayerische Staatsbibliothek, Clm 353, ff. 41<sup>r</sup>-54<sup>r</sup>
- Mo München, Bayerische Staatsbibliothek, Clm 572, ff. 1<sup>r</sup>-27<sup>v</sup>
- Nε Napoli, Biblioteca Nazionale "Vittorio Emanuele III", ms. VIII-C-46, ff. 43<sup>r</sup>-58<sup>r</sup>
- Oκ Oxford, Bodleian Library, ms. Canon. Misc. 61, ff. 1<sup>r</sup>-8<sup>v</sup>
- Oψ Oxford, St. John's College, ms. 188, f. 98<sup>v</sup>
- Pδ Paris, Bibliothèque nationale de France, ms. lat. 7195, ff. 44<sup>r</sup>-61<sup>r</sup>
- Pθ Paris, Bibliothèque nationale de France, ms. lat. 7280, ff. 73<sup>r</sup>-82<sup>r</sup>
- Pο Paris, Bibliothèque nationale de France, ms. lat. 7413(1), ff. 1<sup>r</sup>-18<sup>v</sup>
- Pπ Paris, Bibliothèque nationale de France, ms. lat. 7413(2), f. 75<sup>v</sup>; 36<sup>v</sup>
- Pτ Paris, Bibliothèque nationale de France, ms. lat. 7416B, ff. 75<sup>v</sup>-86<sup>r</sup>
- Pυ Paris, Bibliothèque nationale de France, ms. lat. 7421, ff. 62<sup>r</sup>-89<sup>v</sup> (*olim* 61<sup>r</sup>-88<sup>v</sup>)

- Qα Paris, Bibliothèque nationale de France, ms. n.a.l. 693, ff. 9<sup>r</sup>-14<sup>r</sup>  
Qβ Paris, Bibliothèque nationale de France, ms. n.a.l. 1893, ff. 48<sup>v</sup>-65<sup>r</sup>  
Qδ Parma, Biblioteca Palatina, ms. 984 (*olim* HH.III.17), ff. 115<sup>r</sup>-130<sup>v</sup>  
Qμ Private Collection, ff. 133<sup>r</sup>-157<sup>v</sup>
- Rα Ravenna, Biblioteca Classense, ms. 269, ff. 1<sup>r</sup>-24<sup>v</sup>
- Sβ Salamanca, Universidad de Salamanca, Biblioteca, ms. 2353, ff. 4<sup>v</sup>-12<sup>r</sup>  
Sγ Salamanca, Universidad de Salamanca, Biblioteca, ms. 2621, f. 116<sup>r</sup>  
Sε Sankt Gallen, Kantonsbibliothek Vadiana, ms. 412, ff. 93<sup>v</sup>-95<sup>r</sup>
- Tδ Trier, Stadtbibliothek, ms. 1074/1271 (8<sup>o</sup>), ff. 49<sup>r</sup>-81<sup>v</sup> (*olim* 50<sup>r</sup>-82<sup>v</sup>)
- Vκ Vatican, Biblioteca Apostolica Vaticana, ms. Pal. lat. 1381, ff. 137<sup>r</sup>-147<sup>r</sup>  
Vπ Vatican, Biblioteca Apostolica Vaticana, ms. Rossiano 732 (*olim* X,112), ff. 47<sup>v</sup>-66<sup>v</sup>
- Wα Wien, Österreichische Nationalbibliothek, ms. Palatinus 2367, ff. 77<sup>r</sup>-92<sup>v</sup>, 184<sup>r</sup>, 196<sup>r</sup>  
Wδ Wien, Österreichische Nationalbibliothek, ms. Palatinus 2323, ff. 80<sup>v</sup>-81<sup>r</sup>, 83<sup>v</sup>  
Wη Wien, Österreichische Nationalbibliothek, ms. Palatinus 5412, f. 159<sup>r</sup>
- Xα Venezia, Biblioteca Nazionale Marciana, ms. VIII.33 (= 2499), ff. 92<sup>r</sup>-99<sup>v</sup>

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[Tabulae stellarum fixarum]

[Lists of Fixed Stars]

[ *Tabula 1* ]<sup>1</sup>

TABULA STELLARUM FIXARUM QUE PONUNTUR IN ASTROLABIO CUM GRADIBUS  
 QUIBUS CELUM MEDIANT ET CUM DISTANCIA EARUM AB EQUINOCTIALI LINEA.

Aα Bθ Cε Cη Cι Dη Eο Eπ Eτ Lε Mη Mo Ne Pδ Pθ Pv Qβ Qδ Σε Tδ Vπ Wα Wδ

- 1-2    *Title: om.* Eπ Σε        que ... linea] astrolabii cum longitudine earum in signis et distancia  
 ab equinoctiali Eπ
- 1        fixarum] *om.* Cε Pv Wα Wδ
- 2        quibus] *interlin* Cη        celum] *om.* Pδ        cum ... linea] per gradum longitudinis  
 earum et est gradus cum quo stella mediat celum et qui ponit eam in signo et per gradus  
 latitudinis earum qui est (*add.* earum Wδ) distancia ab equinoctiali Wα Wδ; *add. in bottom*  
*marg.* Tabula stellarum fixarum que ponuntur in astrolabio per gradum longitudinis  
 earum et est gradus cum quo stella mediat celum et per gradus latitudinis earum et est  
 earum distancia ab equinoctiali Wα Wδ        linea] *add.* g[radus], m[inuta] sint per caput  
 Arietis et Libre Mo; *add.* Nomina stellarum cum suis ymaginibus Cι; *add.* Nomina  
 stellarum cum suis ymaginibus in quibus sunt Pδ

---

<sup>1</sup> Contains 49 stars. Paul Kunitzsch, *Typen von Sternverzeichnissen in astronomischen Handschriften des zehnten bis vierzehnten Jahrhunderts* (Wiesbaden: Otto Harrassowitz, 1966), Typ VIII, mss a-i; pp. 51-58.

Because of the wide scattering of variants, no base ms has been used.

All copies of this star list are associated with Pseudo-Māshā'allāh's text, except in mss Eο and Wα where the lists are separate from the text; and in ms Eπ where there is no copy of the text. The astrolabe text in ms Σε is not that of Pseudo-Māshā'allāh.

[ *LIST OF STARS 1* ]

TABLE OF FIXED STARS WHICH ARE PLACED IN AN ASTROLABE,  
WITH DEGREES WHICH MEDIATES THE SKY, AND WITH THEIR DISTANCES  
FROM THE [CELESTIAL] EQUATORIAL CIRCLE.

Signa	Nomina stellarum	Ymagines	Longitudo g~ m~ <sup>2</sup>	Lati- tudo g~ m~	Pars lati- tudinis
ARIES					
5	[β And] Mirach [ζ Cet] Batenkaytoz		7° 0' <sup>3</sup> 18° 30'	32° 30' <sup>4</sup> 13° 30'	sept. <sup>5</sup> merid.
3	signa] <i>om.</i> Cε Σε Νε Wα Wδ; nomina signorum Bθ Cη Cι Lε Mη Pδ Pθ Qβ Tδ Vπ nomina stellarum] <i>om.</i> Eπ Eτ Pθ Wα Wδ; <i>twice</i> Tδ; stella Aα; stelle Cι Dη Eο Mη; nomina vetera Σε <sup>6</sup> ; <i>add.</i> cum suis ymaginibus Qβ Pυ Vπ; <i>add.</i> fixarum Dη; <i>add.</i> stelle Pυ Qδ Vπ ymagines] <i>om.</i> Mo Wα Wδ; cum ymaginibus Eπ Eτ; cum suis ymaginibus Bθ Cε Dη Lε Mη Νε Pθ Qδ Tδ; <i>add.</i> earum Pδ; <i>add.</i> stellarum Cη Σε; <i>add.</i> stellarum sint hoc Qβ longitudo   g~ m~] <i>om.</i> Cε; longitudo stelle Pδ; longitudo stellarum   g~ m~ Aα Bθ Cι Eο Pυ Qδ Vπ latitudo   g~ m~] <i>om.</i> Cε; latitudo earum   g~ m~ Aα Bθ Cι Eο Pδ Pυ Qδ Vπ; <i>add.</i> profunditas in signo id est declinatio Wα Wδ Pars latitudinis] <i>om.</i> Cε; pars Eπ; <i>add.</i> est hec Cη; <i>add.</i> stellarum Lε Pδ Tδ; <i>add.</i> stelle Pδ				
4	Aries] <i>om.</i> Cε Σε				
5	Mirach ... sept.] <i>om.</i> Νε Mirach] Mirac Mo; Myrach Wδ		7 0] 0 7 Cη	32 30]	
	14 30 Dη; 22 30 Wα Wδ; 30 30 Aα				
6	Batenkaytoz] Batekaytoz Dη; Batencathoz Cε; Batenkaatoz Qδ; Batenkaitoz Aα Νε Pθ Pυ; Batenkartoz Eο; Batenkaytor Tδ; Bathebiro Σε; Bathekaidoz Bθ; Bathekardoz Vπ; Bathenkaythoz Cι; Bathenkaytoz Pδ Mη Wα Wδ; Futekaytoz Dη; <i>add.</i> finis fluxus Eπ 18 30] 16 30 Eπ; 18 0 Eο 13 30] <i>om.</i> Aα; 10 30 Eπ; 13 0 Eο merid.] <i>om.</i> Cε <sup>7</sup>				

<sup>2</sup> Nearly all mss use abbreviations here, for *gradus* and *minuta* (degree and minute). For clarity I have added the modern degrees and minutes signs to the text, although in the originals there are just numbers.

<sup>3</sup> In some mss (especially Aα) the “0” is omitted from the *minuta* column; i.e., the space is blank. No effort has been made to record this practice in detail, especially when some manuscripts sometimes have the “0” and sometimes a blank. In ms Wα the latitude minutes are repeated (for most stars) in a fifth column of numbers. They are listed here only where the two columns of minutes differ.

<sup>4</sup> From Mirach to Alderan, the list of latitudes and *pars* in ms Pδ has shifted one entry lower, e.g. Mirach’s latitude and *pars* are on the line for Batenkaytoz.

<sup>5</sup> Since most mss abbreviate *septentrionalis* and *meridionalis*, I have done so as well.

<sup>6</sup> Ms Σε adds a second column of names, entitled “Nova nomina stellarum ...”, which has been omitted from this edition.

<sup>7</sup> In ms Cε only *septentrionalis* is noted in this column; all *meridionalis* notations are omitted.

Signs	Names of the stars	Images	Longitude <sup>8</sup> ° / ′	Latitude <sup>9</sup> ° / ′	Part of the latitude <sup>10</sup>
ARIES					
[β And]	Mirach		7° 0′	32° 30′	N
[ζ Cet]	Baten Kaitos <sup>11</sup>		18° 30′	13° 30′	S

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<sup>8</sup> Mediation.

<sup>9</sup> Declination

<sup>10</sup> This column indicates whether a star is north (*septentrionalis*) or south (*meridionalis*) of the celestial equator. In modern notation this is usually indicated by a plus or minus sign.

<sup>11</sup> Batenkaytoz/Baten Kaitos and Pantakaitoz are long-standing duplicates. See Appendix I (ζ Cet).

[ζ Cet]	Pantakaitoz	venter ceti	20° 0'	14° 0'	merid.
[α Ari]	Enif		22° 0'	23° 30'	sept.
[θ Eri]	Finis fluxus		25° 0'	4° 30'	merid.
10	TAURUS				
[α Cet]	Menkar	naris ceti	6° 0'	1° 0'	sept.
[α Per]	Algenib	frons Algonis	10° 0'	49° 0'	sept.
[τ <sup>2</sup> Eri]	Algetenar		22° 0'	16° 0'	merid.
[α Tau]	Aldebaran	oculus vel cor Tauri	29° 0'	14° 30'	sept.
7	Pantakaitoz] <i>entry om.</i> Eπ; Pancildaicon Σε; Pantacaitoz Αα; Pantacay Qβ; Pantacaytoz Ρυ; Pantakaastoz Qδ; Pantakaytor Tδ; Pantanc[ay]ta Μν; Panthakaythoz Cι; Panthakaytor Wδ; Panthakaytoz Μη Pδ Wα; Patencacaytoz Cε; Paucartartoz Eo; Enif Patacaidoz <sup>12</sup> Bθ Vπ venter ceti] <i>om.</i> Cε ceti] cethi <i>some</i> ; cethy Qβ; 14 0] <i>om.</i> Αα; 14 30 Bθ Qδ Vπ merid.] <i>om.</i> Cε				
8	Enif] <i>om.</i> Bθ; Enit Cι; Enyf Wα Wδ; Eruf Σε 22 0] 22 32 Αα 23 30] <i>om.</i> Αα; 22 30 Cε; 32 0 Eo; 32 30 Bθ Cι Dη Eτ Μη Mo Pδ Ρυ Qδ Σε Wα Wδ Vπ				
9	fluxus] fuxus Dη 25 0] 25 4 Αα 4 30] 30 30 Αα merid.] <i>om.</i> Cε; australis Wα Wδ				
10	Taurus] <i>om.</i> Cε Σε				
11	Menkar] Menchar Cε Qδ; Menkach Eo; Menkath Bθ Vπ; Mentrar Σε ceti] ceci Bθ Qδ; cethi <i>some</i> ; naris cethy Wα Wδ 6 0] 6 1 Αα 1 0] 0 0 Αα				
12	Algenib] Algeb Bθ Vπ; Algenb Αα Cε Eo Ρυ; Algerab Σε; Algon Eπ; Algonib Eτ; Augenib Μη frons Algonis] caput Algonis Eπ; frons Angonis Eo 10 0] 10 49 Αα; 11 0 Bθ Vπ 49 0] <i>om.</i> Αα; 1 0 Σε; 42 0 Eπ				
13	Algetenar] Algetenor Eπ; Algetenir Ne; Angetenar Eo Wα Wδ Vπ; Augetena Pδ; Augetenar Αα Bθ Cι Μη Mo Ρυ Qδ; Augetonar Eτ; Auguthanar Cε 22 0] 22 16 Αα 16 0] 0 0 Αα; 6 0 Σε merid.] <i>om.</i> Cε; australis Wα Wδ				
14	Aldebaran] Aldebaram Σε oculus vel cor Tauri] cor Tauri Eπ vel] <i>om.</i> Σε Tauri] Thauri Wα Wδ				

<sup>12</sup> Beginning with the conflation of Enif and Pantekaitoz, the lists in mss Bθ and Vπ give the image name, the coordinates, and the “pars” of the previous entry.

[ζ Cet]	Pantakaitoz	belly of the Whale	20° 0'	14° 0'	S
[α Ari]	Enif <sup>13</sup>		22° 0'	23° 30'	N
[θ Eri]	“End of the flowing” <sup>14</sup>		25° 0'	4° 30'	S

## TAURUS

[α Cet]	Menkar	nose of the Whale	6° 0'	1° 0'	N
[α Per]	Algenib <sup>15</sup>	forehead of Algon <sup>16</sup>	10° 0'	49° 0'	N
[τ <sup>2</sup> Eri]	Angetenar		22° 0'	16° 0'	S
[α Tau]	Aldebaran	eye or heart of Taurus	29° 0'	14° 30'	N

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<sup>13</sup> Usually known as “Hamal”; see Appendix I (α Ari).

<sup>14</sup> Known as “Acamar”. The sense of the name is “the end of the river Eridanus.” See Appendix I (θ Eri).

<sup>15</sup> Now “Mirfak”.

<sup>16</sup> Perseus? See Appendix I (α Per).

## 15 GEMINI

[α Aur]	Alhaioh	hircus vel humerus agitatoris	6° 0'	45° 0'	sept.
[β Ori]	Rigil	pes Orionis	11° 0'	10° 0'	merid.
[α Ori]	Algeuze	humerus dexter Orionis	15° 0'	8° 0'	sept.

## CANCER

20	[α CMa]	Alhabor	in ore canis meridionalis	3° 0'	15° 0' <sup>17</sup>	merid.
	[α Gem]	Razalgeuze	capud geminorum	9° 0'	33° 0'	sept.
	[α CMi]	Algomeiza	in collo canis septentrionalis	13° 0'	7° 0'	sept.

15 Gemini] *om.* Cε Σε

16 Alhaioh] Albaioth Vπ; Alhaiot Mo Qδ; Alhaioth Aα Bθ Cι Nε Pv Qβ; Alharoch Σε; Alhayeth Lε Tδ; Alhayoth Dη Eπ Wα Wδ hircus ... agitatoris] humerus Sagittarii Σε; humerus sinister Eπ(*add. interlin. vel hircus*) hircus] hircus Cη Lε agitatoris] sagittatoris C η Lε NεPθ Qβ Tδ Wα Wδ 45 0] *illeg.* Mη; 36 0 Aα; 44 0 Dη; 45 0 *corr. to* 26 0 Vπ; 45 0 *corr. to* 36 0 Mo Pv; 45 0 *corr. to* 46 0 Pθ; 65 0 Lε Tδ

17 Rigil] Richel Σε; Rigil Eτ; Rigial Lε Tδ; Rygel Cε; Rygyl Wα Wδ 10 0] [*eras.*] 0 Pδ merid.] *om* Cε; australis Wα

18 *Entry in marg.* Mo Algeuze] Algente Eo Vπ; Algenze Cε Tδ; Algeuse Eπ Σε; Elgeuse Mo humerus ... Orionis] humerus eius dexter Eπ Σε 15 0]14 0 Mo 8 0] 6 0 Eπ; 7 0 Aα Eτ Lε Mo Tδ; 8 0 *corr. to* 7 0 Eo Pv

19 *Repeat title and column headings (lines 1-3)* Pv Cancer] *om.* Cε Σε

20 Alhabor] Albabor Vπ in ... meridionalis] os canis Eπ ore] hore Aα Bθ Cε Pv Vπ meridionalis] *om.* Dη 15 0] 15 30 Eπ merid.] *om* Cε; australis Wα Wδ

21 Razalgeuze] Bazalgenze Cε; Bazalgeuze Cη; Bazilgeuse Mo; Racalgenze Vπ; Rafaligence Σε; Ragalgeuze Qδ; Razagenze Aα Cι Eπ Eτ Tδ; Razalevze Wα Wδ; Rozangente Eo 33 0] 3 0 Lε Qβ Tδ; 23 0 Aα; 32 0 Σε sept.] merid. Mη(*corr. in marg. to sept.*)

22 Algomeiza] Algamensa Σε; Algomeira Pθ; Algomeisa Eτ; Algomeyza Cη Wα Wδ; Elsehere Eπ in ... septentrionalis] intellecatus Σε in collo] collum Eπ septentrionalis] *om.* Cη Dη Eπ Lε Nε Qβ Tδ

<sup>17</sup> Because Algeuze was originally skipped in ms Mo, the latitudes for the subsequent stars listed in ms Mo have slipped one place, i.e., Alhabor's latitude is given as 8 0 septentrionalis, and Bezelgeuze is given as 15 0 meridionalis, and so on. Ms Mo rectifies itself after Algorab.

## GEMINI

[ $\alpha$ Aur]	Capella	he-goat <sup>18</sup> or shoulder of the charioteer <sup>19</sup>	6° 0'	45° 0'	N
[ $\beta$ Ori]	Rigel	the foot of Orion	11° 0'	10° 0'	S
[ $\alpha$ Ori]	Betelgeuse	the right shoulder of Orion	15° 0'	8° 0'	N

## CANCER

[ $\alpha$ CMa]	Sirius	in the mouth of the southern dog <sup>20</sup>	3° 0'	15° 0'	S
[ $\alpha$ Gem]	Castor	a head of the twins	9° 0'	33° 0'	N
[ $\alpha$ CMi]	Algemeiza <sup>21</sup>	in the neck of the northern dog <sup>22</sup>	13° 0'	7° 0'	N

---

<sup>18</sup> But traditionally it is “she-goat,” hence its common name, “Capella”.

<sup>19</sup> Or simply “driver.”

<sup>20</sup> The “southern dog” would be the constellation Canis Maior.

<sup>21</sup> Also known as “Procyon”.

<sup>22</sup> Canis Minor.

	[ϰ Pup]	Markep		21° 0'	22° 30'	merid.
	[ι UMa]	Egregez <sup>23</sup>		24° 0'	45° 0'	sept.
25	LEO					
	[ ]	Aldiran	in fronte leonis	6° 0'	6° 0'	merid.
	[α Hya]	Alfart	equus vel singularis	13° 0'	18° 30'	merid.
	[α Leo]	Cabalezed	cor leonis	20° 0'	15° 0'	sept.
	[θ UMa]	Alrucaba	ursa	20° 0'	35° 0'	sept.
30	VIRGO					
	[ ]	Coruus		1° 0'	11° 30'	merid.
23	Markep]	Marchep Qδ; Markel Eo	21 0] 22 0 Cη Eπ	merid.]	om. Cε; australis	
		Wα Wδ; sept. Mη( <i>corr. in marg. to merid.</i> )	add. Leo Eπ Lε			
24	Egregez]	Eggreguz Eτ; Egreger Pθ; Egreges Sε; add. capud Pollucis Eτ	24 0] 34 0 Cη	sept.] merid. Mη( <i>corr. in marg. to sept.</i> )		
25	Leo]	om. CεSε				
26	Aldiran]	Aldiram Eo; Alduam Sε; Aldyran Wα Wδ	in ... leonis]	frons leonis Eπ		
		6 0 <sub>2</sub> ] om. Pδ	merid.] om. Cε; sept. Mη( <i>corr. in marg. to merid.</i> )	Wα Wδ		
27	Alfart]	Alfarat Eτ; Alfarth Cε Dη Mη Pυ Qδ Wα Wδ; Arfart Eπ	equus ... singularis]	cg <sup>us</sup> vel angulus angulorum Sε	singularis]	cignus Dη; cingl'us Mo Qδ; cingnius Lε
		Tδ; cingulus Cη Eπ Nε Pδ Pθ Qβ; sigla'ru <sup>t</sup> Cε; singlus Eτ; singul'r Aα Bθ Eo Mη; singul'r	cingulus Wα Wδ	13 0] 9 0 Aα Eτ Lε Tδ; 13 0 <i>corr. to</i> 9 0 Mη	18 30] 15 0 Tδ; 15 30	Aα Eτ; 15 30 <i>corr. to</i> 16 30 Eo; 16 0 Lε; 16 30 Dη; 18 0 Qδ; 18 0 <i>corr. to</i> 15 30 Bθ Pυ Vπ;
		18 30 <i>corr. to</i> 15 30 Mη	merid.] om. Cε; australis Wα Wδ; sept. Mη( <i>corr. in marg. to merid.</i> )			
28	Cabalezed]	Calbalezath Cι; Calbalezed Bθ Dη Vπ; Calbalezet Cε Pδ Wα Wδ; Calbalezeth	Eπ; Calbeleleret <i>corr. to</i> Cabeleret Pθ; Colbalerech Sε; Kalbalezech Nε	20 0] 18 0 Eπ		
		15 0] 16 0 <i>corr. to</i> 15 0 Eo	sept.] merid. Mη( <i>corr. in marg. to sept.</i> )			
29	Alrucaba]	Affachaba Sε; Alrubaba Eτ; Alruchaba Qδ; Alrucuba Mo; Alrukaba Cι Dη Eπ	Nε Qβ; Alrukalu Lε Tδ; Altucaba Aα Bθ	ursa] cor leonis ursa Pδ	35 0] 25 0 Tδ;	35 30 Dη; 35 30 <i>corr. to</i> 35 0 Wα
		sept.] merid. Mη( <i>corr. in marg. to sept.</i> )				
30	Virgo]	om. Cε Sε				
31	11 30]	11 0 Cη Nε; 39 30 <i>corr. to</i> 11 30 Eo	merid.] om. Cε; australis Wα Wδ; sept. Eπ			
		Mη( <i>corr. in marg. to merid.</i> )				

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<sup>23</sup> Listed under Leo in ms Nε.

[ $\rho$ Pup]	Markep		21° 0'	22° 30'	S
[ $\iota$ UMa]	Egregez <sup>24</sup>		24° 0'	45° 0'	N

## LEO

[ $\epsilon$ ] <sup>25</sup>	Aldiran	in the forehead of the lion	6° 0'	6° 0'	S
[ $\alpha$ Hya]	Alfard	horse <sup>26</sup> or solitary one	13° 0'	18° 30'	S
[ $\alpha$ Leo]	Cabalezed <sup>27</sup>	heart of the lion	20° 0'	15° 0'	N
[ $\theta$ UMa]	Alrucaba	the [knee of the] bear	20° 0'	35° 0'	N

## VIRGO

[ $\epsilon$ ] <sup>28</sup>	Corvus		1° 0'	11° 30'	S
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<sup>24</sup> Now known as “Talitha”.

<sup>25</sup> Kunitzsch suggested that this is a duplication of  $\alpha$  Gem: Razalgeuze. See *Typen*, p. 57 (VIII-18 note).

<sup>26</sup> From the confusion between the Arabic for “solitary one” (*al-fard*) and for “horse” (*al-faras*).

<sup>27</sup> Later known as “Regulus”.

<sup>28</sup> Kunitzsch suggested that this is a duplication of  $\gamma$  Crv: Algorab. See *Typen*, p. 57 (VIII-22 note).

[α UMa]	Dubhe	id est ursa	2° 0'	67° 0'	sept.
[β Leo]	Denebalezed	cauda leonis	15° 0'	19° 30'	sept.
[γ Crv]	Algorab	in centauro	22° 0'	13° 30'	merid.

## 35 LIBRA

[α Vir]	Alchimeth	inermis	10° 0'	7° 0'	merid.
[η UMa]	Bennenaz	filie feretri in themone	9° 0'	53° 0'	sept.
[α Boo]	Arameth	lanceator	27° 0'	24° 0'	sept.

- 32 Dubhe] Dulhe Σε id est ursa] Ursa Δη 67 0] 6 0 Cη; 16 0 Qδ
- 33 Denebalezed] Denabalezt Qδ; Denebakeyzech Δη; Denebalazed Επ; Deneb[*illeg.*]zed Επ; Denebalerod Μη; Denebalezech Δη; Denebalezet Cε Pδ Wα Wδ; Denebalezeth Pθ; Denebazeleth Σε; Denebolezad Cι; Deuebalezech Λε Tδ 19 30] 11 30 Επ; 19 0 Σε; 19 0 30 Wα; *corr. from* 19 130 Αα; 67 30 *corr. to* 19 30 Εο
- 34 Algorab] Alborap corvus Wα Wδ; Algorab cori Λε Tδ; Algorab corvus Bθ Cε Δη Επ Ετ Μη Νε Pθ Qβ Vπ; Algoraba corvus Pδ; Algorach Σε; Corvus algorab Αα; *add. interlin* corvus Pυ in centauro] corvus intentus Σε; in centaureo Bθ; in centhauro Wα Wδ 22 0] 20 0 Cι; 23 0 Σε 13 30] 13 0 30 Wα merid.] *om* Cε; australis Wα Wδ; sept. Μη(*corr. in marg. to* merid.)
- 35 *add.* Secunda pars tabule stellarum fixarum que ponuntur in astrolabio, cum gradibus quibus celum medeant et cum distancia earum ab equinoctiali circulo | Nomina stellarum fixarum cum suis ymaginibus | Signa \ ymaginibus \ longitudo g~ m~ \ latitudo g~ m~ \ pars latitudinis Δη; *add.* Tabula stellarum que ponuntur in astrolabio et cum sicut est in precedenti | Nomina stellarum cum suis ymaginibus \ longitudo g~ m~ \ [latitudo] stellarum g~ m~ \ pars latitudinis | Signa \ stelle \ ymaginis Αα *Repeat title and column headings (lines 1-3)* Qβ(nomina stellarum; ymagines stellarum) Libra] *om.* Cε Σε
- 36 Alchimeth] Alchimech Bθ Cι Δη Λε Tδ; Alchimeh Νε; Alchimet Cη; Alchiniech Εο; Alchymech Wα; Alchymeth Wδ inermis] in hermis Cη; motuus Αα 10 0] 12 0 Επ merid.] *om.* Cε; australis Wα Wδ; sept. Μη(*corr. in marg. to* merid.)
- 37 Bennenaz] Bemenaz Αα Bθ Εο Vπ; Benenaz Σε; Beninenaz Cε; Benmenaz Pυ; Bennenar Tδ; Beynemanz Επ filie ... themone] fily fert<sup>o</sup> inchois Σε; venr' filie Επ themone] temone Μο; tuemone Cι 9 0] 10 0 Vπ; 19 0 Αα Bθ Εο Μη Μο Pυ Σε Wα Wδ 53 0] 52 0 Σε; 53 30 *corr. to* 53 0 Μη
- 38 Alrameth] Alcramech Σε; Alramech Cη Δη Λε Μο; Alrameh Νε; Alremech Wα; Aramech Bθ Cι lanceator] laceator Αα; *add. interlin.* id est armatus Επ 27 0] 19 0 *corr. to* 27 0 Αα; 24 0 Cι Pδ Σε Wα Wδ; 24 0 *corr. to* 17 0 Μο; 24 0 *corr. to* 27 0 Cε Μη Pυ; 27 0 *corr. to* 24 0 Εο; 28 0 *corr. to* 27 0 Bθ Vπ 24 0] 24 30 *corr. to* 24 0 Μη

[ $\alpha$ UMa]	Dubhe	that is, the bear	2° 0'	67° 0'	N
[ $\beta$ Leo]	Denebola	the tail of the lion	15° 0'	19° 30'	N
[ $\gamma$ Crv]	Algorab <sup>29</sup>	in the centaur <sup>30</sup>		22° 0'	13° 30'S
LIBRA					
[ $\alpha$ Vir]	Azimech <sup>31</sup>	unarmed <sup>32</sup>	10° 0'	7° 0'	S
[ $\eta$ UMa]	Benetnash <sup>33</sup>	daughters of the bier, along the shaft <sup>34</sup>	9° 0'	53° 0'	N
[ $\alpha$ Boo]	Arcturus	the spear-man/lancer/ lance-carrier	27° 0'	24° 0'	N

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<sup>29</sup> "Algorab" is now the official name of  $\delta$  Crv.

<sup>30</sup> "In the centaur": it is possible that some of the Latin authors/copyists erred here, writing "in" instead of "super" or "supra", i.e., "above", because the crow/algorab is situated in the sky just above Hydra and above Centaurus. [PK]

<sup>31</sup> More commonly known as "Spica."

<sup>32</sup> See Appendix I for the base meaning of "the unarmed" for Azimech.

<sup>33</sup> Also now known as "Alkaid".

<sup>34</sup> Of the seven stars forming the asterism known as "The Plough" or "The Big Dipper" or "The Great Wain", four form the plough itself, or the bowl of the dipper, or the wagon. The other 3 stars are along the shaft(s) of the plough or wagon, or the handle of the dipper. Benetnash is the last star along the shaft or pole (or handle), furthest from plough/wagon. In this Arabic image three maidens lined up along the shaft are pulling a bier through the heavens.

## SCORPIO

40	[ $\alpha$ CrB]	Alfeca	in corona Adriane	16° 0'	29° 0'	sept.
	[ $\beta$ Sco]	Alachil		17° 0'	14° 0'	sept.
	[ $\delta$ Oph]	Yed		26° 0'	3° 0'	merid.
	[ $\alpha$ Sco]	Calbalacrab	cor scorpii	27° 0'	23° 0'	merid.

## SAGITTARIUS

45	[ $\alpha$ Oph]	Alhaue	capud draconis	13° 0'	15° 0'	sept.
	[ $\gamma$ Dra]	Raztaben	capud serpentis	25° 0'	51° 0'	sept.

39 Scorpio] *om.* C $\epsilon$  S $\epsilon$

40 Alfeca] Alfecha E $\pi$ ; Alfeka W $\alpha$  W $\delta$ ; Alfeta D $\eta$  P $\delta$ ; Alfita S $\epsilon$ ; Alpheca L $\epsilon$  Q $\beta$ ; Alpheta T $\delta$   
in ... Adriane] *om.* S $\epsilon$  Adriane] ad'agne M $\eta$  N $\epsilon$ ; ad'agu<sup>e</sup> A $\alpha$  P $\nu$ ; Ad'ag E $\pi$ ;  
Adagn<sup>e</sup> B $\theta$  V $\pi$ ; ad'arine C $\epsilon$ ; Aldagne Eo; Andriane P $\theta$  16 0] 6 0 A $\alpha$ ; 10 *corr.* to 16 0  
B $\theta$  V $\pi$ ; 18 0 C $\iota$  P $\delta$  W $\alpha$  W $\delta$ ; 18 0 *corr.* to 16 0 C $\epsilon$ ; 19 0 E $\pi$  P $\nu$ ; 24 0 *corr.* to 16 0 *corr.* to 18 0 Eo  
29 0] 2 0 A $\alpha$ ; 19 0 E $\pi$ ; 20 0 C $\eta$ ; 20 0 *corr.* to 29 0 B $\theta$ ; 29 0 *corr.* to 31 0 C $\epsilon$  P $\theta$  P $\nu$  V $\pi$ ;  
30 0 *corr.* to 31 0 M $\eta$  sept.] M M $\eta$ (*corr.* in *marg.* to sept.)

41 Alachil] Alachyl W $\alpha$  W $\delta$ ; *add.* in corona S $\epsilon$  17 0] 19 0 Mo S $\epsilon$  W $\alpha$  W $\delta$ ; 19 0 *corr.* to 17 0  
B $\theta$  C $\epsilon$  M $\eta$  P $\nu$  V $\pi$ ; 27 0 *corr.* to 17 0 N $\epsilon$  14 0] 14 0 *corr.* to 15 0 C $\epsilon$  P $\theta$  P $\nu$ ; 15 0 A $\alpha$  L $\epsilon$   
T $\delta$ ; 15 0 or 19 0 *corr.* to 14 0 M $\eta$ ; 16 0 *corr.* to 27 0 *corr.* to 29 0 Eo; 19 0 W $\alpha$ ; 19 0 *corr.* to 15 0  
B $\theta$  V $\pi$

42 Entry *om.* E $\pi$  M $\eta$  Yed] Yes S $\epsilon$ ; Yet Eo; *add.* capud draconis M $\eta$  26 0] 18 0 *corr.*  
to 26 0 Eo 3 0] 2 0 B $\theta$  C $\epsilon$  D $\eta$  M $\eta$  Mo P $\delta$  P $\theta$  P $\nu$  Q $\delta$  S $\epsilon$  V $\pi$  W $\alpha$  W $\delta$  merid.] *om.*  
C $\epsilon$ ; australis W $\alpha$  W $\delta$ ; sept. M $\eta$ (*corr.* in *marg.* to merid.)

43 Calbalacrab] Calbalacab C $\epsilon$ ; Calbalacral L $\epsilon$  T $\delta$ ; Calbalagrab E $\pi$ ; Calbalatrap S $\epsilon$  cor  
scorpii] *om.* S $\epsilon$ ; capud serpentis M $\eta$ (*corr.* in *marg.* to vel cor scorpii) 27 0] *illeg.* *corr.*  
to 27 0 M $\eta$ ; 7 0 C $\iota$  23 0] 22 0 C $\epsilon$  merid.] *om.* C $\epsilon$ ; australis W $\alpha$  W $\delta$ ; sept. M $\eta$ (*corr.*  
in *marg.* to merid.) S $\epsilon$

44 Sagittarius] *om.* C $\epsilon$  S $\epsilon$

45 Alhaue] Alchaue vel razalegue B $\theta$  V $\pi$ ; Alhane vel razelegue P $\delta$ ; Alhant W $\delta$ ; Alharic S $\epsilon$ ;  
*add.* scilicet mza A $\alpha$ ; *add.* vel razeage P $\theta$ ; *add.* vel razalage M $\eta$  Q $\delta$ ; *add.* vel razalee L $\epsilon$  T $\delta$ ;  
*add.* vel razalegne Mo; *add.* vel razalegua C $\epsilon$ ; *add.* vel razalegue Eo P $\nu$  W $\alpha$  W $\delta$ ; *add.* vel  
razelgeuze N $\epsilon$ ; *add.* interlin. [*illeg.*] E $\pi$  capud draconis] vultur cadens M $\eta$ (*corr.* in  
*marg.* to vel capud draconis) 13 0] 14 0 C $\iota$  P $\delta$  S $\epsilon$  W $\alpha$  W $\delta$ ; 14 0 *corr.* to 13 0 B $\theta$  C $\epsilon$  Eo  
Mo P $\nu$  V $\pi$ ; 18 0 E $\pi$  15 0] 15 0 *corr.* to 13 0 B $\theta$  Eo M $\eta$  Mo P $\nu$  V $\pi$ ; 15 0 *corr.* to 12 0 C $\epsilon$ ;  
12 0 E $\tau$  L $\epsilon$  T $\delta$ ; 13 0 A $\alpha$

46 Raztaben] *illeg.* C $\epsilon$ ; Batsaben S $\epsilon$ ; Baztaben L $\epsilon$  T $\delta$ ; Mzcalen A $\alpha$ ; Rahtaben C $\eta$ ; Razaben D $\eta$ ;  
Razaraben V $\pi$ ; Razazaben B $\theta$ ; Razcaben Eo E $\tau$  Q $\delta$ ; Razdaben E $\pi$  M $\eta$  capud  
serpentis] Vultur volans M $\eta$ (*corr.* in *marg.* to vel capud serpentis) 25 0] 28 0 E $\pi$   
51 0] 42 0 E $\pi$ ; 51 39 0 W $\alpha$ ; 52 0 C $\eta$  S $\epsilon$  sept.] *om.* A $\alpha$

## SCORPIO

[ $\alpha$ CrB]	Alphecca	in the crown of Ariadne <sup>35</sup>	16° 0'	29° 0'	N
[ $\beta$ Sco]	Alachil <sup>36</sup>		17° 0'	14° 0'	N
[ $\delta$ Oph]	Yed [Prior]		26° 0'	3° 0'	S
[ $\alpha$ Sco]	Calbalacrab <sup>37</sup>	the heart of the scorpion	27° 0'	23° 0'	S

## SAGGITTARIUS

[ $\alpha$ Oph]	Rasalhague <sup>38</sup>	the head of the dragon	13° 0'	15° 0'	N
[ $\gamma$ Dra]	Rastaben <sup>39</sup>	the head of the serpent	25° 0'	51° 0'	N

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<sup>35</sup> I.e., the crown given by the god Dionysus to the Cretan princess Ariadne, daughter of King Minos, and set by Dionysus in the heavens.

<sup>36</sup> Also known as "Graffias."

<sup>37</sup> Better known as "Antares."

<sup>38</sup> I.e., Ra's al-hague, "head of the serpent collector."

<sup>39</sup> The name "Rastaben" has now been transferred to  $\beta$  Dra.  $\gamma$  Dra is now known as "Eltanin".

## CAPRICORNUS

	[ $\alpha$ Lyr]	Wega	vultur cadens	3° 0'	38° 0'	sept.
	[ $\alpha$ Aql]	Altair	vultur volans	16° 0'	7° 0'	sept.
50	[ $\epsilon$ Del]	Delfin		29° 30'	12° 39'	sept.
	[ $\alpha$ Cyg]	Alrif	in cigno	29° 0'	42° 0'	sept.
	[ $\alpha$ Cyg]	Addigege	cauda galline	30° 0'	43° 0'	sept.

## AQUARIUS

	[ $\delta$ Cap]	Libedeneb	cauda capri	6° 0'	22° 0'	merid.
55	[? Del]	Delfin	nubilior et orientior	10° 0'	6° 0'	sept
	[ $\alpha$ Cep]	Aldiran		10° 0'	59° 0'	sept.

47 Capricornus] *om.* C $\epsilon$  S $\epsilon$

48 Wega] Seg $\alpha$  S $\epsilon$ ; Vnega A $\alpha$  Eo; Vuega B $\theta$  P $\theta$  P $\delta$  P $\nu$  V $\pi$  W $\alpha$  W $\delta$ ; Vuego Q $\delta$  vultur cadens] in cigno M $\eta$ (*corr. in marg. to vultur cadens*); wultur cadens C $\iota$  3 0] 30 0 E $\pi$  sept.] *om.* A $\alpha$  Eo

49 Altair] Alcair E $\tau$ ; Alchair A $\alpha$  B $\theta$  V $\pi$ ; Altaich Q $\delta$ ; Altayr E $\pi$  Q $\beta$ ; Althair C $\epsilon$  C $\iota$  M $\eta$  P $\delta$  P $\theta$  P $\nu$  T $\delta$ ; Althayr L $\epsilon$  W $\alpha$  W $\delta$ ; Alclar S $\epsilon$  vultur volans] cauda galline M $\eta$ (*corr. in marg. to vultur volens*); wultur volans C $\iota$  16 0] 18 0 S $\epsilon$  7 0] 7 25 Mo sept.] *om.* A $\alpha$

50 Delfin] Delfinus E $\pi$ ; Delfyn W $\delta$ ; Delphin L $\epsilon$  S $\epsilon$  T $\delta$ ; *add.* cauda Capri M $\eta$ ; *add.* in cigno P $\delta$  29 30] 28 0 E $\pi$ ; 29 0 A $\alpha$  Mo N $\epsilon$  P $\theta$  Q $\delta$  T $\delta$  V $\pi$  W $\alpha$  W $\delta$  12 39] 12 0 E $\pi$ ; 12 0 30 W $\alpha$ ; 12 30 A $\alpha$  C $\epsilon$  Eo E $\tau$  Mo P $\nu$  S $\epsilon$  V $\pi$  sept.] *om.* A $\alpha$  Eo

51 Alrif] Astif Eo in cigno] in agno C $\epsilon$ ; in signo C $\iota$  29 0] 19 0 A $\alpha$  sept.] *om.* A $\alpha$  Eo M $\eta$

52 *Entry om.* S $\epsilon$  Addigege] Addigge E $\tau$ ; Addygege W $\alpha$ ; Adigege A $\alpha$  B $\theta$  Eo Q $\delta$  V $\pi$ ; Aldigege E $\pi$  galline] galine C $\iota$  30 0] 20 0 E $\pi$  43 0] 41 0 C $\epsilon$  *add.* Signa / Nomina stellarum / longitudo g $\sim$  m $\sim$  / latitudo g $\sim$  m $\sim$  / pars E $\pi$

53 Aquarius] *om.* C $\epsilon$  S $\epsilon$

54 Libedeneb] Libedenes C $\epsilon$ ; Libederneb Eo; Libedeydop S $\epsilon$ ; Lybedeneb W $\alpha$  W $\delta$  cauda capri] cauda capricorni S $\epsilon$  6 0] *illeg.* C $\iota$  22 0] 26 0 L $\epsilon$  T $\delta$ ; 22 0 *corr.* to 26 0 P $\theta$  merid.] australis W $\alpha$  W $\delta$ ; sept. C $\epsilon$

55 Delfin] De E $\pi$ ; Delfyn W $\delta$  nubilior et orientior] nubilsior et orientior E $\tau$  P $\delta$ ; nubiliosior et ori<sup>or</sup> D $\eta$  W $\alpha$  W $\delta$ ; nubiliosior et orientior S $\epsilon$ ; nubilozior et ori<sup>or</sup> L $\epsilon$ ; oriens E $\pi$ ; sinbiliosior [e]t orienta[li]or P $\theta$  10 0] 19 0 C $\iota$  6 0] 6 10 B $\theta$ ; 6 30 0 W $\alpha$  *Repeat ll. 1-2 M $\eta$  (add. longitudo g $\sim$  m $\sim$  | latitudo g $\sim$  m $\sim$  | pars latitudinis)*

56 Aldiran] Adiran C $\iota$ ; Adria musidii pergesii S $\epsilon$ ; Aldira A $\alpha$  E $\tau$  M $\eta$  P $\nu$ ; Aldria B $\theta$  V $\pi$ ; Aldura Eo; Aldyran W $\alpha$  W $\delta$  59 0] 50 0 A $\alpha$

## CAPRICORN

[ $\alpha$ Lyr]	Vega	the falling vulture	3° 0'	38° 0'	N
[ $\alpha$ Aql]	Altair	the flying vulture	16° 0'	7° 0'	N
[ $\epsilon$ Del]	[Deneb] Dulfim		29° 30'	12° 39'	N
[ $\alpha$ Cyg]	Alridf <sup>40</sup>	in the swan	29° 0'	42° 0'	N
[ $\alpha$ Cyg]	Addigege <sup>41</sup>	the tail of the hen	30° 0'	43° 0'	N

## AQUARIUS

[ $\delta$ Cap]	Libedeneb <sup>42</sup>	the tail of the [he-]goat	6° 0'	22° 0'	S
[? Del] <sup>43</sup>	Delfin	more clouded <sup>44</sup> and more easterly	10° 0'	6° 0'	N
[ $\alpha$ Cep]	Alderamin <sup>45</sup>		10° 0'	59° 0'	N

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<sup>40</sup> Now known as “Deneb.”

<sup>41</sup> A duplication of Alrif (an expansion of the the name). See Appendix I:  $\alpha$  Cyg

<sup>42</sup> While Libedeneb is found many times in rete diagrams and also on actual astrolabes, it is a corruption in Latin of Denebalgedi (or Deneb Algedi). Sometimes Denebalgedi and Libedeneb are treated as two different stars, as in Kunitzsch, *Typen*, p. 46: VIII-40 (based on III-18) and VIII-44 (based on VI-35). The compiler of list VIII (i.e., this list) worked from at least two different sources and did not realize that he was dealing with the same star.

<sup>43</sup> Kunitzsch (*Typen*, p. 58) suggested that this is a duplicate of  $\epsilon$  Del, with quite different co-ordinates. See Appendix I (? Del), for a discussion of this second star named Delfin.

<sup>44</sup> Or “dimmer/fainter”.

<sup>45</sup> The Latin, “Aldiran”, copies the name of the star found in Leo, above.

[ε Peg]	Enifelferaz	musida <sup>46</sup> equi Pegasi	13° 0′	7° 0′	sept.
[δ Cap]	Denebalgedi	cauda Capricorni	14° 0′	19° 39′	merid.
[δ Aqr]	Sceach	crus	30° 0′	19° 0′	merid.

## 60 PISCES

[β Peg]	Alferaz	in Pegaso	6° 0′	24° 0′	sept.
[β Peg]	Mentichel	humerus equi alati	18° 0′	25° 0′	sept.
[ι Cet]	Denebkaitoz	cauda ceti	22° 0′	10° 0′	merid.
[α Cas]	Sceder		18° 0′	53° 0′	sept.

- 57 Enifelferaz] Cmfelferaz Pθ; Emfalferaz Aα Bθ Pυ Vπ; Emfelferaz Cι; Emphalferaz Qδ; Enfalferaz Mη; Enfelfora Σε; Enifalfar Tδ; Enifalfat Cε; Enifasfaz Eο; Enifelfarin Eπ; Enifelfaz Qβ musida equi pegasi] *om.* Σε musida] muscida Wα Wδ Pegasi] *om.* Eπ; pesagi Cη Eτ Lε Pθ Tδ Qβ sept.] merid. Mη(*corr. in marg. to sept.*)
- 58 Denebalgedi] Denebagedi Cε; Denebalgedy Wα Wδ; Denenalgedi Σε cauda Capricorni] *om.* Mo; cauda corporis Eπ 19 39] 19 0 Eπ Mo; 19 0 39 Wα; 19 30 Aα Σε merid.] *om.* Cε; australis Wα Wδ
- 59 Sceach] Sceath Eτ Cι; Scezich Aα; Schath Cε Steach Wα Wδ; *add.* id est Aα Bθ Dη Eπ Lε Pδ Pθ Pυ Qβ Vπ crus] id est cruz Eτ Mo 30 0] 3 0 Qδ 19 0] 10 0 Eπ; 19 39 Mo merid.] *om.* Cε; australis Wα Wδ; sept. Mη(*corr. in marg. to merid.*)
- 60 Repeat title (*om.* quibus) and column headings (*add.* fixarum) (*lines* 1-3) Pθ Pisces] *om.* Cε Σε
- 61 Alferaz] Alfat Cε; Alfaz~ Eο; Alferach Mη; Alferam Eπ; Alferan Σε Pegaso] gesago Eτ; pesago Cη Eο Eπ Lε Mo Pθ Qβ Qδ Σε Tδ 24 0] 34 0 Eπ
- 62 Mentichel] Menachil Σε; Menchel Eο Pυ; Menthel Mo; Mentichil Cι Dη Eπ Mη Nε Pθ Qβ; Mentichyl Wα Wδ; Mentithil Pδ Tδ; Humerus equi alati Aα Bθ Qδ Vπ humerus equi alati] *om.* Σε; mechel Bθ Vπ; menchel Qδ; menthel Aα alati] *om.* Eπ; alfati Dη 25 0] 24 0 Bθ sept.] merid. Mη(*corr. in marg. to sept.*)
- 63 Denebkaitoz] Denebcaithoz Cε; Denebcaitoz Qδ; Denebkaiton Eπ; Denebkaythoz Cι; Denebkaytor Tδ Wδ; Denebkaytoz Eο Eτ Lε Mo Pυ Wα; Denebkidoz Bθ Vπ; Denepkayza Σε ceti] cethi *some*; ceci Bθ Qδ; cethy Wα Wδ 22 0] 30 0 Aα Eτ Lε Tδ; 22 0 *corr.* to 30 0 Bθ Cε Eο Pθ Pυ Vπ 10 0] 22 0 Aα Eτ Lε Tδ; 10 0 *corr.* to 22 0 Bθ Eο Pθ Pυ Vπ merid.] *om.* Cε; australis Wα Wδ; sept. Mη(*corr. in marg. to merid.*)
- 64 Sceder] Scedry Σε; Sedes Qδ 18 0] 20 0 Eο; 28 0 Bθ Cε Eτ Mη Mo Pυ Qδ Vπ

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<sup>46</sup> For “mus(c)ida”, see Appendix I: ε Peg.

[ε Peg]	Enif	the muzzle of the horse Pegasus	13° 0′	7° 0′	N
[δ Cap]	Deneb Algedi <sup>47</sup>	the tail of the he-goat/ Capricorn	14° 0′	19° 39′	S
[δ Aqr]	Scheat <sup>48</sup>	the shin <sup>49</sup>	30° 0′	19° 0′	S
PISCES					
[β Peg]	Alferaz	in Pegasus	6° 0′	24° 0′	N
[β Peg]	Markab <sup>50</sup>	the shoulder of the winged horse <sup>51</sup>	18° 0′	25° 0′	N
[ι Cet]	Deneb Kaitos	the tail of the whale	22° 0′	10° 0′	S
[α Cas]	Schedar		18° 0′	53° 0′	N

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<sup>47</sup> See Libedeneb, above.

<sup>48</sup> A name later transferred in or after 1424 by John of Gmunden or his school to Pegasus. See Appendix I: β Peg. “Scheat” has now officially become “Skat”.

<sup>49</sup> The shin of Aquarius.

<sup>50</sup> A duplicate of Alferaz; see Appendix I: β Peg.

<sup>51</sup> I.e., Pegasus.

[ *Tabula 1-A* ]<sup>1</sup>TABULA STELLARUM SECUNDUM MODERNOS QUE PONATUR  
IN QUADRANTE CUM LATITUDINE AB EQUINOCTIALI

Signa	Nomina stellarum	Longitudo <sup>2</sup> g~ m~	Latitudo <sup>3</sup> g~ m~	Pars mundi
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Cζ<sup>4</sup> Eδ Eζ Eo Lζ Mv<sup>5</sup> Po

- 1-2 Tabula ... equinoctiali] Eo; *om.* Eδ Eζ Mv Po; Nomina stellarum fixarum verficatarum per instrumenta que ponuntur in rethe astrolabii Lζ; Tabula stellarum fixarum que ponuntur in astrolabio cum longitudine sua in circulo signorum et latitudine sua ab equinoctiali et dicitur hic longitudo tegens zodiaci cum quo venit ad medium celi Cζ
- 3-4 Signa] *om.* Eδ Lζ; Nomina signorum Eζ; Nomina signorum zodiaci Cζ      Nomina stellarum] *om.* Eδ Lζ; Stelle Mv; *add.* fixarum Cζ      Longitudo | g~ m~] *om.* Eδ; Longitudo uso dia | g~ m~ Cζ      Latitudo | g~ m~] *om.* Eδ; Latitudo ab equi[noctiali] | g~ m~ Cζ      Pars mundi] *om.* Eδ Eζ Po; Partes mundi Cζ Lζ; *add.* In quibus ymaginibus sunt stelle Cζ

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<sup>1</sup> Contains 41 stars (with one or two missing in some mss). See Kunitzsch, *Typen*, Typ VIII, mss k-n and p; pp. 51-58.

All copies of this star list are associated with Pseudo-Māshā'allāh's text, except Eo, Lζ, and Mθ, where the tables are separate from the text.

Since this is a version of Tabula 1, no English translation is provided.

<sup>2</sup> Mediation.

<sup>3</sup> Declination.

<sup>4</sup> The star list in Cζ is something of an anomaly, given the large number of variants from any base version. The selection of stars does not match other versions nor do its co-ordinates; some times they are close to Star List 1 but at other times closer to Star List 1-A, and at other times unique. Furthermore, it is the only one in this list that seems originally to have descriptions of images attached to it, and these descriptions match to a large extent the star list from 1246 ascribed to John of London (Kunitzsch, *Typen*, Typ VI). I include it here as the best place to record this text.

<sup>5</sup> First seven stars only (Mirac to Aldebaran).

## ARIES

5	[β And]	Mirac	7° 0' <sup>6</sup>	32° 30'	sept.
	[ζ Cet]	Batenkaytoz	19° 0'	14° 0'	merid.
	[α Ari]	Enif	22° 0'	19° 30'	sept.

## TAURUS

	[α Cet]	Menkar	6° 0'	1° 0'	sept.
10	[α Per]	Algenib	9° 0'	47° 0'	sept.
	[τ <sup>2</sup> Eri]	Algetenar	22° 0'	16° 0'	merid.
	[α Tau]	Aldebaran	29° 0'	14° 30'	sept.

## GEMINI

	[α Aur]	Alhaioh	6° 0'	46° 0'	sept.
15	[β Ori]	Rigil	11° 0'	8° 0'	merid.

5	Mirac]	Mirach Cζ; <i>add.</i> Andromade Cζ	7 0] 70(!) [0] Po <sup>7</sup> ; 8 0 Cζ	32 30] 14 0 Eo;
		34 0 Cζ	<i>add.</i> [ζ Cet] Denebkaytoz   0 30   23 0	merid. Cξ
6	Batenkaytoz]	Bataikaitos Cζ; Batecay~ Mv; Batenkaitoz Eo; Batenkayteiz Po; <i>add.</i> in ventre ceti Cζ	19 0] 18 0 Cζ; 19 14 Mv	14 0] 19 30 Eo
7	Enif]	<i>add.</i> que est super capud Arietis Cζ	22 0] 24 0 Cζ	19 30] 20 0 Cζ; 32 30 Eo
9	Menkar]	Mekar Mv; Melzar Eδ; Menhkar Eζ; <i>add.</i> et est naris ceti Cζ; <i>add.</i> in marg. naris ceti Eo	6 0] 7 0 Cζ	1 0] 2 0 Cζ
10	Algenib]	Algeneb Cζ; Algon Po; <i>add.</i> latus Persei dextrum Cζ	47 0] 41 0 Eζ; 49 0 Cζ	9 0] 19 0 Cζ
11	Algetenar]	Augekanar Eζ; Augekauar Eδ Po; Augetanar Eo; Augetenar Cζ Lζ; Augete <sup>nar</sup> Mv; <i>add.</i> flumen in reflexione riui eridani Cζ	16 0] 49 0 Cζ	
12	Aldebaran]	Aldebanar Eδ; <i>add.</i> id est oculus Tauri Cζ; <i>add.</i> in marg. oculus vel cor Tauri id est vespera Eo	29 0] 29 20 Cζ	sept.] <i>star list in ms Mv ends</i>
14	Alhaioh]	Alaioth Cζ; Alhaiot Eζ Eo; Alhayot Lζ; Alkaiot Po; Malhaiot Eδ; <i>add.</i> in marg. hircus Eo; <i>add.</i> in humero agitatoris vel hircus Cζ	46 0] 43 48 Eo; 45 0 Cζ	
15	Rigil]	<i>add.</i> in pede Orionis vel Scorpionis Cζ; <i>add.</i> in marg. pes Orionis Eo	8 0] 10 0 Eo	11 0] 10 0

<sup>6</sup> In some mss the “0” is omitted from the *minuta* column; i.e., the space is blank. No effort has been made to record this practice in detail, especially when in some manuscripts there is sometimes a “0” and sometimes a blank.

In mss Eδ, Eζ and Po only the degrees of longitude are given. The degrees of latitude are found under *longitudo - minuta*; the minutes of latitude are found under *latitudo – gradus*; and the *pars* is found under *latitudo – minuta*.

<sup>7</sup> This could actually be a conflation of 7° 0'.

	[ $\alpha$ Ori]	Algeuze	16° 0'	7° 0'	sept.
	CANCER				
	[ $\alpha$ CMa]	Alhabor	2° 0'	17° 0'	merid.
	[ $\alpha$ CMi]	Algomeyza	13° 0'	7° 0'	sept.
20	[ $\alpha$ Gem]	Bazelgeuze	9° 0'	33° 0'	sept.
	[ $\rho$ Pup]	Markeb	21° 0'	22° 30'	merid.
	LEO				
	[ $\alpha$ Hya]	Alfard	9° 0'	5° 30'	merid.
	[ $\alpha$ Leo]	Cor leonis	20° 0'	15° 0'	sept.
25	[ $\theta$ UMa]	Ursa	20° 0'	45° 0'	sept.
	VIRGO				
	[ ]	Corvus	1° 0'	11° 30'	merid.
	[ $\alpha$ UMa]	Dubhe	2° 0'	66° 0'	sept.
	[ $\beta$ Leo]	Cauda	15° 0'	19° 30'	sept.
16	Algeuze] Algenze C $\zeta$ ; Elgeuze E $\zeta$ Po; <i>add.</i> humerus audacis ( <i>ms.</i> andacis) dexter C $\zeta$ ; <i>add.</i> in <i>marg.</i> humerus dexter Orionis Eo 16 0] 14 0 Eo L $\zeta$ 7 0] 6 0 C $\zeta$				
18	Alhabor] Alabor C $\zeta$ ; <i>add.</i> in <i>marg.</i> in ore canis meridionalis Eo; <i>add.</i> que est in ore canis et est in ultimitate ( <i>ms.</i> Imitate) luminis C $\zeta$ 2 0] 3 0 Eo; 3 20 C $\zeta$ 17 0] 15 30 C $\zeta$ Eo				
19	Algomeyza] Algomeiza C $\zeta$ Eo; Algomerza E $\zeta$ Po; Algoniza E $\delta$ ; <i>add.</i> in <i>marg.</i> in collo canis minoris Eo; <i>add.</i> que est lucidior canis minoris C $\zeta$ 13 0] 12 0 C $\zeta$				
20	<i>Entry before</i> Algomeyza: Eo L $\zeta$ ; <i>entry om.</i> C $\zeta$ Bazelgeuze] Ratarlem Eo; Raztaben L $\zeta$ ; Raztaten E $\delta$ E $\zeta$ Po 9 0 L $\zeta$ Eo] 13 0 E $\delta$ E $\zeta$ Po 33 0 L $\zeta$ Eo] 7 0 E $\zeta$ Po; 7 30 E $\delta$				
21	Markeb] <i>add.</i> id est navis et est illa que sequitur Alhabor et creditur quod sit de navi C $\zeta$ 21 0] 2 0 E $\delta$ ; 22 0 C $\zeta$				
23	Alfard] Alfrad E $\zeta$ ; <i>add.</i> in <i>marg.</i> equus vel singularis Eo; <i>add.</i> id est singularis et est in serpente Ydre [ <i>illeg.</i> ] C $\zeta$ 9 0] 8 10 C $\zeta$ 5 30] 4 20 C $\zeta$ ; 15 30 Eo				
24	Cor leonis] <i>add.</i> Casbeteced C $\zeta$ 18 0] 20 0 C $\zeta$ ; 19 25 Eo 15 0] 15 30 C $\zeta$ ; 15 51 Eo				
25	<i>Entry om.</i> C $\zeta$ Ursa] <i>add.</i> in <i>marg.</i> Aldiran id est in fronte leonis Eo 45 0] 60 0 Eo				
27	<i>Entry om.</i> C $\zeta$				
28	Dubhe] Ednb C $\zeta$ ; <i>add.</i> id est ursa et est in quadrato maioris urse clarior et est super dorsum eius sub sinistro pede ipsius urse posteriore et sunt due coniuncte C $\zeta$ 2 0] 0 19 C $\zeta$ 66 0] 6 0 C $\zeta$ ; 60 0 Eo sept. C $\zeta$ Eo L $\zeta$ ] merid. E $\delta$ E $\zeta$ Po				
29	Cauda] Cauda leonis C $\zeta$ ; Tauda E $\zeta$ ; <i>add.</i> id est denebelesed C $\zeta$ 15 0] 14 0 C $\zeta$				

30 [γ Crv] Algorab 22° 0' 13° 30' merid.

## LIBRA

[α Vir] Alchimeth 10° 0' 7° 0' merid.

[η UMa] Bennenaz 19° 0' 53° 0' sept.

[α Boo] Alramech 27° 0' 24° 0' sept.

35 SCORPIO

[α CrB] Elfeca 16° 0' 29° 0' sept.

[δ Oph] Yed 26° 0' 2° 0' merid.

[α Sco] Cor Scorpionis 26° 0' 21° 0' merid.

## SAGITTARIUS

40 [α Oph] Alhaue 14° 0' 13° 0' sept.

[γ Dra] Taben 25° 0' 51° 0' sept.

## CAPRICORNUS

[α Lyr] Vega 2° 0' 37° 0' sept.

30 Algorab] *add.* id est corvus et est in quadrangulo corvi meridiana ursi maioris Cζ; *add. in marg.* vel in centauro Eo 22 0] 23 0 Cζ 13 30] 13 50 Cζ *add.* nomina signorum | nomina stellarum | longitudo gradus minuta | latitudo gradus minuta | partes mundi | in quibus ymaginibus sunt stelle Cζ

32 Alchimeth] Alchimec Eo; Alchimech Lζ Po *add. in marg.* inermis Eo; *add.* inermis et est super palmam sinistram virginis et dicitur Spica Cζ 10 0] 11 0 Cζ; 12 0 Eo 7 0] 7 50 Cζ Eo

33 Bennenaz] Becnenas Eo; Benenaz Eδ Eζ Lζ Po; Benetnaz Cζ; *add.* id est filia feretri et est in extremitate caude Cζ 19 0] 18 0 Cζ 53 0] 52 0 Cζ; 58 0 Eζ

34 Alramech] Alramek Cζ; Alrameth Eζ; *add.* id est lanciator et non est in forma alicuius aiat (=animalis?) et notatur alchimech [vel] aramek Cζ; *add. in marg.* lanceator Eo 27 0] 23 50 Eo; 28 0 Cζ 24 0] 24 18 Eo; 34 0 Eζ

36 Elfeca] Alfeca Cζ; Elfeta Eδ; *add.* clarior in corona Cζ; *add. in marg.* id est corona Eo 16 0] 17 0 Cζ; 18 0 Eo Lζ 29 0] 28 30 Cζ

37 Yed] Yeb Lζ; [Y]ed Eδ; *add.* id est manus sinistra serpentarii in qua tenet serpentem et due sunt coniuncte Cζ 2 0] 3 0 Cζ

38 Cor Scorpionis] Cor Scorpil Lζ; *add.* id est alaqab Cζ 26 0] 29 0 Cζ; 29 47 Eo 21 0] 21 30 Lζ; 23 38 Eo; 24 0 Cζ

40 Alhaue] Alhane Eo; Alhauue Lζ; *add. in marg.* capud draconis Eo; *add.* capud serpentarii Cζ 14 0] 15 0 Cζ

41 Taben] Thaben Eo Lζ; *add.* capud draconis illius qui dividit ursas Cζ 25 0] 23 0 Cζ

43 Vega] Wega Po; Wzega Eδ; *add.* vultur cadens Cζ Eo(marg.) 2 0] 3 0] Cζ 37 0] 38 0 Cζ

45	[ $\alpha$ Aql]	Altair	16° 0'	7° 0'	sept.
	[ $\epsilon$ Del]	Delfin	29° 0'	12° 30'	sept.
	[ $\alpha$ Cyg]	Aldigege	30° 0'	43° 0'	sept.

## AQUARIUS

	[ $\alpha$ Cep]	Aldiran	10° 0'	59° 0'	sept.
	[ $\epsilon$ Peg]	Musida Equi	13° 0'	7° 0'	sept.
50	[ $\delta$ Cap]	Denebalgedi	14° 0'	19° 39'	merid.
	[ $\delta$ Aqr]	Sheach	30° 0'	19° 0'	merid.

## PISCES

	[ $\beta$ Peg]	Humerus equi	6° 0'	24° 0'	sept.
	[ $\iota$ Cet]	Denebkaitoz	30° 0'	22° 0'	merid.
55	[ $\alpha$ Cas]	Sceder	28° 0'	53° 0'	sept.
	[ $\beta$ Peg]	Alferaz	16° 0'	26° 0'	sept.

- 44 Altair] Altam E $\delta$  E $\zeta$ ; Altani Po; Althayr L $\zeta$ ; *add.* vultur volans C $\zeta$  Eo(*marg.*) 16 0]  
17 0 C $\zeta$ ; 21 15 Eo 7 0] 6 30 C $\zeta$ ; 7 30 E $\delta$
- 45 Delfin] Delfyn C $\zeta$ ; Delphin Eo; *add.* in *marg.* cauda Capricorni Eo; *add.* in rumbo  
orientalior C $\zeta$  12 30] 12 0 C $\zeta$  E $\delta$
- 46 Aldigege] Addigege L $\zeta$ ; Adigege Eo; *add.* in *marg.* cauda galline Eo; *add.* in caude galine  
C $\zeta$  30 0] 29 0 C $\zeta$  43 0] 42 0 C $\zeta$
- 48 Aldiran] Abera E $\delta$ ; Abhena Po; Abhera E $\zeta$ ; Ahzera L $\zeta$ ; Aldira C $\zeta$ ; Aldirab Eo 10 0]  
12 0 C $\zeta$  59 0] 50 30 E $\delta$ ; 60 0 C $\zeta$
- 49 Musida Equi] am equi E $\zeta$ ; *add.* id est Enif et est Pegasus C $\zeta$  13 0] 14 0 E $\delta$  7 0]  
6 0 C $\zeta$ ; 19 0 E $\delta$  sept.] merid. E $\delta$
- 50 Denebalgedi] Deuebalgedi Eo; Zenebalgedi Po; Zinebalgedi E $\zeta$ ; *add.* in *marg.* cauda  
Capricorni Eo; *add.* et est in prima duarum coniunctarum scilicet orientalior C $\zeta$   
14 0] 13 0 E $\delta$  19 30] 7 30 E $\delta$ ; 19 39 Eo; 20 30 C $\zeta$  merid.] sept. E $\delta$
- 51 Sheach] Cenok C $\zeta$ ; Scead Eo; Seheach E $\zeta$ ; *add.* id est cruz et meridiana duarum in crure  
aquarii C $\zeta$  30 0] 14 0 Eo 19 0] 19 30 E $\zeta$  Eo Po; 20 30 C $\zeta$
- 53 6 0] 7 0 C $\zeta$  24 0] 20 0 C $\zeta$
- 54 *Entry om.* C $\zeta$ <sup>8</sup> Denebkaitoz] Denebizaitoz E $\delta$ ; Denebkaicoz Po; Denebkaytos Eo;  
Denebkaytoz L $\zeta$ ; *add.* in *marg.* cauda ceti Eo 30 0] 20 0 E $\zeta$
- 55 Sceder] Seder E $\delta$  E $\zeta$  Po; *add.* id est pectus cassiepie C $\zeta$  28 0] 0 30 C $\zeta$ ; 18 0 Eo  
53 0] 52 0 E $\delta$  E $\zeta$  Po
- 56 *Entry om.* Eo L $\zeta$  Alferaz] Alferas C $\zeta$ ; *add.* id est equus scilicet humerus eius et est  
clarior et est triang[u]l[ari]s C $\zeta$  16 0] 23 0 C $\zeta$

<sup>8</sup> This entry in ms C $\zeta$  may have been transferred to Aries, following Mirac. See above.

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[ *Tabula 2* ]<sup>1</sup>

## TABULA STELLARUM FIXARUM VERIFICATARUM PER ARMILLAS PARISIUS.

Et est longitudo earum gradus circuli signorum per circulum transeuntem polos zodiaci et stellas. Latitudo vero earum est arcus eiusdem circuli cadens inter stellas et gradum longitudinis earum.

Aα Bθ Cε Cη Cι Dγ<sup>2</sup> Dη Eδ Eζ Eτ Lε Mη Mλ Pδ Pθ Po Pτ Pυ Qδ Qμ Rα Sβ<sup>3</sup> Sγ Tδ<sup>4</sup> Vπ Wα Wδ Wη Xα<sup>5</sup>

- 1 fixarum] *om.* Mλ Po Qμ; *interlin.* Pθ
- 1-4 Tabula ... earum] Cε Cι Dη Lε Sγ(*bottom marg.*) Tδ Wα; *om.* Eδ Eζ Eτ<sup>6</sup> Mη Pτ; Iste (*add.* sunt Xα) stelle fixe verificate sunt per instrumentum armillarum in civitate Parisiensi Dγ Rα Sβ Xα; *add. in bottom marg.* Hec secunda tabula stellarum fixarum que ponuntur in astrolabio est verificata per instrumentum armillarum in civitate Parisiensi et est longitudo earum arcus orbis signorum interceptus inter circulum magnum transeuntem per polos orbis signorum et principium Arietis et circulum transeuntem per eosdem polos et stellam. Latitudo vero earum est distancia earum ab orbe signorum et est arcus ipsius circuli transeuntis per polos orbis interceptus inter orbem signorum et circulum transeuntem per stellam equidistantem circulo signorum Rα
- 2 circuli] *om.* Wη Qμ; signorum Mλ transeuntem] *add.* per Dη Mλ Sγ polos] *om.* Wδ
- 3 et stella] *rep.* Qμ latitudo ... stellas] *rep.* Sγ est] *om.* Mλ Po Qμ stellas et] *om.* Qδ; stallam et Mλ gradum] gradus Cη Pδ Pθ
- 4 longitudinis earum] ipsius Mλ; suum Po Pτ Qμ Wη earum] ipsarum Aα Bθ Pυ Sγ Vπ; *add.* 86mi canoīs tabula Wα; *add.* Tabula 86<sup>ti</sup> canoñ. Wδ; *add.* Et hoc est secundum modernos Pτ

<sup>1</sup> Contains 31 stars. Kunitzsch, *Typen*, Typ VII, pp. 47-50.

All copies of this star table are associated with Pseudo-Māshā' allāh's text, except in ms Wα where the table is separate from the text; and in mss Bκ, Sγ, Wδ, and Wη which contain no copy of the text.

<sup>2</sup> The lists in mss Dγ, Sβ, and Xα begin with the 2 stars in Pisces, and then those in Aries to Aquarius.

<sup>3</sup> See note 2.

<sup>4</sup> Kunitzsch (*Typen*, pp. 47-48) noted that Bernkastel-Kues, Bibliothek des St. Nikolaus-Hospital, ms. 209, fol. 77va contains a list (dated 1339) of 13 stars (from Taurus to Capricorn) which match this list. Given the fact that the list is only an incomplete selection, and that no part of the Pseudo-Māshā' allāh text appears in the manuscript, I have decided not to collate it with Star List 2.

<sup>5</sup> For ms Xα see note 2.

<sup>6</sup> Kunitzsch (*Typen*, p. 49) recorded a note in the top right margin of Eτ: "Anno domini 1246." This is not legible in the copy supplied to me. ("I still have the paper copy of that page from those times, and I can well read that notice referring to AD 1246 in the upper right." PK [2016])

[ *LIST OF STARS 2* ]

## TABLE OF FIXED STARS VERIFIED BY ARMILLAS AT PARIS.

And their longitude is the degree along the circle of signs to a circle passing through the poles of the zodiac and the stars. Their latitude, however, is the arc of the same circle falling between the stars and their degree of longitude.

5	Nomina <sup>7</sup> signorum	Nomina stellarum	Ymagines	Longitudo g~ m~	Latitudo g~ m~	Pars latitudinis
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## ARIES

[ζ Cet] Pantakaytoz venter ceti 10° 0'<sup>8</sup> 20° 0' merid.

5 Nomina signorum] *om.* Cε Cι Eδ Mη Nε Rα Sβ Wδ Wη Xα; *cut off* Po; Signa Aα Cη Dη Eτ Pδ Pθ Pυ Qδ Wα Nomina stellarum] *om.* Cε Eδ Wη; *om.* stellarum Bθ Vπ; *add.* fixarum Cη Mλ; Stelle Dη; Nomina stellarum cum ymaginibus Eτ Pθ; Nomina stellarum fixarum cum ymaginibus in quibus sunt Mη Wα Wδ; *add.* Nomina stellarum fixarum cum suis ymaginibus Dη; *add.* Nomina stellarum fixarum cum ymaginibus in quibus sunt Cι Pδ; *add.* Nomina stellarum cum suis ymaginibus Bθ Vπ Ymagines] *om.* Cε Eδ Eτ Mη Pθ Wη; cum suis ymaginibus Lε Nε Tδ; et ymagines earum in quibus sunt Pυ; Nomina ymaginis in quibus sunt Dγ Rα Sβ Xα(*om.* sunt); *add.* earum Aα Pδ; *add.* ipsarum Eζ Mλ Po Pτ Qμ; *add.* stellarum Cη Cι Wα Wδ Longitudo | g~ m~ *om.* Eδ Mη; Longitudo Rα Sβ Sγ Xα; Longitudo stellarum Aα Cε; Longitudo stellarum | g~ m~ Bθ Cι Pδ Pυ Qδ Vπ; *add.* id est gradus in signo id est declinatio Wα Wδ Latitudo | g~ m~] *om.* Cε Eδ Mη Sβ; Latitudo Rα Sγ Xα; Latitudo earum Aα; Latitudo earum | g~ m~ Bθ Cι Pδ(*add.* earum) Pυ Qδ Vπ; *add.* ab ecliptica Pτ Pars latitudinis] *om.* Eδ Mη Rα Sβ Xα; *add.* stellarum Cε Lε Pδ Pθ Tδ; *add.* earum Cι; Pars mundi Eζ Mλ Po Qμ; Partes latitudinis Eτ; Partes mundi Dγ Pτ Sβ *add.* Magnitudinis Wη<sup>9</sup>; *add.* in marg. gradus et minuta cum quibus stellae veniunt ad medium celi Sγ

6 Aries] *om.* Cε Eδ; *cut off* Po

7 Pantakaytoz] *illeg.* Xα; Paandoz Bθ; Pacacaitos Dγ; Pacacaitoz Sβ; Padaithos Vπ; Pantacayt<sup>m</sup> Qμ; Pantacaytoz Eζ Mλ Po Pτ; Pantachaitos Cε; Pantaitoz Aα Qδ; Pantakaitoz Nε Pθ; Pantaytoz Pυ; Panthacaythos Cι; Panthacaytos Eδ; Panthakaithos Pδ; Panthakaitos Mη; Panthakartos Wα Wδ; Pantkaytoz Tδ; Patacaitoz Rα; Patakam Sγ venter ceti] cor ventri(!) ceti Sγ; venter cethy Wα Wδ ceti] ceci Dγ Po Qδ; cethi *some* 10 0] *corr. from* 10 20 Wη; *corr. from* 28 0 Rα merid.] *om.* Cε<sup>10</sup>; sept. Sγ; *corr. from* sept. Tδ; *add.* in marg. ab ecliptica Pτ

<sup>7</sup> All mss follow this order of columns, except Cε and Eδ which omit the names of the signs, and Eδ in which the images are found in the last column on the right.

<sup>8</sup> In many manuscripts, the minute columns are often left blank if the minutes are "0".

In ms Pδ the longitudes, latitudes and *pars* for every star are found in the line below, i.e., following the name and image of the next star.

<sup>9</sup> Although ms Wη has a final column for magnitudes, it is blank.

<sup>10</sup> In ms Cε only the stars which are *septentrionalis* are marked as such; all the *meridionalis* notations are omitted.

Names of the signs	Names of the stars	Images	Longitude <sup>11</sup> ° / '	Latitude <sup>12</sup> ° / '	Part of the lati- tude <sup>13</sup>
ARIES					
[ζ Cet]	Pantakaytoz	belly of the Whale	10° 0'	20° 0'	S

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<sup>11</sup> Celestial longitude.

<sup>12</sup> Celestial latitude.

<sup>13</sup> This column indicates whether a star is north (*septentrionis*) or south (*meridionalis*) of the celestial equator. In modern notation this is usually indicated by a plus or minus sign.

TAURUS<sup>14</sup>

10	[α Tau]	Aldebaran	oculus vel cor Tauri	20° 0'	5° 0'	merid.
	[α Per]	Algenib	latus dextrum Persei	20° 0'	30° 0'	sept.
	[α Cet]	Menkar	naris ceti	2° 0'	12° 0'	merid.

## GEMINI

	[β Ori]	Rigil algeuze <sup>15</sup>	pes Orionis	5° 0'	30° 0'	merid.
	[α Aur]	Alhailioth	hircus	10° 0'	22° 40'	sept.

8 Taurus] *om.* Cε Eδ; *cut off* Po; Thaurus Wη

9 Aldebaran] Aabaran Vτ; Abdrebran Wα Wδ; Albedaran Eδ Eζ Po; Aldebar' Sβ;  
Aldebaram Qδ; Altebarum Dγ vel] *om.* Dγ Rα Sβ Tauri] Thauri Wη; Thuri Wα  
20 0] 28 0 Dγ Eδ Eζ Eτ Mλ Po Qμ Sβ Wη; 29 0 Sγ 5 0] 5 12 Dγ Eδ Eζ Mλ Po Qμ  
Rα Sβ Wα Xα; 5 22 Pτ; 14 0 Sγ merid.] *om.* Cε; sept. Cη Cι Lε Nε Pδ Pθ(*corr. in marg.*  
*to merid.*) Sγ Tδ Wα Wδ

10 Algenib] Algebim<sup>ym</sup> Dγ; Algebin Eδ Eζ Po Pτ Qμ; Algebuni Mλ; Algebinin Xα;  
Algebinym Sβ; Algebinyn Rα; Algenip Wα Wδ; Algeuu' Sγ 20 0] *om.* Rα Xα<sup>16</sup>  
30 0] 3 0 Mη; 22 0 Sγ sept.] merid. Mη Sγ; *corr. from* merid. Tδ

11 Menkar] Memkar Sγ; Mencar Pτ; Menchar Qδ; Menkarz Xα; Menkaz Rα; Menkhar Mη  
naris ceti/cethi] manus ceti Sγ; nares ceti Sβ; naris ceci Dγ Po Qδ; naris cethy Wα  
Wδ 2 0] 22 0 *corr. to* 2 0 Aα 12 0] *om.* Sγ<sup>17</sup>; 14 0 Qμ; 20 0 Qδ merid.] *om.*  
Cε; sept. Sγ

12 Gemini] *om.* Cε Eδ ; *cut off* Po

13 Rigil] Rigel Dγ Eδ Eζ Eτ Mλ Po Rα Sβ Wη; Rygil Wδ algeuze] *om.* Cι Dη; alg[*illeg.*]  
Xα; algebre Sγ; algenza Cε Eτ Pτ Sβ Wη; algeoze Eδ Eζ Po; algeure Qδ; algeute Wα Wδ;  
allgeuze Cη; algreze Qμ; fulgentis Dγ Orionis] Orlonis Aα 5 0] *corr. to* 5 30 Pτ;  
5 30 Mλ Qμ Wη merid.] *om.* Cε; sept. Mη Sγ

14 Alhailioth] Alcaioth Xα; Alchailoch Dγ Sβ; Alhailoch Cη; Alhailot Eδ Mλ Wα; Alhailioth Pτ;  
Alhalach Sγ; Alharoth Pθ; Alhayot Wα Wδ; Alhernot/Alheriot Qμ; Alhailioth Rα  
hircus] hircus *some*; yrcus Qμ 22 40] 12 40 Rα Xα sept.] merid. Mη Sγ

<sup>14</sup> In ms Mη the names of the signs are at the left, but the normal lines linking the name to the various stars are missing, so that the name seems to be opposite the second or third star in that sign.

<sup>15</sup> "Algeuze" is from "al-Jauzā'," i.e., Orion; Rigil is "the foot [of Orion]". See Appendix I.

<sup>16</sup> The degrees of longitude in both ms Xα and Rα have moved up one line. They have been corrected.

<sup>17</sup> The degrees of latitude in ms Sγ have moved up one line. They have been corrected here.

## TAURUS

[ $\alpha$ Tau]	Aldebaran	eye or heart of Taurus	20° 0'	5° 0'	S
[ $\alpha$ Per]	Algenib	right side of Perseus	20° 0'	30° 0'	N
[ $\alpha$ Cet]	Menkar	nose of the Whale	2° 0'	12° 0'	S

## GEMINI

[ $\beta$ Ori]	Rigel, of Orion <sup>18</sup>	the foot of Orion	5° 0'	30° 0'	S
[ $\alpha$ Aur]	Capella	he-goat <sup>19</sup>	10° 0'	22° 40'	N

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<sup>18</sup> See note 15.

<sup>19</sup> Traditionally “she-goat” and hence its common name, “Capella.”

15 [α Ori] Bedelgeuze humerus dexter 15° 0' 15° 30' merid.

## CANCER

[α CMa] Alhabor in ore canicule 3° 0' 39° 10' merid.

[α CMi] Algomeiza in collo canis minoris 14° 0' 15° 30' merid.

[α Gem] Razalgeuze capud geminorum 8° 0' 10° 0' sept.

20 LEO

[α UMa] Dubhe ursa 4° 0' 40° 0' sept.

[α Leo] Calbalezed cor leonis 18° 0' 0° 10' merid.

15 Bedelgeuze ] Bedegenza Vπ; Bedegeuze Αα Βθ Qδ; Bedelgeiza Wα; Bedelgenze Cε Pτ Wη; Bedengelse Cι; Beldegense Sγ; Beldegeuze Xα; Beldergenze Dγ Sβ; Betelgeuze Eδ dexter] *om.* Sβ; *add.* Orionis Μλ Νε Ρυ Qδ Qμ 15 30] 5 30 Xα merid.] *om.* Cε; *corr. from* sept. Tδ

16 Cancer] *om.* Cε Eδ; *cut off* Po

17 in ... canicule] id est transiens Sβ Xα; id est transiens (*add.* et est Dγ) in ore canicule Dγ Eδ Eζ Μλ Po Wη(*om.* id est); in hore canicule Αα Βθ Cε Vπ; tulicus(?) in ore canicule Qμ; vel transiens in ore Pτ(*add. in marg.* canicule) 3 0] 13 0 Eζ 39 10] 29 10 Mη; 39 20 Αα merid.] *om.* Cε

18 Algomeiza] Αα Βθ Cη Dη Eτ Λε Mη Pδ Pθ Tδ; Algocina vel alg<sup>e</sup>- Dγ; Algoesa vel alg<sup>ie</sup> Sβ; Algomeisa Cι; Algomeyra Pτ; Algomeysa Cε Sγ; Algomeyza Eδ Eζ Μλ Po Qμ Wα Wδ; Algomiza Vπ; Algotian vel a' Xα canis] *add. in marg.* Pτ canis minoris] mi<sup>rus</sup>(?) Orionis Qμ minoris] *om.* Wα Wδ 14 0] 17 0 Dγ merid.] *om.* Cε; *corr. from* sept. Tδ; sept. Mη Sγ

19 Razalgeuze] Balzangense Sγ; Bazalgeuze<sup>20</sup> Tδ Wδ; Nasalgenze Wη; Ratalgeuze Xα; Rathalgeuze Mη; Razageuze Αα Βθ Vπ; Razalgenza Cε Dγ Eτ; Tazageuze Qδ 8 0] 4 0 Wα Wδ

20 Leo] *om.* Cε Eδ Sγ; *cut off* Po

21 ursa] id est ursa Dγ Eδ Eζ Μλ Po Pτ Qμ Sβ Xα 4 0] 14 0 Λε Tδ 40 0] 49 0 Eδ Eζ Po Pτ Qμ Wη; 49 10 Dγ Μλ Sβ Xα sept.] *corr. from* merid. Tδ; merid. Mη Sγ Xα

22 *add.* Leo Sγ Calbalezed] Albalezed Wη; Calbalazed Dη; Calbalezeb Qδ Xα; Calbalezet Wδ; Calbalezeth Νε; Calbalized Sγ; Calbalzed Mη; Calbelezed Eδ Qμ; Calbezed Eζ; Kalbalezet Wα 0 10] 0 0 Dη; 10 0 Eζ Po Qμ merid.] *om.* Cε

<sup>20</sup> In some mss, here and elsewhere, it is difficult to distinguish between “B” and “R”.

[ $\alpha$ Ori]	Betelgeuse	the right Shoulder [of Orion]	15° 0'	15° 30'	S
CANCER					
[ $\alpha$ CMa]	Sirius	in the mouth of the dog <sup>21</sup>	3° 0'	39° 10'	S
[ $\alpha$ CMi]	Algemeiza <sup>22</sup>	in the neck of "Canis Minor"	14° 0'	15° 30'	S
[ $\alpha$ Gem]	Castor	a head of the twins	8° 0'	10° 0'	N
LEO					
[ $\alpha$ UMa]	Dubhe	the bear	4° 0'	40° 0'	N
[ $\alpha$ Leo]	Cabalezed <sup>23</sup>	the heart of the lion	18° 0'	0° 10'	S

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<sup>21</sup> "Canicula" is the classical name for Sirius.

<sup>22</sup> Also known as "Procyon."

<sup>23</sup> Later known as "Regulus."

	[α Hya]	Alfart	equus vel singularis cingulus	15° 0'	22° 30'	merid.
	VIRGO					
25	[β Leo]	Denebalezed	cauda leonis	9° 0'	12° 0'	sept.
	[γ Crv]	Algorab	corvus	29° 0'	15° 0'	merid.
	[η UMa]	Bennenas	filie feretri	16° 0'	53° 30'	sept.
	LIBRA					
	[α Boo]	Alrameth	lanceator	13° 30'	31° 30'	sept.
30	[α Vir]	Alchimeth	inermis	11° 30'	2° 30'	sept.
23	Alfart] Alfarch Vπ; <i>corr. from</i> Alfaret Pθ; Alfarta Mη; Alfarth Αα Bθ Pυ; Alfa't equis Qμ; Alferam Wη; Alferaz Dγ Sβ Xα; Alferat equus Eδ Po; Alferit equus Eζ; Alfrat Sγ; Alpharth Qδ equus ... cingulus] vel singularis Eδ Eζ Po Pτ Qμ singularis cingulus] sigl'r Αα Cε; singl'ar Bθ Cι; singularis Dγ Mη Mλ Nε Pυ Qδ Sβ Vπ Wη 15 0] 19 0 Xα merid.] <i>om. Cε; sept. Mη Sγ; sept. corr. to merid. Pθ</i>					
24	Virgo] <i>om. Cε Eδ Sγ</i>					
25	Denebalezed] Benbalezed Pτ Qμ; Benbalezet Eζ; Benebalezed Eδ; Denebalered Dγ; Denebalezet Wα Wδ; Denebalozed Sγ cauda leonis] <i>corr. from</i> cor leonis leonis Αα 12 0] 13 0 Sγ sept.] merid. Mη Sγ; merid. <i>corr. to sept. corr. to merid. Pθ</i>					
26	<i>add. Virgo Sγ Algorab] Algurab Dγ Eδ Eζ Po Pτ Sβ Xα; corr. from</i> Alrameth Pθ corvus] cornus Qμ 29 0] 20 0 Αα merid.] <i>om. Cε; corr. from</i> sept. Tδ; sept. Mη Sγ Wα Wδ Xα					
27	Bennenas] <i>corr. from</i> Alranech Pθ; Benenaz Qδ Qμ Vπ; Bennax Pτ; Bennenaz Αα Cι Dγ Eτ Po Wδ Sβ Xα; Bennenez Sγ; Bennennas Cη Lε; Siennemias Tδ; Sunmaz Eζ; Sunnaz Eδ Po; Sunznaz Wη filie feretri] felie feretri Pδl filie baratri Sγ; filie feltri Po Pτ; filie folt' Eδ 53 30] 23 30 Sγ; <i>corr. to</i> 53 0 Eδ; 153 30 <i>corr. to</i> 53 30 Αα sept.] merid. Xα					
28	Libra] <i>om. Cε Eδ Sγ; cut off</i> Po; <i>corr. from</i> Scorpio Pθ					
29	Alrameth] <i>corr. from</i> Alfeca Pθ; Ahamath Pτ; Alramco Sγ; Alramch Qδ; Alramech Dγ Pυ Sβ Wδ; Arameth Bθ Nε lanceator] ator Eδ; ceator Eζ 13 30] <i>om. Αα;</i> <sup>24</sup> 13 0 Bθ Dγ Eδ Eζ Eτ Mη Mλ Pδ Pτ Pυ Qμ Wα Wδ Wη Xα; 15 0 Vπ 31 30] <i>om. Αα;</i> 21 30 Mη					
30	<i>add. Libra Sγ Alchimeth] Alchimec Wη; Alchimech Bθ Cι Eδ Eζ Lε Mη Mλ Pυ Vπ; Alchimedi Qδ; Alchimeh Nε; Alchmeet Sγ; Alchymech Wα; Alcimeth Eτ; Azimech Dγ; Azimet Sβ Xα; corr. from</i> Calbalacrab Pθ inermis] in hermis Cη Dγ Dη Lε Mη Pδ Qδ Sβ Tδ Xα 11 30] 11 0 Αα Bθ Qδ Vπ Wδ 2 30] 20 30 Cη Lε Nε Sγ Tδ; 132 30 <i>corr. to</i> 32 30 Αα sept.] merid. Dγ Eδ Eζ Po Pτ Qμ Sβ Wη Xα					

<sup>24</sup> At this point, through to Addigege [α Cyg], ms Αα substitutes the co-ordinates of the star which follows in the list, i.e., those of Alchimeth for those of Alrameth.

[ $\alpha$ Hya]	Alfard	horse <sup>25</sup> or the solitary one / girdle <sup>26</sup>	15° 0'	22° 30'	S
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## VIRGO

[ $\beta$ Leo]	Denebola	tail of the lion	9° 0'	12° 0'	N
[ $\gamma$ Crv]	Algorab	raven	29° 0'	15° 0'	S
[ $\eta$ UMa]	Benetnash	daughters of the bier <sup>27</sup>	16° 0'	53° 30'	N

## LIBRA

[ $\alpha$ Boo]	Arcturus	the spear thrower	13° 30'	31° 30'	N
[ $\alpha$ Vir]	Azimech <sup>28</sup>	unarmed <sup>29</sup>	11° 30'	2° 30'	N

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<sup>25</sup> From the confusion between the Arabic for “solitary one” (*al-fard*) and for “horse” (*al-faras*).

<sup>26</sup> It is possible that the insertion of “cingulus” (“belt”/“girdle”) is the result of a misreading, at some point, of “singularis.” Of course Hydra is a narrow stretched-out constellation, often represented in maps of the heavens by a snake, and “belt”/“girdle” may reflect this.

<sup>27</sup> Of the seven stars forming the asterism known as “The Plough” or “The Big Dipper” or “The Great Wain”, four form the plough itself, or the bowl of the dipper, or the wagon. The other three stars are along the shaft(s) of the plough or wagon, or the handle of the dipper. Benetnash is the last star along the shaft or pole (or handle), furthest from plough/wagon. In this Arabic image three maidens lined up along the shaft are pulling a bier through the heavens.

<sup>28</sup> More commonly known as “Spica.”

<sup>29</sup> See Appendix I for the base meaning of “the unarmed” for Azimech.

## SCORPIO

[α CrB]	Alfeca	in corona	1° 30'	44° 30'	sept.
[α Sco]	Calbalacrab	cor scorpii	28° 0'	4° 20'	sept.

## SAGITTARIUS

35	[γ Dra]	Raztaben	capud draconis	12° 0'	47° 30'	merid.
	[α Oph]	Razalegue	capud serpentis	10° 0'	36° 0'	sept.

31 Scorpio] *om.* Cε Eδ Sγ; *cut off* Po; *corr. from* Sagittarius Pθ

32 Alfeca] Alfeta Cε Cη Dη Eδ Lε Mη Po Pτ<sup>30</sup> Sβ Tδ Wη; Alfeka Wα Wδ; Alphefacta Qδ; Elfeta Dγ; Ellefeca Sγ; Raztaben *corr. to* Alfeca Pθ in corona] corona Dγ Rα Sβ Xα; interroncani(?) Sγ; *add.* Adriane Eτ 1 30] 1 0 Wδ; 1 20 Cη Lε Pθ Sγ; 11 20 Tδ; 11 30 Eδ sept.] *corr. from* merid. Tδ; merid. Aα Mη

33 *add.* Scorpio Sγ Calbalacrab] Calbalac<sup>9</sup>li Qδ; Cabalacrab Eδ Eζ Po Pτ Qμ; Cabalecrab Mη; Calbalecrab Nε; Calbaetrab Wη; Calbazacrab Wα Wδ; Calibacrab Sγ; *corr. from* Razalegue Pθ cor scorpii] cor scorpionis Dγ Rα Sβ Sγ Wη Xα 28 0] 18 20 Dγ; 28 20 Cε Cι Eδ Eζ Eτ Mη Mλ Pδ Pτ Rα Sβ Tδ(?) Wα Wη Xα; 28 20 *corr. to* 18 20 Po Qμ; 28 30 Aα Qδ; 38 30 Bθ Vπ 4 20] 4 29 Sβ; 4 30 Cη Qδ sept. Cη] *om.* Cε[= merid.];<sup>31</sup> merid. Aα Bθ Cι Dγ Dη Eδ Eζ Eτ Mη Po Pτ Qδ Qμ Sβ Vπ Wη; *corr. to* merid. Rα

34 Sagittarius] *om.* Cε Eδ Sγ; *cut off* Po; *corr. from* Capricornus Pθ

35 *om. entry* Eζ Raztaben] Beastaben Sγ; Rartaben Dγ; Rathaben Mη; Ratzhaben Wα Wδ; Razcaben Eτ; Razdaben Bθ Vπ; Raztabeu Dη; Razthaben Cι Pδ; *corr. from* Alwega Pθ 12 0] 12 20 Aα Bθ Qδ; 13 10 Mη 47 30] 47 0 Cη; 47 30 *corr. to* 74 30 Pθ; 74 0 *corr. to* 74 30 Rα; 74 30 Aα Bθ Dγ Eδ Eτ Lε Mλ Qδ Pδ Po Pτ Sβ Tδ Vπ Wα Wδ Wη Xα merid.] *om.* Cε; *corr. from* sept. Tδ; sept. Mη Po Pτ Qμ Wα Wδ Wη; *corr. to* sept. Rα

36 *add.* Saggitarius Sγ Razalegue] Altair *corr. to* Razehgue Pθ; Nazalague Eζ; Rasalague Sγ; Rathalague Mη; Razalague Wη; Razalege Qδ; Razalegile Po; Razalegne Bθ Cε Vπ Razaleuge Wα Wδ; Razelgeuza Cη; serpentis] serpentarii Eδ Eζ Po Qμ Sβ

<sup>30</sup> Because in ms Pτ Alchimeth is inserted interlinearly into the list of stars, the images and the coordinates for all the following stars are shifted one line down through to Enifelferaz [ε Peg].

<sup>31</sup> Because ms Cε regularly omits “merid.” in this column, I am suggesting that the fact that “sept.” is omitted here (and elsewhere) means that Cε is labelling this star as “merid.”

## SCORPIO

[ $\alpha$ CrB]	Alphecca	in the crown	1° 30'	44° 30'	N
[ $\alpha$ Sco]	Calbalacrab <sup>32</sup>	the heart of the scorpion	28° 0'	4° 20'	N

## SAGITTARIUS

[ $\gamma$ Dra]	Rastaben <sup>33</sup>	the head of the dragon	12° 0'	47° 30'	S
[ $\alpha$ Oph]	Rasalhague <sup>34</sup>	the head of the serpent	10° 0'	36° 0'	N

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<sup>32</sup> Better known as “Antares.”

<sup>33</sup> The name “Rastaben” has now been transferred to  $\beta$  Dra.

<sup>34</sup> I.e., Ra’s al-ḥawwā’, “head of the serpent collector.”

## CAPRICORNUS

	[α Lyr]	Alwega	vultur cadens	3° 0′	62° 0′	sept.
	[α Aql]	Altair	vultur volans	20° 0′	29° 30′	sept.
40	[α Cyg]	Addigege	cauda galline	21° 0′	60° 30′	sept.

## AQUARIUS

	[δ Cap]	Denebalgedi	cauda capri	13° 0′	2° 30′	merid.
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- 37 Capricornus] *om.* Cε Eδ Eζ Eγ; *corr. from* Aquarius Pθ
- 38 Alwega<sup>35</sup>] Cη; Addigege *corr. to* Almuga Pθ; Albega Wη; Alwega Dγ Rα Sβ Xα; Alimega Eζ Po Tδ; Aliwega Pτ; Almega Wα Wδ; Almiega Eτ Sγ Tδ; Almigea a' Mη; Alumega Eδ; Aluuega Aα Bθ Cε Cι Lε Pδ Pυ Qμ Vπ; Alvega Qδ cadens] *corr. from* volans Wη  
3 0] 13 0 Cη Lε Nε Pθ Sγ 62 0] 62 30 Cη
- 39 *add.* Capricornus Sγ Eζ Altair] Abchair Vπ; Alchair Dγ; Alchair Dη Mη; Altayir Eδ; Altayr Po; Althair Aα Bθ Cι Mλ Pδ Pυ Xα; Althayr Pτ Qμ Wα Wδ Wη; Athair *corr. to* Althair Rα; *corr. from* Denebalgedi Pθ vultur volans] *marg.* Xα<sup>36</sup> 20 0] 10 0 Cε Dγ Rα Sβ Xα; 20 30 Tδ; 29 0 Mη 29 30] *marg.* Xα; 29 31 Lε Tδ; 69 30 Aα sept.] merid. Cη
- 40 Addigege] Addig~ Cε; Addigge Eτ; Aldigege Dγ Dη Eδ Po Pτ Sβ; Aldigene Rα Xα; Aldigoge Qμ(*add. interlin.* ał Aldigege); Delfin *corr. to* Addigege Pθ cauda galline] call'a(?) in cauda eius Eζ; call'aca in cauda Pτ(*add. in marg.* eius); gallina(gallidam Dγ) et est in cauda eius Dγ Rα Sβ Xα; gallina in cauda eius Eδ Po Qμ(*add. interlin.* et est); gallina vel cauda Mλ 21 0] *marg.* Xα 60 30] 2 30 Mη sept.] merid. Aα Mη
- 41 Aquarius] *om.* Cε Eδ Eζ Sγ; *corr. from* Pisces Pθ
- 42 Denebalgedi] Denebalgadi Cε Eδ; Denebalgeda Wδ; Denebalgodi Sγ Vπ; Denebaligedi Dγ Rα Sβ Xα; Deuebalgedi Po; Eniphelferaz *corr. to* Denebalgydi Pθ capri] Capricorni Dγ Dη Eδ Eτ Mλ Po Qμ Rα Sβ Wη Xα 2 30] *illeg.* Xα; 2 40 Lε Nε Tδ; 32 30 Aα Mη; 34 0 Eζ merid.] sept. Cε Lε Sγ Tδ; *corr. from* sept. Rα

<sup>35</sup> Differentiating the variants for *Alwega* is somewhat problematic. “Alimega”, “Almiega”, and “Aluuega” are all written similarly, i.e., as “Almuga”, with random dots, or no dots, on top. Similarly for “Alwega”/“Almege”.

<sup>36</sup> In ms Xα the images, longitudes and latitudes after this point move up one line; they have been corrected. And this area of the table in this ms is somewhat confused.

## CAPRICORN

[ $\alpha$ Lyr]	Vega	the falling vulture	3° 0'	62° 0'	N
[ $\alpha$ Aql]	Altair	the flying vulture	20° 0'	29° 30'	N
[ $\alpha$ Cyg]	Addigege	the tail of the hen	21° 0'	60° 30'	N

## AQUARIUS

[ $\delta$ Cap]	Deneb Algedi	the tail of the goat	13° 0'	2° 30'	S
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	[? Del]	Delfin	nubilior et orientalior	6° 0'	32° 30'	sept.
	[ε Peg]	Enifelferaz	musida equi pegasi	21° 0'	23° 0'	sept.
45	[δ Aqr]	Sceach	crus	27° 0'	7° 40'	merid.

## PISCES

	[β Peg]	Alferaz mentel	humerus equi	20° 0'	31° 0'	sept.
	[β Cet]	Denebkaytoz	cauda ceti	21° 0'	20° 0'	merid.

43 *add.* Aquarius Eζ Delfin] Delfium Pθ; Delphil Qδ; Delphin Sγ; Sceach *corr.* to Delfin Pθ nubilior et orientalior] Cι Wα Wδ; et est rubrior eius orientalior Dγ Rα Sβ Xα; nubiator eius et orizatoz(?) Sγ; nubilior eius et orientalior Eτ Nε Pδ Tδ; nubilosior eius et orientalior Cη Wη; nubor eius orientalior Qμ; rubrior et orientalior Pτ; rubor eius et orientalior Eδ Eζ Mλ Po; sinbior eius torien<sup>or</sup> Pθ 32 30] 22 30 Eζ; 23 0 Mη; 32 0 Cη; 34 30 Sγ sept.] *om.* Cε [= merid]; merid. Xα; *corr.* from merid. Rα

44 *add.* Aquarius Sγ Enifelferaz] *corr.* from Alfaraz mentel Pθ; Alfeferaz Mλ; Emfelferam Tδ; Emfelferaz Eδ; Emfelfyn Sγ; Emphalferaz Sβ Vπ; Emphalpheloz Mη; Emphelferaz Rα Xα; Emphelperaz Pδ; Enfelferaz Pτ Qμ; Enipapheraz Cε; Eniphafeiraz Aα; Eniphalfaraz Pυ; Eniphalpheraz Qδ; Eniphelferaz Bθ Cι; Enphelperaz Dγ; Epelferam Wη; Semphephazaz Wδ; Semphepharaz Wα pegasi] peg Aα; pesagi Cη Eτ Lε Tδ; reg' Pτ; pes Sagittarii Sγ 21 0] 22 0 Pτ 23 0] 7 40 Mη; 23 30 Cε; 23 40 Cη; 32 0 Sγ; 33 0 Pτ sept.] merid. Lε Tδ

45 *add.* Pisces Aα Sceach] Denebkaitoz *corr.* to Sceath Pθ; Ocheath Wα Wδ; Scehach Mλ; Scenach Qμ; Scenath Dγ Pτ Rα Sβ; Scheat Wη; Senach Eδ Eζ Po; Shenath Xα; Steach Sγ crus] cauda equi Sγ; crus equarii Wη; id est crus Dγ Dη Eδ Eζ Mλ Po Qμ Sβ; id est estus Pτ; si id est crucis *corr.* to si id est crus Rα si id est cruz Xα 27 0] 25 0 Mη 7 40] 7 0 Cε Cη; 31 0 Mη merid.] sept. Cε

46 Pisces] *om.* Aα Cε Eδ Sγ

47 Alferaz] Alfayaz Pθ; Alferam Aα Wη; Alnicelfans Sγ; Alfaraz Dγ; Alpheraz Qδ; Elferaz Nε mentel Cη Cι Lε Pθ Tδ Wα Wδ; *om.* Dη Eδ Eζ Po Pτ Wη; 3echel [= mechel?] Bθ Vπ; menkeb Dγ Rα Sβ Xα; menthel Aα Cε Eτ Pδ; metel Qδ; methel Mη; methyl Pυ humerus equi] humerus Mη; crus Sγ; melkeb alferaz id est Qμ(*add. interlin.* id est humerus equi); melkeb humerus equi Eζ; melkob humerus equi Eδ; menkeb humerus equi Pτ; menkep humerus equi Mλ; wlzeb(?) humerus equi Po 31 0] 21 0 Aα; 22 0 Mη; 27 0 Lε Tδ; 30 0 Dγ sept.] merid. Lε Tδ

48 *add.* Pisces Sγ Denebkaytoz] Sγ Wα Wδ; Denebcaitoz Pτ; Denebcaythos Cι; Denebcayton Qμ; Denebcaytos Eδ; Denebcaytoz Mλ Po; Denebkaithoz Mη; Denebkaitoz Aα Cε Dη Nε Pθ Pυ; Denebkantoz Qδ; Denebkartoz Pδ; Denebkaudos Vπ; Denebkaudoz Bθ; Denebkaytor Wδ; Donec cartor Xα; Donet carthos Dγ; Donet cartoz Rα Sβ cauda ceti] cauda ceci Bθ Dγ Po Qδ Rα Sβ; cauda cethy Wδ; humerus equi Sγ 21 0] *corr.* to 2 0 Eδ merid.] sept. Cε; *add. in marg.* ab ecliptica Pτ

[? Del]	Delfin <sup>37</sup>	more clouded, <sup>38</sup> and more easterly	6° 0'	32° 30'	N
[ε Peg]	Enif	the muzzle of the horse, Pegasus	21° 0'	23° 0'	N
[δ Aqr]	Scheat	the shin [of Aquarius]	27° 0'	7° 40'	S
PISCES					
[β Peg]	Alferaz Markab	the shoulder of the horse [Pegasus]	20° 0'	31° 0'	N
[β Cet]	Deneb Kaitos	the tail of the Whale	21° 0'	20° 0'	S

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<sup>37</sup> See Appendix I (? Del), for a discussion of this second star named Delfin in Aquarius.

<sup>38</sup> Or “dimmer/fainter.”

[ *Tabula 3-A* ]<sup>1</sup>

TABULA STELLARUM FIXARUM QUE PONUNTUR IN ASTROLABIO CERTIFICATA  
AD CIVITATEM PARISIUS CUIUS LATITUDO EST 48 GRADUS ET 30 MINUTA.  
IN ANNO DOMINI 1223

Signa	Nomina stellarum fixarum	Gradus cum quibus mediant celum <sup>3</sup> g~	Gradus longi- tudinis ex ultra- que parte <sup>4</sup> g~	Altitudo merid- iana <sup>2</sup> g~	In quibus ymaginibus sint m~
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Cδ Eε Lα Oψ Pπ<sup>5</sup>

- 1-3 Tabula ... 1223] *om.* Oψ(*cut off?*); Tabula stellarum fixarum verificata Parisius. Anno domini M° CC 33 cuius latitudo est 48 gradus et 30 minuta Pπ; *add. in marg. (later hand)* Anglam per syon. Anno domini 1223. Tabulam stellarum fixarum que ponuntur in astrolabio certificata ad civitatem Parisius Oψ
- 2 Parisius] Pirius Lα latitudo ... gradus] *illeg.* Eε
- 2-3 cuius ... 1223] *om.* Lα
- 3 domini] *add.* n.i.xi (= nostri iesu christi) Eε
- 4 signa] *om.* Eε; Nomina signorum in quibus sunt stellae Oψ Pπ Nomina ... fixarum] *om.* fixarum Eε Oψ Pπ Gradus ... celum] g~ Lα; cum quibus mediant celum gradus Eε; |bus mediant celum Oψ Gradus ... parte] [*cut off*] g~ Oψ; Gradus longitudinis | g~ Pπ; Latitudo ex utraque parte | m~ Lα; Longitudinis ex utraque parte gradus Eε meridiana] meridionalis Lα m~] *om.* Pπ in ... sint] cum ymaginibus in quibus sunt Pπ; ymaginibus in quibus sunt stelle Lα

<sup>1</sup> Contains 29 stars. Kunitzsch, *Typen*, Typ XI, pp. 67-71. In this table the readings of ms Oψ are preferred. Only the star list in Oψ is associated with Pseudo-Māshā'allāh's text (in this case, the *Practica* section). In mss Cδ and Pπ the list is separate from the text, and in mss Eε and Lα there is no copy of the text.

<sup>2</sup> This is the meridian altitude of the star as viewed from the latitude of Paris (given as 48° 30'). [J.S.]

<sup>3</sup> Mediation.

<sup>4</sup> Declination, but there is no indication if it is north or south of the equator.

<sup>5</sup> Ms Pπ is a conflation of star list 3-A and star list 3-B. I have collated in each list only the parts of Pπ normally found with that list.

In ms Pπ the order of columns is sign | star | image | mediation | longitude | altitude | pars | latitude (declination) | longitude (mediation). The latter 3 are from version 3-B.

5	ARIES <sup>6</sup>					
	[ζ Cet]	Patancaitoz, id est pes caitoz <sup>7</sup>	20°	39°	28° 0′	in pede cuiusdam animalis
	TAURUS					
	[α Per]	Algon	7°	71°	88° 0′	in fronte algonis
	[α Tau]	Aldebaran	28°	59°	56° 30′	in oculo tauri
10	GEMINI					
	[α Aur]	Alhainoch	3°	74°	87° 0′	in humero agitatoris
	[β Ori]	Rigel	10°	39°	32° 0′	in pede orionis
	[α Ori]	Algenie	14°	55°	49° 0′	in pede geminorum <sup>8</sup>
	CANCER					
15	[α CMa]	Alhabor	1°	36°	26° 30′	in cane meridionali
	[α CMi]	Algomeiza	10°	56°	49° 30′	in cane septentrionali
	[ι UMa]	Egregez	24°	72°	87° 0′	
6	Patancaitoz] Pacancaitoz Cδ; Pancancantoz Lα; Pitaucatoz Pπ id est] <i>om.</i> Lα pede] ventro Pπ <i>add. above</i> vel venter ceci tunc in nare et latior Pπ					
8	Algon] Algen Cδ 7] <i>illeg.</i> Eε 71] <i>illeg.</i> Eε algonis] <i>add.</i> immo in dextro Persei latere Cδ; <i>add.</i> immo [ <i>illeg.</i> ] in latere dextro Persei Pπ					
9	Aldebaran] Aldenaran Lα; Aldevaram Eε 59] 49 Cδ 56 30] Cδ					
11	Alhainoch] Alhainoc Cδ; Alhainos Eε; Alhainot Lα					
12	Rigel] Ragal Cδ Lα					
13	Algenie] Algeme Eε; Algemen Pπ; Algome Lα 14] 15 Eε					
15	Alhabor] Alhainoz Cδ 26 30] 26 0 Cδ Pπ					
16	Algomeiza] Algomeisa Lα 49 30] 48 30 Cδ Pπ <i>add.</i> 8 30 Cδ					
17	Egregez] Egregez Pπ <i>add.</i> inter pedem priore[m] urse et capri(?) leonis Pπ					

<sup>6</sup> In ms Lα there are no lines linking the sign name to the stars (missing in the exemplar?) so that the sign names end up about half-way down each section.

<sup>7</sup> Normally the gloss for this star is “venter Ceti” / “belly of the whale”; it is unclear how this became “foot of the Whale”, although Kunitzsch (*Typen*, p. 70) suggests it is probably a misreading of the Arabic.

<sup>8</sup> The gloss should be “in humero geminorum” or “in humero Orionis”; “geminorum” is derived from the Arabic name for Orion. Again *pes* (“pedem”) seems to be a copyist error. [PK]. See Appendix I.

	LEO					
	[ ]	Aldiraan	6°	52°	48° 0'	in fronte leonis
20	[α Hyd]	Alfard	13°	41°	34° 0'	in ydra serpente
	[α Leo]	Calbalacet	18°	61°	57° 0'	in corde leonis
	VIRGO					
	[θ UMa]	Alrucaba	17°	76°	90° 0'	
	[γ Crv]	Algurali	18°	38°	31° 0'	in centauro
25	LIBRA					
	[α Vir]	Altimeth	9°	42°	35° 0'	inermis
	[η UMa]	Benenaz	18°	74°	84° 0'	ultra cenith in temone plaustri
	[α Boo]	Alramech	24°	65°	65° 0'	qui tenet lances
19	Aldiraan] Aldiraau Pπ					
20	34 0] 35 0 Cδ Pπ <i>add.</i> in ydra serpente Cδ Pπ(ydra <i>illeg.</i> ); <i>add.</i> 39 30 ad minus Cδ					
21	18] 14 Lα					
22	Virgo] <i>om.</i> Cδ Eε; Leo Oψ Pπ					
23	17] 19 Oψ 90 0] 99 0 Pπ; <i>add.</i> in humero agitatoris Lα; <i>add.</i> in humero aguatoris Eε; <i>add.</i> pes urse maioris Pπ					
24	<i>add.</i> Virgo Cδ Eε Oψ Pπ Algurali] Algari Eε; Alglari Cδ Pπ; Alglor Lα centauro] <i>add.</i> 91a eius Pπ					
26	Altimeth] Alchimech Lα Pπ; Alchimeth Cδ; Alcimehe Eε 35 0] 35 30 Pπ inermis] in ermism <i>some</i> ; inhermis Cδ Lα <i>add.</i> 34 Cδ					
27	Benenaz] Benenah Cδ; Benenaiz Pπ; Benenas Lα 74] 72 Lα ultra cenith] <i>line</i> <i>above</i> Pπ; <i>om.</i> Oψ; ultra cenit Eε temone] tegmone Pπ; themone Eε					
28	Alramech] Alrameht Eε tenet] tene Lα					

## SCORPIO

30	[ $\alpha$ CrB]	Elfeca	16°	71°	72° 0'	in corona
	[ $\beta$ Sco]	Alielil	17°	57°	51° 0'	
	[ $\alpha$ Sco]	Calbalagra	27°	14°	19° 0'	in corde scorpionis

## SAGITTARIUS

	[ $\alpha$ Oph]	Alhauni <sup>9</sup>	13°	57°	57° 0'	in capite alai
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## 35 CAPRICORNUS

	[ $\alpha$ Lyr]	Vega	1°	72°	79° 30'	in vulture cadenti
	[ $\alpha$ Aql]	Althair	14°	55°	48° 30'	in telo <sup>10</sup> vel in aquila volanti
	[ $\alpha$ Cyg]	Alrif	30°	73°	84° 0'	in cigno

## AQUARIUS

40	[ $\delta$ Cap]	Libideneb	6°	34°	20° 0'	in cauda capricorni
	[? Del]	Delphin <sup>11</sup>	10°	55°	48° 30'	

30	Elfeca]	Alfera E $\epsilon$ ; Effefa L $\alpha$	16]	6 P $\pi$		
31	Alielil]	Alieilis <i>corr. to</i> Alielis C $\delta$ ; Alielis P $\pi$	51 0]	57 0 O $\psi$		
32	Calbalagra]	Cabalag <sup>a</sup> C $\delta$ ; Calbalag <sup>a</sup> O $\psi$ ; Calbolagar L $\alpha$	19 0]	10 0 C $\delta$		
34	Alhauni]	Alhaimi E $\epsilon$ ; Alhanun P $\pi$ ; Alhaum L $\alpha$ ; Allahinn C $\delta$	57 0]	56 30 P $\pi$		
		alai] alay C $\delta$ E $\epsilon$ L $\alpha$	<i>add.</i> 56 30	<i>ad plus</i> C $\delta$ ; <i>add.</i> caput Alhalba P $\pi$		
36	Vega]	Vuega E $\epsilon$ ; Wega C $\delta$ P $\pi$	in ... cadenti]	in mature cadenti	L $\alpha$	
37	Althair]	Altahir C $\delta$ ; Altair L $\alpha$ P $\pi$ ; Altayr E $\epsilon$	telo]	celo	E $\epsilon$	
40	Libideneb]	Libedeneb L $\alpha$ ; Libedenep E $\epsilon$ ; Libideuech P $\pi$	34]	35 E $\epsilon$ L $\alpha$		
41	Delphin]	Delfin C $\delta$ E $\epsilon$ ; <i>add.</i> vel degriech P $\pi$				

<sup>9</sup> The variants for this star name probably result from confusion caused by minims.

<sup>10</sup> *Telum* (dart, spear, javelin), an early alternative for *aquila* (eagle); e.g., see “Gerberti liber de astrolabio,” in *Gerberti postes Silvestri II papae Opera Mathematica (972-1003)*, ed. Nicolaus Bubnov (Berlin, 1899), p. 137, line 9 and note “s”.

<sup>11</sup> See Appendix I (? Del), for a discussion of this second star named Delfin in Aquarius.

## PISCES

	[β Peg]	Alpheraz	6°	65°	65° 0′	in Pegaso
	[β Peg]	Humerus equi	17°	71°	87° 0′	ultra cenith, in equo alato
45	[ι Cet]	Denepcaitoz	22°	36°	32° 0′	in cauda caitoz
43	Alpheraz]	Alferaz Lα Pπ; Halferaz Cδ	65 0]	67 0 Lα	Pegaso]	Pesago Eε Lα
44	87 0]	71 0 Lα	ultra ... alato]	in eque alato	ultra cenich Eε; qui in eque alato	ultra cenich Pπ
45	Denepcaitoz]	Debnecaitoz Eε; Denecaitoz Cδ Lα; Deneb caitoz Pπ	caitoz]	caytoz Cδ		

[ *Tabula 3-B* ]<sup>1</sup>

TABULA STELLARUM FIXARUM QUE PONUNTUR IN ASTROLABIO CUM LONGITUDINE SUA  
 IN CIRCULO SIGNORUM ET LATITUDINE SUA AB EQUINOCITALI.  
 ET DICITUR HIC LONGITUDO STELLE GRADUS ZODIACI CUM QUO CELUM MEDIAT

Bi Dγ Eδ Eζ Eμ Mθ Mκ Mλ<sup>2</sup> Mν Oκ Po Pπ<sup>3</sup> Pτ Qα<sup>4</sup> Qμ Rα Sβ Vκ

- 1-3 *om.* Eδ Pπ(see *SL 3-A*) Qα Qμ Vκ; *bottom marg.* Rα; Tabula secundum antiquam  
 positionem Ptholomei<sup>5</sup> et hic est Pτ
- 1 Tabula] *add.* signo Eζ cum] cumque Eζ sua] *om.* Mν
- 2 in ... signorum] *marg.* Po sua] *om.* Mθ
- 3 dicitur hic] et est Bι zodiaci] *om.* Oκ celum mediat] stella venit ad medium celi  
 Eζ(*om.* celi) Mλ(*add.* vel meridianum) Mν Po; venit ad medium celi Dγ Eμ Mκ Rα Sβ

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<sup>1</sup> Contains 29 stars but eight mss insert an extra star (Menkar). Kunitzsch, *Typen*, Typ XI, pp. 67-71. In this table the readings of mss Mλ and Po are preferred.

All copies of this star list are associated with Pseudo-Māshā'allāh's text, except in mss Mθ, Mκ, Po, and Pπ where the lists are separate from the text; and in mss Eε and Lα which contain no copy of the text.

<sup>2</sup> The star list in ms Mλ (fol. 87v) has 40 stars including the 29 in this list; only those 29 have been collated here. The source of the other 11 stars is unknown.

<sup>3</sup> For ms Pπ only the longitude, latitude, and pars are collated here. Note that the latitude is given first and then the longitude.

<sup>4</sup> The star list in Qα begins with Alramec in Libra and ends with Benenaz.

<sup>5</sup> Kunitzsch (*Typen*, p. 70) pointed out that the reference to Ptolemy is erroneous since his star positions were related to the ecliptic and not to the celestial equator (as in this list).

Signa <sup>6</sup>	Nomina stellarum	Longi- tudo <sup>8</sup> g~	Lati- tudo <sup>9</sup> g~	Pars mundi	in quibus imaginibus <sup>7</sup>
5	ARIES <sup>10</sup>				
[ζ Cet]	Pantankaytos	20° 0' <sup>11</sup>	14° 0'	merid.	in pede cuiusdam animalis
	TAURUS				
[α Per]	Algon	10° 0'	46° 0'	sept.	in fronte algonis
[α Tau]	Aldebaran	28° 0'	14° 30'	sept.	in oculo tauri
4	Signa] <i>om.</i> Eδ Eζ Pτ Vκ; Nomina signorum Dγ Eμ Mθ Mκ Oκ Rα Sβ stellarum] <i>om.</i> Eδ Pτ; Stelle Qα; <i>add.</i> fixarum Mθ Mλ Oκ g~] <i>om.</i> Bι Dγ Eζ Mκ Qα Rα Sβ; <i>add.</i> m~ Eμ Po Vκ g~] <i>om.</i> Bι Dγ Eζ Mκ Qα Rα Sβ; <i>add.</i> m~ Eμ Po Vκ				Nomina stellarum] <i>om.</i> Eδ Pτ Longitudo   g~] <i>om.</i> Eδ Pτ Latitudo   g~ ] <i>om.</i> Eδ Pτ Pars mundi] <i>om.</i> Eδ Pτ; Partes stelle Mθ Oκ mundi] <i>om.</i> Po Vκ in ... imaginibus] <i>om.</i> Eδ Pτ Qα Vκ; in quibus sint imaginibus Mθ; ymagines alterium in quibus stelle sint Mλ; <i>add.</i> sint eedem stelle Mv Po Qμ; <i>add.</i> sint stelle Eμ Mκ Oκ; <i>add.</i> stelle Eζ
5	Aries] <i>om.</i> Qμ				
6	Pantankaytos] Pancacayt' Eζ Po; Pancatacoz Sβ; Pantacayt' Pτ Qμ; Pantacaytos Bι Vκ; Pantachayt~ Eδ; Pantacratoz Rα; Pantancaitos Mθ; Pantancaitoz Eμ Mκ Qα; Pantat <sup>a</sup> toz Dγ; Patancaitos Oκ; Pantant'a Mv cuiusdam] eiusdem Eζ	20 0] 29 0 Eδ	14 0] 24 0 Vκ;	34 0 Sβ	
8	Algon] Longo Eζ	46 0] 16 0 Mv		sept.] merid. in al' sept. Pπ	
9	Aldebaran] Abdebaran Qα; Adebran Eμ; Ald'bař Dγ; Aldebarant Eδ; Aldebarim Rα sept.   in nare ceti Eδ Eζ Mλ Mv Po Pτ Qμ Vκ (20 0] 2 0 Mλ Mv Po Pτ Vκ)	28 0] 18 0 Eδ	14 30] 14 0 Mθ Oκ Pτ Vκ	<i>add.</i> [α Cet] Menkar   20 0   12 0	

<sup>6</sup> In mss Mθ and Oκ the name of the star comes first, followed by the sign.

<sup>7</sup> In ms Qα all the images are lacking. In ms Sβ the images are in a separate list below the rest of the table.

<sup>8</sup> Mediation

<sup>9</sup> Declination.

<sup>10</sup> The lines which normally link the name of the sign to the various star names are missing in ms Mv, so that the name is opposite one of the stars in the middle of the set for that sign.

<sup>11</sup> In mss Mθ, Oκ, Qα, and Qμ only the degrees (and not the minutes) are given. Here the minutes are treated as "0". As well in ms Qα each degree is preceded by a "g~".

## 10 GEMINI

[ $\alpha$ Aur]	Alhaiot	3° 0'	45° 0'	sept.	in humero agitatoris
[ $\beta$ Ori]	Rigil	9° 0'	10° 0'	merid.	in pede orionis
[ $\alpha$ Ori]	Algeuze	15° 0'	8° 0'	sept.	in pede geminorum <sup>12</sup>

## CANCER

15	[ $\alpha$ CMa]	Alhabor	1° 0'	15° 0'	merid.	in cane meridionali
	[ $\alpha$ CMi]	Algomeiza	10° 0'	7° 0'	sept.	in cane septentrionali
	[ $\iota$ UMa]	Egregez	24° 0'	45° 0'	sept.	

## LEO

	[ ]	Aldiran	6° 0'	6° 0'	sept.	in fronte leonis
20	[ $\alpha$ Hya]	Alfart	13° 0'	18° 0'	merid.	
	[ $\alpha$ Leo]	Cor leonis	18° 0'	15° 0'	sept.	in corde leonis

11 Alhaiot] Alhaioch E $\delta$  E $\zeta$  E $\mu$  M $\theta$  M $\kappa$  O $\kappa$  P $\rho$  V $\kappa$ ; Alhailoth M $\nu$  P $\tau$  Q $\mu$ ; Alhalot D $\gamma$  45  
0] 15 0 M $\kappa$ ; 41 0 *corr.* to 46 0 B $\iota$  sept.] merid. in al' sept. P $\pi$  humero] umero D $\gamma$

12 Rigil] Ragel D $\gamma$  R $\alpha$ ; Rigel B $\iota$  E $\mu$  M $\theta$  M $\kappa$  O $\kappa$  Q $\alpha$  S $\beta$

13 Algeuze] Algem<sup>e</sup> D $\gamma$  S $\beta$ ; Algemec R $\alpha$ ; Algenie E $\mu$  M $\theta$  M $\kappa$  O $\kappa$ ; Algen<sup>se</sup> M $\nu$ ; Algome Q $\alpha$ ;  
Algonine<sup>e</sup> B $\iota$  8 0] 18 0 M $\theta$  O $\kappa$  sept.] merid. in al' sept. P $\pi$  geminorum] *corr.*  
*to vel [illeg.] humerus orionis M $\kappa$ ; add. interlin. vel potius idem que humerus orionis E $\mu$*

16 Algomeiza] Algome<sup>za</sup> B $\iota$  D $\gamma$ ; Algomeisa M $\theta$  Q $\alpha$ ; Algomeyza M $\lambda$  O $\kappa$ ; Algomeza E $\delta$  E $\zeta$  M $\nu$   
P $\rho$  P $\tau$  Q $\mu$  V $\kappa$ ; Algomezim or Algomeaun R $\alpha$ ; Algomzi S $\beta$  sept.] merid. in al' sept.  
P $\pi$

17 Egregez] Eg<sup>e</sup>gez D $\gamma$  S $\beta$ ; Egregez B $\iota$ ; Egragez O $\kappa$ ; Egrezes M $\nu$ ; Egregot V $\kappa$  45 0]  
46 0 M $\theta$  sept.] *corr. from* merid. R $\alpha$  *add. and del.* in fronte leonis M $\kappa$ ; *add.*  
capita geminorum E $\mu$

19 Aldiran] Aldira M $\lambda$ ; Aldiraan O $\kappa$ ; Aldirain V $\kappa$ ; Aldiram D $\gamma$  E $\zeta$  M $\nu$  P $\rho$  R $\alpha$ ; Aldirani E $\delta$   
Q $\mu$  S $\beta$  6 0<sub>1</sub>] 16 0 R $\alpha$  S $\beta$  sept.] merid. in al' sept. P $\pi$  in] *om.* R $\alpha$

20 Alfart] Alfara Q $\alpha$ ; Alfard E $\mu$  M $\theta$  M $\kappa$  O $\kappa$  13 0] *corr. to* 9 0 B $\iota$  18 0] *corr. to* 5 30  
B $\iota$ ; 8 0 M $\theta$  M $\kappa$  P $\pi$  P $\tau$  Q $\alpha$  merid.] *corr. from* sept. R $\alpha$  *add.* equus vel singularis  
E $\mu$ ; *add.* in corde leonis R $\alpha$ <sup>13</sup> V $\kappa$ ; *add.* in ydra M $\kappa$

21 sept.] merid. in al' sept. P $\pi$  *add. in marg.* Arabice Calbalacer O $\kappa$

<sup>12</sup> The image should really be “in humero geminorum” or “in humero Orionis”; “geminorum” is derived from the Arabic name for Orion [PK]. See Appendix I.

<sup>13</sup> Starting with “in corde leonis” the images in ms R $\alpha$  have shifted up one line. They have been corrected here.

## VIRGO

[ $\theta$ UMa]	Alrucaba	19° 0'	48° 0'	sept.	in humero agitatoris
[ $\gamma$ Crv]	Algorab	18° 0'	11° 0'	merid.	in centauro

## 25 LIBRA

[ $\alpha$ Vir]	Alchimech	9° 0'	7° 0'	merid.	inermis
[ $\eta$ UMa]	Bennenaz	18° 0'	54° 0'	sept.	in temone plaustri
[ $\alpha$ Boo]	Alramec	24° 0'	24° 0'	sept.	qui tenet lances

## SCORPIO

30	[ $\alpha$ CrB]	Elfeca	16° 0'	31° 0'	sept.	in corona
	[ $\beta$ Sco]	Halhelil	17° 0'	15° 0'	sept.	
	[ $\alpha$ Sco]	Calbalacab	27° 0'	23° 0'	merid.	in corde scorpionis

- 21 Alrucaba] Alrukaba  $\nu\kappa$ ; Arucaba  $Q\alpha$  19 0] 10 0  $B\iota$  sept.] *corr. from merid.  $R\alpha$  in ... agitatoris] om.  $B\iota$ ; in agitatoris  $E\zeta$ ; in [h]umero Sagitatoris  $D\gamma$*
- 23 Algorab] Alglari  $Q\alpha$ ; Algoeab  $M\nu$ ; Algurab  $B\iota$ ; Algurah  $E\mu$   $M\theta$ ; Algurali  $D\gamma$   $M\kappa$   $O\kappa$   $R\alpha$   $S\beta$  11 0] 3 0  $Q\alpha$  merid.] *corr. from sept.  $R\alpha$  add. column headings as in line 4  $M\theta$*
- 26 Alchimech] Alchimec  $E\zeta$   $E\mu$   $M\kappa$   $P\tau$   $Q\alpha$   $Q\mu$ ; Alchimet  $M\nu$ ; Alkimech  $M\theta$  merid.] *corr. from sept.  $R\alpha$  inermis] in ermis some; in erinis  $P\theta$*
- 27 Bennenaz] Benanaz  $M\theta$   $M\kappa$   $O\kappa$ ; Benenaz  $E\mu$   $Q\alpha$ ; Bunnenaz  $E\delta$   $E\zeta$   $P\theta$   $\nu\kappa$ ; Denenaz  $P\tau$  sept.] merid. in al' sept.  $P\pi$ ; *corr. from merid.  $R\alpha$  temone] themone  $B\iota$   $E\delta$   $E\zeta$   $Q\mu$   $S\beta$   $\nu\kappa$  plaustri] plaistri  $Q\mu$*
- 28 Alramec] Alramech  $B\iota$   $E\mu$   $M\theta$   $M\kappa$   $O\kappa$ ; Alramer  $D\gamma$   $R\alpha$   $S\beta$ ; Alramet  $\nu\kappa$ ; Aramec  $Q\alpha$  lances] lanceas  $S\beta$
- 30 Elfeca] Effecta  $\nu\kappa$ ; Elfera  $Q\alpha$ ; Elfeta  $D\gamma$   $E\delta$   $P\tau$   $S\beta$  16 0]] 18 0  $P\tau$  sept.] merid. in al' sept.  $P\pi$ ; *corr. from merid.  $R\alpha$*
- 31 Halhelil]  $M\nu$   $P\theta$   $P\tau$ ; Alechl  $M\lambda$ ; Alheba  $D\gamma$ ; Alhelil  $B\iota$   $R\alpha$   $S\beta$ ; Alielil  $E\mu$   $M\theta$   $M\kappa$   $O\kappa$ ; Alielis  $Q\alpha$ ; Halbelil  $E\delta$   $\nu\kappa$ ; Halhellil  $E\zeta$  17 0] 717 0  $E\zeta$
- 32 Calbalacab] Calbalac' b  $M\lambda$ ; Calbalag'  $M\theta$   $Q\alpha$ ; Calbalag-b  $B\iota$ ; Calbalagra  $E\mu$   $M\kappa$   $O\kappa$ ; Calbalag"  $D\gamma$   $R\alpha$   $S\beta$ ; Calbalantab  $E\delta$   $E\zeta$ ; Calbalat' b  $M\nu$   $P\theta$   $Q\mu$ ; Calbala' th  $\nu\kappa$ ; Calbalifb  $P\tau$  27 0] 17 0  $O\kappa$  23 0] 22 0  $M\nu$  merid.] *corr. from sept.  $R\alpha$  scorpionis] scorpilii  $B\iota$   $D\gamma$   $E\zeta$*

## SAGITTARIUS

[ $\alpha$  Oph] Alhaue<sup>14</sup> 13° 0' 15° 0' sept. in capite alay

## 35 CAPRICORNUS

[ $\alpha$  Lyr] Wega 1° 0' 38° 0' sept. in vulture cadenti  
 [ $\alpha$  Aql] Althair 14° 0' 7° 0' sept. in telo vel aquila volante  
 [ $\alpha$  Cyg] Alrif 29° 0' 42° 0' sept. in cigno

## AQUARIUS

40 [ $\delta$  Cap] Libedeneb 6° 0' 22° 0' merid. in cauda capricorni  
 [? Del] Delfin<sup>15</sup> 10° 0' 6° 0' sept.

34 Alhaue] Alchauni M $\theta$  O $\kappa$ ; Alhane M $\nu$ ; Alhaum B $\iota$  Q $\alpha$  D $\gamma$  R $\alpha$ ; Alhaun S $\beta$ ; Alhauni E $\mu$   
 M $\kappa$ ; Halhane V $\kappa$ ; Sagita alh<sup>au</sup> E $\zeta$  sept.] merid. (*expunged*) P $\pi$  alay] alai B $\iota$  D $\gamma$  E $\mu$   
 M $\kappa$  R $\alpha$  S $\beta$ ; alaonis E $\delta$ ; aloa E $\zeta$  M $\lambda$  M $\nu$  P $\rho$  P $\tau$  Q $\mu$  V $\kappa$

36 Wega] Mega D $\gamma$  R $\alpha$  S $\beta$ ; Vega B $\iota$  E $\delta$  E $\zeta$  M $\theta$  M $\kappa$  P $\tau$ ; Vege O $\kappa$  38 0] 28 0 V $\kappa$ ; 37 0 M $\lambda$   
 sept.] ~~sept.~~ (*expunged*) merid. in al' sept. P $\pi$ ; *corr. from merid. R $\alpha$*

37 Althair] Alcayr P $\tau$  Q $\mu$ ; Altair B $\iota$  E $\delta$  M $\nu$  Q $\alpha$  V $\kappa$ ; Altayir E $\zeta$ ; Altayr P $\rho$ ; Althau R $\alpha$  14  
 0] *corr. to* 16 0 B $\iota$ ; 14 0 4 E $\zeta$  sept.] merid. P $\pi$  telo] celo R $\alpha$  vel] et B $\iota$  D $\gamma$ ;  
*add. in E $\mu$*

38 Alrif] Aleif E $\zeta$ ; Alyif M $\theta$  O $\kappa$  29 0] 27 0 Q $\alpha$  42 0] 44 0 V $\kappa$  sept.] merid. in  
 al' sept. P $\pi$  in cigno] in agno M $\nu$ ; in cingno M $\kappa$ ; in cino P $\tau$ ; in signo M $\theta$

40 Libedeneb] Libedaneb Q $\alpha$ ; Libedenep Q $\mu$ ; Libideneb B $\iota$  D $\gamma$  M $\theta$  M $\kappa$  O $\kappa$  R $\alpha$  S $\beta$   
 merid.] *corr. from sept. R $\alpha$*

41 Delfin] Delphin M $\nu$  sept.] merid. in al' sept. P $\pi$  *add. in M $\lambda$*

<sup>14</sup> Many of the variants are the result of minim corruption.

<sup>15</sup> See Appendix I (? Del), for a discussion of this second star named Delfin in Aquarius.

## PISCES

- [β Peg] Alferaz 6° 0' 24° 0' sept. in Pegaso  
 [β Peg] Humerus equi 18° 0' 25° 0' sept. in equo alato  
 45 [ι Cet] Denebcaytoz 22° 0' 10° 0' merid. in cauda caytoz
- 43 Alferaz] *add.* humerus equi Βι in Pegaso] in pesago Μκ Μν; in pegazo Vκ  
 sept.] merid. (*expunged*) sept. Ρπ; *corr. from* merid. Ρα
- 44 Humerus equi] *corr. to* Scaech Βι equi] *om.* Qα 18 0] *corr. to* 28 0 Βι 25 0]  
*corr. to* 13 0 Βι; 24 30 Qα; 25 30 Εμ sept.] merid. in al' sept. Ρπ alato] *om.* Ρτ
- 45 Denebcaytoz] Benepcautoz Μθ Οκ; Denebcaitoz Qα; Denebcayc<sup>oz</sup> Ρο; Denebcaycoz Vκ;  
 Denebcayt<sup>oz</sup> Qμ; Denecaydoz Ρτ; Denechtar<sup>ezz</sup> Μν; Denepaytoz Βι; Denepcaicoz Ρα Σβ;  
 Denepcaitoz Εμ Μκ; Deneptaye<sup>orum</sup> Εδ; Deneptaytoz Dγ 22 0] *corr. to* 10 0 Βι 10  
 0] *corr. to* 22 0 Βι caytoz] caitoz Βι Εμ Οκ Ρα (*later hand*) Σβ; cat<sup>oz</sup> Dγ; ceti Μκ

## Appendix I Catalogue of Stars

This appendix<sup>1</sup> lists all the stars found in the text, and in the lists of stars (= SL) organized by their modern constellations. It includes the following information:

- the modern abbreviated designation
- the modern right ascension and declination (remembering that this differs from the medieval positions because of the precession of the equinoxes by about 10 degrees);
- the modern full designation and common name(s)
- the Arabic transliterated name; this name in Arabic; the meaning of this name
- the medieval Latin name and its meaning
- variants of the Latin name as found in the text
- variants of the (Latinized) Arabic name as found in the text
- other names which seem unrelated to the Latin or Arabic as found in the text
- bibliographical references

For the last three sets of names, references are given noting where they are found in the text and star lists; there the apparatus criticus identifies the manuscripts in which the variant is actually found. Note: there is an index of Arabic-based and Latin-based names at the end of the appendix.

It has not been possible to assign a zodiacal sign to each star. Not only have their positions shifted over time, but some mss, particularly in the diagrams of the rete (Cap. 11, fig.), place the same star in two different signs, e.g., some have a star in Virgo, and others might have it in Libra.

### SOURCES:

Storm Dunlop, *Atlas of the Night Sky* (London: HarperCollins, 2005) – for current English names  
 Sharon Gibbs and George Saliba, *Planispheric Astrolabes from the National Museum of American History* (Washington: Smithsonian Institution Press, 1984)

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<sup>1</sup> I would like to acknowledge the contributions which Paul Kunitzsch made to this appendix. His comments and suggestions were always very helpful.

Paul Kunitzsch, *Arabische Sternnamen in Europa* (Wiesbaden: Harrassowitz, 1959)

Paul Kunitzsch, "Three Dubious Stars in the Oldest European Table of Astrolabe Stars,"

*Zeitschrift für Geschichte der Arabisch-Islamischen Wissenschaften*, 13 (1999-2000), 57-69;

rpt. in his *Stars and Numbers, Astronomy and Mathematics in the Medieval Arab and Western*

*Worlds*, Variorum CS 791 (Aldershot: Ashgate, 2004), text XIX.

Paul Kunitzsch, *Typen von Sternverzeichnissen in astronomischen Handschriften des zehnten bis vierzehnten Jahrhunderts* (Wiesbaden: Harrassowitz, 1966)

**β And** [01<sup>h</sup> 09<sup>m</sup>] [+35° 37']

β Andromedae / Mirach

Arabic: mi'zar / مئزر / "girdle [of Andromeda]"

Latin: *from the Arabic*

Mirach – Cap. 11 Fig.; SL 1; SL 1-A var.

Mirac – SL 1 var.; SL 1-A

Mirat – Cap. 11 Fig.

Myrach SL 1 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 67, 184; idem, *Typen*, pp. 55 (VIII-1) and 41 (VI-4).**δ Aqr** [22<sup>h</sup> 55<sup>m</sup>] [-15° 49']δ Aquarii / Scheat<sup>2</sup> [now officially "Skat"]

Arabic: al-sāq / الساق / "shin/shin-bone"

Latin: *from the Arabic*

Cenok – SL 1-A var.

Ocheath – SL 2 var.

Sceach – Cap. 11 Fig.; SL 1; SL 2

Scead – SL 1-A var.

Sceahc – Cap. 11 Fig.

Sceath – SL 1 var.; SL 2 var.

Scehach – SL 2 var.

Scehah – Cap. 11 Fig.

Scenach – SL 2 var.

Scenath – SL 2 var.

Scezich – SL 1 var.

Schath – SL 1 var.

Scheat – SL 2 var.

Sechath – Cap. 11 Fig.

Seheach – SL 1-A var.

Senach – SL 2 var.

Sheach – SL 1-A

Shenath – SL 2 var.

Steach – SL 1 var.; SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, p. 84; idem, *Typen*, pp. 56 (VIII-45) and 43 (VI-38).**α Aql** [19<sup>h</sup> 51<sup>m</sup>] [+08° 52']

α Aquilae / Altair

Arabic: al-nasr al-ṭā'ir / النسر الطائر / "the flying eagle"

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<sup>2</sup> This name has later also been associated with β Peg.

Latin: Vultur Volans / “the flying vulture”

Vlt<sup>u</sup> Volans – Cap. 22 Fig. var

Vult<sup>r</sup> – Cap. 22 Fig. var

Vultur Volans – Cap. 10, ln. 8; Cap. 10, ln. 15; Cap. 10 Fig.; Cap. 11 Fig.

*from the Arabic*

Abchair – SL 2 var.

Alcair – SL 1 var.; SL 2 var.

Alcar – Cap. 11 Fig.

Alcayr – SL 3-B var.

Alchair – Cap. 11 Fig.; SL 1 var.; SL 2 var.

Alkair – Cap. 11 Fig.

Alta – Cap. 11 Fig.

Altahir – Cap. 11 Fig.; SL 3-A var.

Altaich – SL 1 var.

Altair – Cap. 10, ln. 15 var.; Cap. 10 Fig.; Cap. 11 Fig.; SL 1; SL 1-A; SL 2; SL 3-A var.; SL 3-B var.

Altaire – Cap. 11 Fig.

Altam – SL 1-A var.

Altani – SL 1-A var.

Altar – Cap. 11 Fig.

Altayir – SL 2 var.; SL 3-A var.

Altayr – Cap. 10, ln. 15 var.; Cap. 10 Fig.; Cap. 11 Fig.; SL 1 var.; SL 2 var.; SL 3-A var.; SL 3-B var.

Altha – Cap. 11 Fig.

Althair – Cap. 11 Fig.; SL 1 var.; SL 2 var.; SL 3-A; SL 3-B

Althar – Cap. 11 Fig.

Althau – SL 3-B var.

Althayr – Cap. 11 Fig.; SL 1 var.; SL 1-A var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 81-82, 138-39; idem, *Typen*, pp. 56 (VIII-36), 28 (III-4), and 43 (VI-33).

**α Ari** [02<sup>h</sup> 07<sup>m</sup>] [+23° 28']

α Arietis / Hamal

*from the Arabic*

Enif<sup>3</sup> – SL 1; SL 1-A

Enit – SL 1 var.

Enyl – SL 1 var.

Erut – SL 1 var.

Bibliography: Kunitzsch, *Sternnamen*, p. 68; idem, *Typen*, pp. 55 (VIII-4), 41 (VI-6), 66 (IX-2), and 105 (XVI-6).

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<sup>3</sup> “Enif” is usually the Arabic name, or part of the Arabic name, for ε Peg (q.v.)

**$\alpha$  Aur** [05<sup>h</sup> 17<sup>m</sup>] [+46° 00'] $\alpha$  Aurigae / Capella, Alhailoth or AlhajothArabic: al-<sup>c</sup>ayyūq / العيوق / [unknown meaning]Latin: Ursa<sup>4</sup> – Cap. 11 Fig.*from the Arabic*

Al – Cap. 11 Fig.

Alailoth – SL 1-A var.

Albailoth – SL 1 var.

Alcaioth – SL 2 var.

Alchailoch – SL 2 var.

Alh~ – Cap. 11 Fig.

Alha – Cap. 11 Fig.

Alhae – Cap. 11 Fig.

Alhailoc – Cap. 11 Fig.; SL 3-A var.

Alhailoch – SL 2 var.; SL 3-A; SL 3-B var.

Alhailoh – SL 1; SL 1-A

Alhailos – Cap. 11 Fig.; SL 3-A var.

Alhailot – Cap. 11 Fig.; SL 1 var.; SL 1-A var.; SL 2 var.; SL 3-A var.; SL 3-B

Alhailoth – Cap. 11 Fig.; SL 1 var.; SL 2; SL 3-B var.

Alhailoth – SL 2 var.

Alhalach – SL 2 var.

Alhalot – SL 3-B var.

Alharoch – SL 1 var.

Alharoth – SL 2 var.

Alhaut(?) – Cap. 11 Fig.

Alhaye – Cap. 11 Fig.

Alhayeth – SL 1 var.

Alhayot – Cap. 11 Fig; SL 1-A var.; SL 2 var.

Alhayoth – SL 1 var.

Alhenot/Alheriot – SL 2 var.

Alkaiot – SL 1-A var.

Althailoth – SL 2 var.

Malhailot – SL 1-A var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 71, 119-121; idem, *Typen*, pp. 55 (VIII-10), 28 (III-25) and 42 (VI-12).

 **$\alpha$  Boo** [14<sup>h</sup> 16<sup>m</sup>] [+19° 11'] $\alpha$  Boötis / Arcturus

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<sup>4</sup> “Ursa” (“bear”) is a name given to a variety of stars in Ursa Maioris and Ursa Minoris. Usually, however, in these rete diagrams Ursa is found in Cancer or Leo, rather than in Gemini, as here. The position in the figure in the two mss is that of  $\alpha$  Aur.

Arabic: al-simāk al-rāmih / السمك الرامح / “the *simāk* armed with a lance”<sup>5</sup>

Latin: *from the Arabic*

Ahamath – SL 2 var.

Al – Cap. 11 Fig.

Alchimet – Cap. 11 Fig. Ev<sup>6</sup> M $\eta$ <sup>7</sup>;

Alcramech – SL 1 var.;

Alhimet – Cap. 11 Fig.

Alm – Cap. 11 Fig.

Alr – Cap. 11 Fig.

Alř – Cap. 11 Fig.

Alra – Cap. 11 Fig.

Alra’ – Cap. 11 Fig.

Alram’ – Cap. 11 Fig.

Alramch – SL 2 var.

Alramco – SL 2 var.

Alrame’ – Cap. 11 Fig.

Alramec – SL 3-B

Alramech – Cap. 11 Fig.; SL 1 var.; SL 1-A; SL 2 var.; SL 3-A; SL 3-B var.

Alrameh – Cap. 11 Fig.; SL 1 var.

Alrameht – SL 3-A var.

Alramek – SL 1-A var.

Alramer – SL 3-B var.

Aramet – Cap. 11 Fig.; SL 3-B var.

Arameth – Cap. 11 Fig.; SL 1; SL 1-A var.; SL 2

Aramich – Cap. 11 Fig.

Alranech – Cap. 11 Fig.

Alrb’ – Cap. 11 Fig.

Alremech – SL 1 var.

Aramec – SL 3-B var.

Aramech – SL 1 var.

Arameth – SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 79, 133-135; idem, *Typen*, pp. 55 (VIII-28), 28 (III-1) and 42 (VI-26).

$\alpha$  CMa [06<sup>h</sup> 45<sup>m</sup>] [-16° 43’]

$\alpha$  Canis Majoris / Sirius, Alhabor

Arabic: al-<sup>c</sup>abūr / العبور / “[Sirius] who has crossed [the Milky Way]”

<sup>5</sup> The identification of “*simāk*” and/or its etymology has escaped modern scholars. See below,  $\alpha$  Vir.

<sup>6</sup> Variant of “*alchimech alramech*” (*Typen*, p. 90)?

<sup>7</sup> It appears that the names for  $\alpha$  Boo/Alramech and  $\alpha$  Vir/Alchimet have been reversed in ms M $\eta$ .

Latin: *from the Arabic*

Alabor – SL 1-A var.  
 Albabor – SL 1 var.  
 Alchabor – Cap. 11 Fig.  
 Algabor – Cap. 11 Fig.  
 Alhabez – Cap. 11 Fig.  
 Alhabor – Cap. 11 Fig.; SL 1; SL 1-A; SL 2; SL 3-A; SL 3-B  
 Alhaboz – Cap. 11 Fig.  
 Alhaioz – SL 3-A var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 72, 117-119; idem, *Typen*, pp. 55 (VIII-13), 28 (III-14) and 42 (VI-14).

**α CMi** [07<sup>h</sup> 39<sup>m</sup>] [+05° 13']

α Canis Minoris / Procyon, Algomeiza

Arabic: al-ḡumaiṣā' / الغميصاء / "the bleary-eyed [woman]"

Latin: *Moriens Filius*<sup>8</sup>

*Moriens Filius* – Cap. 11 Fig.  
*Prochion* – Cap. 11 Fig.

*from the Arabic*

Algamensa – SL 1 var.  
 Algemeza – Cap. 11 Fig.  
 Algociā – SL 2 var.  
 Alcocina – SL 2 var.  
 Algoesa – SL 2 var.  
 Algom~ – Cap. 11 Fig.  
 Algomaza – Cap. 11 Fig.  
 Algomeira – SL 1 var.  
 Algomeisa – Cap. 11 Fig.; SL 1 var.; SL 2 var.; SL 3-A var.; SL 3-B var.  
 Algomeiza – Cap. 11 Fig.; SL 1; SL 1-A var.; SL 2; SL 3-A; SL 3-B  
 Algotera – Cap. 11 Fig.  
 Algoterza – Cap. 11 Fig.; SL 1-A var.  
 Algomeuza – Cap. 11 Fig.  
 Algomeyra – SL 2 var.  
 Algomeysa – Cap. 11 Fig.; SL 2 var.  
 Algomeyza – Cap. 11 Fig.; SL 1 var.; SL 1-A; SL 2 var.; SL 3-B var.  
 Algomeza – Cap. 11 Fig.; SL 3-B var.

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<sup>8</sup> Or "Filius moriens" – a rare name for this star. See Fritz S. Pedersen, "A Latin Star-List for Toledo," *Cahiers de l'Institut d Moyen-Âge Grec et Latin*, 64 (1994), p. 60: table, star 6; and idem, *The Toledan Tables*, *Historisk-filosofiske Skrifter* 24:4 (Copenhagen, 2002), part 4, p. 1500: table LA 13, star 6. In these tables α CMa is known as "Filius vivens". There is some possibility that "Filius moriens" is α CMa, and "Filius vivens" is α CMi – in our text it is impossible to distinguish the two. My thanks to Paul Kunitzsch for tracking down this identification.

Algomezim – SL 3-B var.  
 Algomezun – SL 3-B var.  
 Algomiza – SL 2 var.  
 Algomzi – SL 3-B var.  
 Algoniza – SL 1-A var.  
 Algotian – SL 2 var.  
 Algoumeiza – Cap. 11 Fig.  
 Algumeiza – Cap. 11 Fig.  
 Alsehere – SL 1 var.<sup>9</sup>

Bibliography: Kunitzsch, *Sternnamen*, pp. 73-74, 160-161; idem, *Typen*, pp. 55 (VIII-15), 28 (III-21) and 42 (VI-16).

### δ Cap [21<sup>h</sup> 47<sup>m</sup>] [-16° 08']

δ Capricorni / Deneb Algedi

Arabic: *ḍanab al-jady* / ذنب الجدي / “tail of the goat”

Latin: *Cauda Capricorni* / “tail of the goat/Capricorn”

*Cauda Capricorni* – Cap. 11 Fig.

*from the Arabic:*

*Deneba* – Cap. 11 Fig.  
*Denebagedi* – Cap. 11 Fig.; SL 1 var.  
*Denebaldegi* – Cap. 11 Fig.  
*Denebalg~* – Cap. 11 Fig.  
*Denebalgadi* – SL 2 var.  
*Denebalgeda* – SL 2 var.  
*Denebalgedi* – Cap. 11 Fig.; SL 1; SL 1-A; SL 2  
*Denebalgedy* – SL 1 var.  
*Denebalgodi* – SL 2 var.  
*Denebalgydi* – SL 2 var.  
*Denebaligedi* – SL 2 var.  
*Denehal* – Cap. 11 Fig.  
*Denenalgedi* – SL 1 var.  
*Deuebalgedi* – SL 1-A var.; SL 2 var.  
*Libedaneb* – SL 3-B var.  
*Libedeneb*<sup>10</sup> – Cap. 11 Fig.; SL 1; SL 3-A var.; SL 3-B  
*Libedenep* – SL 3-A var.; SL 3-B var.  
*Libedenes* – SL 1 var.

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<sup>9</sup> From “al-šīc̣rā”, i.e., Sirius. Kunitzsch, *Typen*, p. 57 (VIII-15, note).

<sup>10</sup> While Libedeneb is found many times in the rete diagrams and also on actual astrolabes; it is a corruption in Latin of Denebalgedi.

Sometimes Denebalgedi and Libedeneb are treated as two different stars, as in Kunitzsch, *Typen*, p. 46: VIII-40 (based on III-18) and VIII-44 (based on VI-35). The compiler of list VIII worked from at least two different sources and did not realize that he was dealing with the same star.

Libederneb – SL 1 var.  
 Libedydop – SL 1 var.  
 Liberneneb – Cap. 11 Fig.  
 Libideneb – SL 3-A; SL 3-B var.  
 Libideuech – SL 3-A var.  
 Lybedeneb – SL 1 var.  
 Zenebalgedi – SL 1-A var.  
 Zinebalgedi – SL 1-A var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 83-84, 155-156; idem, *Typen*, pp. 56 (VIII-40 and 44), 28 (III-18) and 43 (VI-35).

### $\alpha$ Cas [00<sup>h</sup> 41<sup>m</sup>] [+56° 32']

$\alpha$  Cassiopeiae / Schedar, Schedir, Shedir

Arabic:  $\mathfrak{s}$ adr / صدر / “breast [of Cassiopeia]”

Latin: *from the Arabic*

Sc~ – Cap. 11 Fig.  
 Sced – Cap. 11 Fig.  
 Scedar – Cap. 11 Fig.  
 Sceder – SL 1; SL 1-A  
 Scedry – SL 1 var.  
 Seder – SL 1-A var.  
 Sedes – SL 1 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 66, 204-205; idem, *Typen*, pp. 56 (VIII-49) and 41 (VI-5).

### $\alpha$ Cep [21<sup>h</sup> 19<sup>m</sup>] [+62° 35']

$\alpha$  Cephei / Alderamin

Arabic: al- $\mathfrak{d}$ irā<sup>c</sup> al-yamīn / الذراع اليمين / “the right arm”<sup>11</sup>

Latin: *from the Arabic*

Abera – SL 1-A var.  
 Abhena – SL 1-A var.  
 Abhera – SL 1-A var.  
 Adiran – SL 1 var.  
 Ahzera – SL 1 var.  
 Adria – SL 1 var.

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<sup>11</sup> There is a problem with the etymology here, since it does not accord with correct Arabic grammar. The form  $\mathfrak{d}$ irā<sup>c</sup> does not occur in any of the known sources, such as Ptolemy’s star catalogue in the *Almagest*, for a star in Cepheus. See Paul Kunitzsch, “John of London and his Unknown Arabic Source,” *Journal for the History of Astronomy*, 17 (1986), 54-55, and idem, “The Star Catalogue Commonly Appended to the Alfonsine Tables,” *ibid.*, p. 93. [PK]

Aldera – Cap. 11 Fig.  
 Aldira – Cap. 11 Fig.; SL 1 var.; SL 1-A var.  
 Aldirab – SL 1-A var.  
 Aldiran – SL 1; SL 1-A var.  
 Aldria – SL 1 var.  
 Aldura – SL 1 var.  
 Aldyran – SL 1 var.  
 Alhera – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 82-83, 110-111; idem, *Typen*, pp. 56 (VIII-42) and 41 (VI-1).

**$\alpha$  Ceti** [03<sup>h</sup> 03<sup>m</sup>] [+04° 05']

$\alpha$  Ceti / Menkar

Arabic: minḳar / منخر / “nostril [of Cetus / the whale]”

Latin: naris cethi/ceti

*from the Arabic*

Algenip<sup>12</sup> – Cap. 11 Fig.  
 Azerikar<sup>13</sup> – Cap. 11 Fig.  
 Mekar – Cap. 11 Fig.; SL 1; SL 1-A var.  
 Melzar – SL 1-A var.  
 Memkar – Cap. 11 Fig.; SL 2 var.  
 Menbair – Cap. 11 Fig.  
 Menc/t – Cap. 11 Fig.  
 Mencar – Cap. 11 Fig.; SL 2 var.  
 Menchar – SL 1 var.; SL 2 var.  
 Menhar – Cap. 11 Fig.  
 Menhkar – SL 1-A var.  
 Menk – Cap. 11 Fig.  
 Menkach – SL 1 var.  
 Menkar – Cap. 11 Fig.; SL 1-A; SL 2  
 Menkarz – SL 2 var.  
 Menkath – SL 1 var.  
 Menkaz – SL 2 var.  
 Menkhar – SL 2 var.  
 Menter – Cap. 11 Fig.  
 Mentrar – SL 1 var.  
 Merchm – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 69, 181; idem, *Typen*, pp. 55 (VIII-6) and 41 (VI-7).

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<sup>12</sup> Misnamed: Algenip ( $\alpha$  Persei / Algenib) has a declination of about +50°. Kunitzsch, *Sternnamen*, pp. 69, 113.

<sup>13</sup> Erroneous reading of the exemplar by the scribe? “M” becomes “Az” and “n” becomes “ri”?

**β Cet** [00<sup>h</sup> 44<sup>m</sup>] [-17° 59']

β Ceti / Deneb Kaitos

Arabic: *ḍanab qīṭūs al-janūbī* / ذنب قيطوس الجنوبي / “the southern tail of the sea-monster/whale”

**ι Cet** [00<sup>h</sup> 19<sup>m</sup>] [-08° 49']

ι Ceti / Deneb Kaitos Schemali

Arabic: *ḍanab qīṭūs al-šamālī* / ذنب قيطوس الشمالي / “the northern tail of the sea-monster/whale”

**NOTE:** it is not possible to distinguish between these two identifications because of the inaccuracies of the diagrams although the name is normally associated with the brighter β Cet

Latin Cauda Ceti / “ the tail of the sea-monster/whale”

Cauda Ceti – Cap. 11 Fig.

Cauda Chitor – Cap. 11 Fig.

*from the Arabic*

Benepcautoz – SL 3-B var.

Debnecaitoz – SL 3-A var.

Deneb – Cap. 11 Fig.

Denebcaithoz – SL 1 var.

Denebcaiton – SL 2 var.

Denebcaitoz – Cap. 11 Fig.; SL 1 var.; SL 2 var.; SL 3-A var.; SL 3-B var.

Denebcaycoz – SL 3-B var.

Denebcaythos – SL 2 var.

Denebcaytos – Cap. 11 Fig.; SL 2 var.

Denebcaytoz – Cap. 11 Fig.; SL 2 var.; SL 3-B

Denebfaytos – Cap. 11 Fig.

Denebizaitoz – SL 1-A var.

Denebkaicoz – SL 1-A var.

Denebkaim – Cap. 11 Fig.

Denebkaithos – Cap. 11 Fig.

Denebkaithoz – SL 2 var.

Denebkaiton – Cap. 11 Fig.; SL 1 var.

Dene bkaitor – SL 1 var.

Denebkaitos – Cap. 11 Fig.

Denebkaitoz – Cap. 11 Fig.; SL 1; SL 1-A; SL 1-A var.; SL 2 var.

Denebkantoz – SL 2 var.

Denebkartoz – Cap. 11 Fig.; SL 2 var.

Denebkaudos – SL 2 var.

Denebkaudoz – SL 2 var.

Denebkaythoz – SL 1 var

Denebkaytor – Cap. 11 Fig.; SL 2 var.

Denebkaytos – SL 1-A var.

Denebkaytoz – Cap. 11 Fig.; SL 1 var.; SL 1-A var.; SL 2

Denebkidoz – SL 1 var.

Denecaitoz – SL 3-A var.  
 Denecaydoz – SL 3-B var.  
 Denechtar<sup>ezz</sup> – SL 3-B var.  
 Denefbaychos – Cap. 11 Fig.  
 Denepaytoz – SL 3-B var.  
 Denepcaicoz – SL 3-B var.  
 Denepcaitoz – SL 3-A; SL 3-B var.  
 Denepkayza – SL 1 var.  
 Deneptaye<sup>orum</sup> – SL 3-B var.  
 Deneptaytoz – SL 3-B var.  
 Donec cartor – SL 2 var.  
 Donet carthos – SL 2 var.  
 Donet carto – SL 2 var.  
 Tenebraitoz – Cap. 11 Fig.  
 Veneb kaitoz – Cap. 11 Fig.

Bibliography: Kunitzsch, *Typen*, v: pp. 56 (VIII-48) and 28 (III-17);  $\beta$ : idem, p. 43 (VI-40);  
 idem, *Sternnamen*, pp. 66, 66-67, 156-157.

### $\zeta$ Cet [01<sup>h</sup> 51<sup>m</sup>] [-10° 20']

**Note:** at some point this star became duplicated with two different names. While they have more or less the same right ascension, they have quite distinct declinations when plotted on the rete diagrams.<sup>14</sup>

#### $\zeta$ Ceti (1) / Baten Kaitos

Arabic: baṭn qīṭūs / بطن قيطوس / “belly of the sea-monster/whale”

Latin: Venter Ceti / “belly of the sea-monster/whale”

Venter Chator – Cap. 11 Fig.

Venter Chitor – Cap. 11 Fig.

Ventor Caytet – Cap. 11 Fig.

*from the Arabic*

Bacencaytoz – Cap. 11 Fig.

Bachenkaytoz – Cap. 11 Fig.

Bantheukaitos – Cap. 11 Fig.

Baratenkaytoz – Cap. 11 Fig.

Bataikaitos – SL 1-A var.

Batecay~ – SL 1-A var.

Batekaytoz – SL 1 var.

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<sup>14</sup> In 29 of the astrolabe diagrams in this text there are two different pointers to  $\zeta$  Cet. In some tables the two stars differ by 1° 30' in longitude and 0° 30' in latitude; in most diagrams the stars are 10° to 20° apart in longitude. Kunitzsch's star list (*Typen*, p. 55 [VIII-2 and 3]) traces the confusion to a conflation of two earlier lists: III-16 (p. 28) and VI-3 (p. 41). See also Kunitzsch, *Sternnamen*, p. 67 and Gibbs/Saliba, p. 218.

Batencathoz – SL 1 var.  
 Batencaytoz – Cap. 11 Fig.  
 Batenk' – Cap. 11 Fig.  
 Batenkaatoz – SL 1 var.  
 Batenkaithos – Cap. 11 Fig.  
 Batenkaitoz – Cap. 11 Fig.; SL 1 var.; SL 1-A var.  
 Batenkartoz – Cap. 11 Fig.; SL 1 var.  
 Batenkatoz – Cap. 11 Fig.  
 Batenkautos – Cap. 11 Fig.  
 Batenkaytar – Cap. 11 Fig.  
 Batenkayton – Cap. 11 Fig.  
 Batenkaytor – SL 1 var.  
 Batenkaytoz – Cap. 11 Fig.; SL 1; SL 1-A  
 Bathebiro – SL 1 var.  
 Bathekaidoz – SL 1 var.  
 Bathekardoz – SL 1 var.  
 Bathenaytoz – Cap. 11 Fig.  
 Bathenk' – Cap. 11 Fig.  
 Bathenkaitoz – Cap. 11 Fig.  
 Bathenkaythos – Cap. 11 Fig.  
 Bathenkaythoz – SL 1 var.  
 Bathenkayto~ – Cap. 11 Fig.  
 Bathenkaytoz – Cap. 11 Fig.; SL 1 var.  
 Daventanet – Cap. 11 Fig.  
 Futekaytoz – SL 1 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 67, 148; idem, *Typen*, p. 55 (VIII-2) and 41 (VI-3).

### ζ Ceti (2) / Pantakaytoz

Image: venter cethi/ceti, “the belly of the [Constellation of the] whale”

Latin: *from the Arabic*

Paandoz – SL 2 var.  
 Pacacaitos – SL 2 var.  
 Pacacaitoz – SL 2 var.  
 Pacancaitoz – SL 3-A var.  
 Padaithos – SL 2 var.  
 Pancacayt' – SL 3-B var.  
 Pancancantoz – SL 3-A var.  
 Pancatacoz – SL 3-B var.  
 Pancildaicon – SL 1 var.  
 Pantacaidoz – SL 1 var.  
 Pantacaitoz – SL 1 var.  
 Pantacay – SL 1 var.  
 Pantacayt' – SL 3-B var.  
 Pantacayt<sup>m</sup> – SL 2 var.  
 Pantacaytos – SL 3-B var.

Pantacaytoz – SL 1 var.; SL 2 var.  
 Pantachaitos – SL 2 var.  
 Pantachayt~ – SL 3-B var.  
 Pantacratoz – SL 3-B var.  
 Pantaikatoz – Cap. 11 Fig.  
 Pantaitoz – SL 2 var.  
 Pantakaatoz – SL 1 var.  
 Pantakai – Cap. 11 Fig.  
 Pantakaitoz – SL 1; SL 2 var.  
 Pantakay – Cap. 11 Fig.  
 Pantakaytor – SL 1 var.  
 Pantakaytoz – Cap. 11 Fig.; SL 2  
 Pantaketicoz – Cap. 11 Fig.  
 Pantancaitos – SL 3-B var.  
 Pantancaitoz – SL 3-B var.  
 Pantanc[ay]ta – SL 1 var.  
 Pantankaytos – SL 3-B  
 Pantat<sup>a</sup>toz – SL 3-B var.  
 Pantaytoz – SL 2 var.  
 Pantekai – Cap. 11 Fig.  
 Pantekar – Cap. 11 Fig.  
 Pantenkait' – Cap. 11 Fig.  
 Panth' – Cap. 11 Fig.  
 Panthacaythos – SL 2 var.  
 Panthacayton – Cap. 11 Fig.  
 Panthacaytos – SL 2 var.  
 Panthakai – Cap. 11 Fig.  
 Panthakaithos – SL 2 var.  
 Panthakaitos – SL 2 var.  
 Panthakartos – SL 2 var.  
 Panthakay – Cap. 11 Fig.  
 Panthakaythos – Cap. 11 Fig.  
 Panthakaythoz – SL 1 var.  
 Panthakaytor – SL 1 var.  
 Panthakaytoz – SL 1 var.  
 Pantkaytoz – SL 2 var.  
 Patacaitoz – SL 2 var.  
 Patakam – SL 2 var.  
 Patancaitos – SL 3-B var.  
 Patancaitoz – SL 3-A  
 Patencacaytoz – SL 1 var.  
 Paucartoz – SL 1 var.  
 Pentant'a – SL 3-B var.  
 Pitaucaitoz – SL 3-A var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 67, 148; idem, *Typen*, pp. 55 (VIII-3) and 28 (III-16).

**$\alpha$  CrB** [15<sup>h</sup> 35<sup>m</sup>] [+26° 43'] $\alpha$  Coronae Borealis / Alfeca, Alphecca

Arabic: nayyir al-fakka / نَيْر الفكة / “the bright [star] of the broken [ring of stars]”

Latin: Corona – Cap. 11 Fig.

*from the Arabic*

Afeca – Cap. 11 Fig.; SL 1

Alf' – Cap. 11 Fig.

Alfa' – Cap. 11 Fig.

Alfaca – Cap. 11 Fig.

Alfaz – Cap. 11 Fig.

Alfe – Cap. 11 Fig.

Alfeca – Cap. 11 Fig.; SL 1-A var.; SL 2

Alfecas – Cap. 11 Fig.

Alfecha – SL 1 var.; SL 2 var.

Alfeka – SL 1 var.; SL 2 var.

Alfera – Cap. 11 Fig.; SL 3-A var.

Alfeta – Cap. 11 Fig.; SL 1 var.

Alfetaha, id est stella lucida in corona sept[entri]onali – Cap. 11 Fig.

Alfita – SL 1 var.

Alpheca – SL 1 var.

Alphefacta – SL 2 var.

Alpheta – SL 1 var.

Efa' – Cap. 11 Fig.

Efeca – Cap. 11 Fig.

Effeca – Cap. 11 Fig.

Effecta – SL 3-B var.

Effefa – SL 3-A var.

Elfa' – Cap. 11 Fig.

Elfaca – Cap. 11 Fig.

Elfeca – Cap. 11 Fig.; SL 1-A; SL 3-A; SL 3-B

Elfeka – Cap. 11 Fig.

Elfeol – Cap. 11 Fig.

Elfera – Cap. 11 Fig.; SL 3-B var.

Elfeta – Cap. 11 Fig.; Cap. 22 Fig. var.; SL 1-A; SL 2 var.; SL 3-B var.

Ellefeca – SL 2 var.

Elpert – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 79, 131-132; idem, *Typen*, pp. 55 (VIII-298), 28 (III-2) and 43 (VI-27). **$\gamma$  Crv** [12<sup>h</sup> 16<sup>m</sup>] [-17° 33']

Note: Algorab and Corvus began as the same star but became two in the star table associated with this text. Both stars are found in the diagrams in 39 of the mss studied here.

$\gamma$  Corvi (1)<sup>15</sup> / Corvus

Latin: Corvus / “the raven [or crow]”

Cauda Leonis<sup>16</sup> – Cap. 11 Fig.

Chorus – Cap. 11 Fig.

Corus – Cap. 11 Fig.

Coruus – Cap. 11 Fig.; SL 1; SL 1-A

Bibliography: Kunitzsch, *Typen*, pp. 55 (VIII-22) and 42 (VI-24).

 $\gamma$  Corvi (2) / Algorab<sup>17</sup>, Gienah Gurab

Arabic: janāḥ al-ḡurāb al-ayman / جناح الغراب الأيمن / “the right wing of the raven”

Latin: [Dextra] Ala Corvi / “[right] wing of the raven”

Alacorni – Cap. 11 Fig.

Ala Corui – Cap. 11 Fig.

Cauda<sup>18</sup> – Cap. 11 Fig.

*from the Arabic*

Alborap corvus – SL 1 var.

Algari – SL 3-A var.

Alglari – SL 3-A var.; SL 3-B var.

Alglor – SL 3-A var.

Algoeab – SL 3-B var.

Algor~ – Cap. 11 Fig.

Algorab – Cap. 11 Fig.; SL 1; SL 1-A; SL 2; SL 3-B

Algorab cori – SL 1 var.

Algorab corvus – SL 1 var.

Algoraba corvus – SL 1 var.

Algorach – SL 1 var.

Algurab – SL 2 var.; SL 3-B var.

Algurah – SL 3-B var.

Algurali – SL 3-A; SL 3-B var.

Corvus algorab – SL 1 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 78, 116, 166; idem, *Typen*, pp. 55 (VIII-25) and 28 (III-13).

<sup>15</sup> See Kunitzsch, *Typen*, p. 55 (VIII-22 and 25). Corvus (VIII-22) derives from list VI-24 (p. 42), and Algorab (VIII-25) derives from list III-13 (p. 28)

<sup>16</sup> Misnamed. The pointer in these 2 mss is definitely Corvus. Cauda Leonis (or simply Cauda) refers to a different star, i.e.,  $\beta$  Leonis. But the declination of  $\beta$  Leo is +14° 39', much farther north than Corvus.

<sup>17</sup> Today, Algorab is the official name of  $\delta$  Crv.

<sup>18</sup> Misnamed. The pointer in these 2 mss is definitely Gienah. Cauda (or Cauda Leonis) refers to a different star, i.e.,  $\beta$  Leonis. But the declination of  $\beta$  Leo is +14° 39', a long way farther north than Gienah.

**$\alpha$  Cyg** [20<sup>h</sup> 41<sup>m</sup>] [+45° 17'] $\alpha$  Cygni / Aridf, Deneb

Arabic: (1) al-ridf / الردف / “the one sitting behind the rider [on a horse]”

(2)  $\mathfrak{d}$ anab al-dajāja / ذنب الدجاجة / “tail of the hen”Latin: *from the Arabic*

- (1) Aleif – SL 3-B var.  
 Alrif – Cap. 11 Fig.; SL 1; SL 3-A; SL 3-B  
 Alyif – SL 3-B var.  
 Astif – SL 1 var.

- (2) Addig~ – SL 2 var.  
 Addigege – SL 2 var.  
 Addigege – SL 1; SL 1-A var.; SL 2  
 Addigge – SL 1 var.; SL 2 var.  
 Addygege – SL 1 var.  
 Adigege – SL 1 var.; SL 1-A var.  
 Aldigege – SL 1 var.; SL 1-A; SL 2 var.  
 Aldigoge – SL 2 var.  
 Aldigene – SL 2 var.  
 Aldira – Cap. 11 Fig.  
 De – Cap. 11 Fig.  
 Dea? – Cap. 11 Fig.  
 Den – Cap. 11 Fig.  
 Dena/Deta Alhalet – Cap. 11 Fig.  
 Dene – Cap. 11 Fig.  
 Deneb – Cap. 11 Fig.  
 Deni – Cap. 11 Fig.  
 Dens – Cap. 11 Fig.  
 Dera – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 82, 143-144, 155; idem, *Typen*, pp. 56 (VIII-38), 28 (III-8) and 43 (VI-36).

 **$\epsilon$  Del** [20<sup>h</sup> 33<sup>m</sup>] [+11° 18'] $\epsilon$  Delphini / Deneb DulfimArabic:  $\mathfrak{d}$ anab al-dulfīn / ذنب الدلفين / “tail of the dolphin”Latin: Delphinus, Delfinus / “dolphin”; *also* Cauda Delphini / “tail of the dolphin”

- Del – Cap. 11 Fig.; Cap. 22 Fig. var  
 Delf/Delf' – Cap. 11 Fig.; Cap. 22 Fig. var  
 Delfi' – Cap. 22 Fig. var  
 Delfim – Cap. 11 Fig.  
 Delfin – Cap. 11 Fig.; Cap. 22 Fig. var; SL 1; SL 1-A  
 D[e]lfin – Cap. 11 Fig.  
 Delfinus – Cap. 11 Fig.; SL 1 var.

Delf<sup>n</sup> – Cap. 11 Fig.

Delfyn – SL 1 var.; SL 1-A var.

Delphin – Cap. 11 Fig.; SL 1 var.; SL 1-A var.

Delphinus – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 82, 156; idem, *Typen*, pp. 56 (VIII-37) and 28 (III-5).

### ? Del

The lists of stars sometimes include a second star with the name “Delfin” (and variants), but set in the sign of Aquarius.

SL 1 has both (i.e.,  $\epsilon$  Del in Capricorn and the second Delfin in Aquarius). SL 1-A has only the first ( $\epsilon$  Del) and not the second. SL 2, SL 3-A, and SL 3-B do not list the first “Delfin” in Capricorn but do list the second one in Aquarius. It is impossible to distinguish between the two as far as the diagrams of the retes are concerned, since the drawings are too general.

Kunitzsch suggested that this second star might be an erroneous duplicate of either  $\epsilon$  Del (*Typen*, p. 58, note to 39), or  $\gamma$  Del (*Typen*, p. 46, note to 34). He also noted (p. 46) that Emmanuel Poulle suggests that this second star might be  $\delta$  Del (“Peut-on dater”, p. 314).

Latin: Delphinus, Delfinus

De – SL 1 var.

Delfin – SL 1; SL 2; SL 3-A var.; SL 3-B

Delfium – SL 2 var.

Delfyn – SL 1 var.

Delphil – SL 2 var.

Delphin – SL 2 var.; SL 3-A; SL 3-B

Bibliography: Kunitzsch, *Sternnamen*, p. 82; idem, *Typen*, pp. 56 (VIII-41) and 43 (VI-34); Emmanuel Poulle, “Peut-on dater les astrolabes médiévaux?” *Revue d’histoire des sciences et de leurs applications*, 9 (1956), 301-322.

### $\gamma$ Dra [17<sup>h</sup> 57<sup>m</sup>] [+51° 29’]

$\gamma$  Draconis / “Rastaban”<sup>19</sup> or Eltanin

Arabic: ra’s al-t<sub>u</sub>’bān / رأس الثعبان / “the head of the serpent”

Latin Cap[ud Serpentis] – Cap. 11 Fig.

Cap[ud] S[erpentis] – Cap. 11 Fig.

*from the Arabic*

Batsaben – SL 1 var.

Beastaben – SL 2 var.

Baztaben – SL 1 var.

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<sup>19</sup> Rastaban was the name used for  $\gamma$  Dra in the middle ages; it is now used for  $\beta$  Dra. The right ascensions of the two stars are less than 30 minutes apart, and their declinations less than 1 degree.

Mzcalen – SL 1 var.  
 Rahtaben – SL 1 var.  
 Rartaben – SL 2 var.  
 Rathaben – SL 2 var.  
 Ratzhaben – SL 2 var.  
 Razaben – SL 1 var.  
 Razaraben – SL 1 var.  
 Razazaben – SL 1 var.  
 Razcaben – SL 1 var.; SL 2 var.  
 Razdaben – SL 1 var.; SL 2 var.  
 Raztaben – SL 1; SL 2  
 Raztabeu – SL 2 var.  
 Razthaben – SL 2 var.  
 Taben – Cap. 11 Fig.; SL 1-A  
 Thaben – SL 1-A var.  
 Tova – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 197-198; idem, *Typen*, pp. 55 (VIII-34), 58 and 43 (VI-31)

**θ Eri** [02<sup>h</sup> 58<sup>m</sup>] [-40° 18']

θ Eridani / Acamar<sup>20</sup>

Arabic: ākir al-nahr / آخر النهر / “end of the river [Eridanus]”

Latin: Finis Fluxus / “end of the flowing [i.e. river Eridanus]”

Finis – Cap. 11 Fig.  
 Finis Arietis – Cap. 11 Fig.  
 Finis fluxus – Cap. 11 Fig.; SL 1  
 Finis fuxus – SL 1 var.  
 Fluxus – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 69 and 99; idem, *Typen*, p. 55 (VIII-5).

**τ<sup>2</sup> Eri** [02<sup>h</sup> 51<sup>m</sup>] [-21° 00']

τ<sup>2</sup> Eridani<sup>21</sup> / Angetenar

Arabic: ʿarjat al-nahr / عرجة النهر / “turn of the river”

Latin: *from the Arabic*

Agentenar – Cap. 11 Fig.  
 Algetenar – Cap. 11 Fig.; SL 1; SL 1-A  
 Algetenei – Cap. 11 Fig.

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<sup>20</sup> Acamar/θ Eri was formerly named Acherna, from the same Arabic root, but this name has now been transferred to α Eri.

<sup>21</sup> Sometimes identified as γ Eridani. Kunitzsch, *Sternnamen*, p. 70; idem, *Typen*, p. 55 (VIII-8).

Algetenir – SL 1 var.  
 Algetenor – SL 1 var.  
 Algeteuan – Cap. 11 Fig.  
 Algethenar – Cap. 11 Fig.  
 Angetenar – Cap. 11 Fig.; SL 1 var.  
 Augea – Cap. 11 Fig.  
 Augekanar – SL 1-A var.  
 Augekauar – SL 1-A var.  
 Augenenar – Cap. 11 Fig.  
 Augerenax – Cap. 11 Fig.  
 Augetanar – SL 1-A var.  
 Augetena – Cap. 11 Fig.; SL 1 var.  
 Augetenar – Cap. 11 Fig. SL 1 var.; SL 1-A var.  
 Augetonar – SL 1 var.  
 Augethanar – SL 1 var.  
 Alhaiot<sup>22</sup> – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, p. 142; idem, *Typen*, pp. 55 (VIII-8) and 41 (VI-9).

**α Gem** [07<sup>h</sup> 35<sup>m</sup>] [+31° 53']

α Geminorum / Castor

Arabic: ra's al-Jawzā' / رأس الجوزاء / "head of al-Jawzā' / Gemini"<sup>23</sup>

Latin: *from the Arabic*

Balzangense – SL 2 var.  
 Bazalgenze – SL 1 var.  
 Bazalgeuze – SL 1 var.; SL 2 var.  
 Bazelgeuze – SL 1-A  
 Bazilgeuse – SL 1 var.  
 Nasalgenze – SL 2 var.  
 Racalgenze – SL 1 var.  
 Rafaligence – SL 1 var.  
 Ragalgeuze – SL 1 var.  
 Ratalgeuze – SL 2 var.  
 Ratarlem – SL 1-A var.  
 Rathalgeuze – SL 2 var.  
 Razagenze – SL 1 var.  
 Razageuze – SL 2 var.  
 Razalevze – SL 1 var.  
 Razalgenze – SL 2 var.

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<sup>22</sup> Misnamed: Alhaiot (α Aurigae / Capella / Alhaioth) has a declination of about +45°, while the pointer in Ev is about -15°; its right ascension is also about 1 hour greater.

<sup>23</sup> "Al-Jauzā'" is the Arabic name both for Orion and for the zodiacal sign of Gemini. [PK]

Razalgeuze – SL 1; SL 2  
 Raztaben – SL 1-A var.  
 Raztaten – SL 1-A var.  
 Rozangente – SL 1 var.  
 Tazageuze – SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, p. 161; idem, *Typen*, pp. 55 (VIII-14) and 41 (VI-15).

**$\alpha$  Hya** [09<sup>h</sup> 28<sup>m</sup>] [-08° 40']

$\alpha$  Hydrae / Alfard, Alphard

Arabic: al-fard / الفرد / “the solitary one”<sup>24</sup>

Latin: *from the Arabic*

Alf~ – Cap. 11 Fig.  
 Alfara – SL 3-B var.  
 Alfarad – Cap. 11 Fig.  
 Alfarat – SL 1 var.  
 Alfarath – Cap. 11 Fig.  
 Alarch – SL 2 var.  
 Alfard – SL 1-A; SL 3-A; SL 3-B var.  
 Alfaret – SL 2 var.  
 Alfart – Cap. 11 Fig.; SL 1 var.; SL 2 var.; SL 3-B  
 Alfarta – SL 2 var.  
 Alfarth – SL 1 var.  
 Alferam – SL 2 var.  
 Alferat – SL 2 var.  
 Alferaz<sup>25</sup> – Cap. 11 Fig.; SL 2 var.  
 Alferit – SL 2 var.  
 Alfert – Cap. 11 Fig.  
 Alfrad – SL 1-A var.  
 Alfrat – Cap. 11 Fig.; SL 2 var.  
 Alpharat – Cap. 11 Fig.  
 Alpharth – SL 2 var.  
 Arfart – SL 1 var.

Bibliography: Kunitzsch, *Sternnamen* 76, 130-131; idem, *Typen*, pp. 55 (VIII-19) and 42 (VI-20).

**$\alpha$  Leo** [10<sup>h</sup> 08<sup>m</sup>] [+11° 58']

$\alpha$  Leonis / Regulus

Arabic: qalb al-asad / قلب الاسد / “heart of the lion”

<sup>24</sup> Sometimes styled “horse”, i.e., Pegasus from a confusion with the Arabic for horse *al-faras* (فرس).

<sup>25</sup> “Alferaz” normally refers to  $\beta$  Peg (q.v.). Kunitzsch, *Typen*, pp. 48, 56.

Latin: Cor Leonis

Cor Leonis – Cap. 11 Fig.; SL 1-A; SL 3-B

Leo – Cap. 11 Fig.

*from the Arabic*

Albalezed – SL 2 var.

Cabalezed – SL 1

Cabeleret – SL 1 var.

Calbalacer – SL 3-B var.

Calbalacet – SL 3-A

Calbalazed – SL 2 var.

Calbalezath – SL 1 var.

Calbalezeb – SL 2 var.

Calbalezed – SL 1 var.; SL 2

Calbalezet – SL 1 var.; SL 2 var.

Calbalezeth – SL 1 var.; SL 2 var.

Calbalized – SL 2 var.

Calbalzed – SL 2 var.

Calbeleleret – SL 1 var.

Calbelezed – SL 2 var.

Calbezed – SL 2 var.

Casbeteced – SL 1-A var.

Colbalerech – SL 1 var.

Kalbalezech – SL 1 var.

Kalbalezet – SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 168-160; idem, *Typen*, pp. 55 (VIII-20), 28 (III-23) and 42 (VI-21).

**β Leo** [11<sup>h</sup> 49<sup>m</sup>] [+14° 34']

β Leonis / Denebola

Arabic: *ḍanab al-asad* / ذنب الاسد / “tail of the lion”

Latin: Cauda Leonis / “tail of the lion”

Cau’ – Cap. 11 Fig.

Caud’ – Cap. 11 Fig.

Cauda – Cap. 11 Fig.; SL 1-A

Cauda Leonis – Cap. 11 Fig.; SL 1-A var.

Tauda – SL 1-A var.

*from the Arabic*

Benbalezed – SL 2 var.

Benbalezet – SL 2 var.

Benebalezed – SL 2 var.

Denabalezet – SL 1 var.

Denebakeyzech – SL 1 var.

Denebalazed – SL 1 var.

Denebalered – SL 2 var.

Denebalezed – SL 1; SL 2  
 Denebalezet – SL 2 var.  
 Denebalozed – SL 2 var.  
 Denebazeleth – SL 1 var.  
 Denebolezad – SL 1 var.  
 Deneb[illeg.]zed – SL 1 var.  
 Deuebalezech – SL 1 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 77-78, 157; idem, *Typen*, pp. 55 (VIII-24) and 42 (VI-22).

**$\alpha$  Lyr** [18<sup>h</sup> 37<sup>m</sup>] [+38° 47']

$\alpha$  Lyrae / Wega, Vega

Arabic : al-nasr al-wāqī<sup>c</sup> / النسر الواقع / “the falling [or alighting] eagle”

Latin: Vultur Cadens / “the Falling Vulture”

Vultur Cadens – Cap. 11 Fig.

*from the Arabic*

Albega – SL 2 var.  
 Alguega – SL 2 var.  
 Alimega – SL 2 var.  
 Aliwega – SL 2 var.  
 Almega – SL 2 var.  
 Almiega – SL 2 var.  
 Almigea – SL 2 var.  
 Almuga – SL 2 var.  
 Alumeга – SL 2 var.  
 Aluuega – SL 2 var.  
 Alvega – SL 2 var.  
 Alwega – SL 2  
 Mega – SL 3-B var.  
 Segа – SL 1 var.  
 Vega – Cap. 11 Fig.; SL 1-A; SL 3-A; SL 3-B var.  
 Vege – SL 3-B var.  
 Vnega – SL 1 var.  
 Voora – Cap. 11 Fig.  
 Vuega – Cap. 11 Fig.; SL 1 var.; SL 3-A var.  
 Vuego – SL 1 var.  
 We – Cap. 11 Fig.  
 Wega – Cap. 11 Fig.; SL 1; SL 1-A var.; SL 3-A var.; SL 3-B  
 Wzega – SL 1-A var.

Bibliography: Kunitzsch, *Sternnamen*: pp. 81, 218; idem, *Typen*, pp. 55 (VIII-35), 28 (III-9) and 43 (VI-32).

**α Oph** [17<sup>h</sup> 35<sup>m</sup>] [+12° 34']

α Ophiuchi / Rasalhague (*or* Ras Alhague), a.k.a. Capud Draconis

Arabic: ra's al-ḥawwā' / رأس الحواء / "head of the serpent collector/snake charmer [= Ophiuchus]"

Latin: *from the arabic*

Ahaue – Cap. 11 Fig.

Alaue – Cap. 11 Fig.

Alchaue – SL 1 var.

Alchauni – SL 3-B var.

Alha – Cap. 11 Fig.

Alhaḅ – Cap. 11 Fig.

Alhaimi – SL 3-A var.

Alhane – Cap. 11 Fig.; SL 1 var.; SL 1-A var.; SL 3-B var.

Alhant – SL 1 var.

Alhanun – SL 3-A var.

Alharic – SL 1 var.

Alhau~ – Cap. 11 Fig.

Alhaue – Cap. 11 Fig.; SL 1; SL 1-A; SL 3-B

Alhaum – SL 3-A var.; SL 3-B var.

Alhaun – SL 3-B var.

Alhauni – SL 3-A; SL 3-B var.

Alhauue – SL 1-A var.

Allahinn – SL 3-A var.

Halhane – SL 3-A var.

Nazalague – SL 2 var.

Rasalugue – SL 2 var.

Rathalague – SL 2 var.

Razalage – SL 1 var.

Razalague – SL 2 var.

Razalee – SL 1 var.

Razalege – SL 2 var.

Razalegile – SL 2 var.

Razalegne – SL 1 var.; SL 2 var.

Razalegua – SL 1 var.

Razalague – SL 1 var.; SL 2

Razaleuge – SL 2 var.

Razehgue – SL 2 var.

Razelegue – SL 1 var.

Razelgeuza – SL 2 var.

Sagita alh<sup>au</sup> – SL 3-B var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 81, 196-197; idem, *Typen*, pp. 55 (VIII-33), 28 (III-3) and 43 (VI-30).

**δ Oph**<sup>26</sup> [16<sup>h</sup> 14<sup>m</sup>] [-03° 42']

δ Ophiuchi / Yed

Arabic: *yad* / يد / “the hand [of the serpent collector/Ophiuchus]”Latin: *from the Arabic*

Bed – Cap. 11. Fig.

Ged – Cap. 11 Fig.

Jed – Cap. 11 Fig.

Yeb – SL 1-A var.

Yed – Cap. 11 Fig.; SL 1; SL 1-A

Yel – Cap. 11 Fig.

Yes – SL 1 var.

Yet – SL 1 var.

Uda – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 80, 219; idem, *Typen*, pp. 55 (VIII-31) and 43 (VI-28).**α Ori** [05<sup>h</sup> 55<sup>m</sup>] [+07° 24']

α Orionis / Betelgeuse

Arabic: *yad al-Jawzā'* / يد الجوزاء / “hand of al-Jawzā' [i.e., Orion]”sometimes *mankib al-Jawzā'* / منكب الجوزاء / “shoulder of al-Jawzā'”Latin: *Humerus Geminorum*<sup>27</sup> / “shoulder of Orion”*Humerus Geminorum* – Cap. 11 Fig.*from the Arabic*

Algege – Cap. 11 Fig.

Algeme – SL 3-A var.; SL 3-B var.

Algemec – SL 3-B var.

Algemen – SL 3-A var.

Algen – Cap. 11 Fig.

Algenie – SL 3-B var.

Algensasa – Cap. 11 Fig.

Algenie – SL 3-A

Algen<sup>se</sup> – SL 3-B var.

Algente – Cap. 11 Fig.; SL 1 var.

Algenza – Cap. 11 Fig.

Algenze – SL 1 var.; SL 1-A var.

Algere – Cap. 11 Fig.

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<sup>26</sup> δ Oph is a naked eye optical double with ε Oph; the former is known as Yed Prior and the latter as Yed Posterior.

<sup>27</sup> “Geminorum” here is a translation of “al-jawzā'”, the Arabic name for Orion, and for the zodiacal sign of Gemini. [PK]

Algeu – Cap. 11 Fig.  
 Algeusa – Cap. 11 Fig.  
 Algeuse – SL 1 var.  
 Algeuze – Cap. 11 Fig.; SL 1; SL 1-A; SL 3-B  
 Algome – SL 3-A var.; SL 3-B var.  
 Algonine<sup>e</sup> – SL 3-B var.  
 Algraza – Cap. 11 Fig.  
 Bedegenza – SL 2 var.  
 Bedegeuze – SL 2 var.  
 Bedel – Cap. 11 Fig.  
 Bedelgeiza – SL 2 var.  
 Bedelgenze – SL 2 var.  
 Bedelgeuze – SL 2  
 Bedengelse – SL 2 var.  
 Beldegense – SL 2 var.  
 Beldegeuze – SL 2 var.  
 Beldergenze – SL 2 var.  
 Beldezgeuze – SL 2 var.  
 Betelgeuze – SL 2 var.  
 Elgeuse – SL 1 var.  
 Elgeuze – Cap. 11 Fig.; SL 1-A var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 72, 150-151; idem, *Typen*, pp. 55 (VIII-12), 28 (III-20) and 42 (VI-13).

### **β Ori** [05<sup>h</sup> 15<sup>m</sup>] [-08° 12']

β Orionis / Rigel

Arabic: rijl / رجل / “the foot [of al-Jawzā’ = Orion]”

Latin: Pes Geminorum<sup>28</sup> / “the foot of Orion”

Pes Geminorum – Cap. 11 Fig.

*from the Arabic*

Bagel – Cap. 11 Fig.

Ragal – SL 3-A var.

Ragel – SL 3-B var.

Regilal – Cap. 11 Fig.

Richel – SL 1 var.

Rigel – Cap. 11 Fig.; SL 1 var.; SL 2 var.; SL 3-A; SL 3-B var.

Rigial – SL 1 var.

Rigib – Cap. 11 Fig.

Rigil – Cap. 11 Fig.; SL 1; SL 1-A; SL 2; SL 3-B

Rigli – Cap. 11 Fig.

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<sup>28</sup> “Geminorum” here is a translation of “al-jawzā’,” the Arabic name for Orion, and for the zodiacal sign of Gemini. [PK]

Rygel – SL 1 var.  
 Rygyl – SL 2 var.  
 Rygyl – SL 1 var.  
 R~ algebre – SL 2 var.  
 R~ algenze – SL 2 var.  
 R~ algoeze – SL 2 var.  
 R~ algeute – SL 2 var.  
 R~ algeuze – SL 2  
 R~ algreze – SL 2 var.  
 R~ allgeuze – SL 2 var.  
 R~ fulgentis – SL 2 var.  
 Alhaiot<sup>29</sup> – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 70-71, 198; idem, *Typen*, pp. 55 (VIII-11), 28 (III-15) and 41 (VI-11).

### $\beta$ Peg [23<sup>h</sup> 04<sup>m</sup>] [+28° 05']

**Note:** at some point this star became duplicated with two different names. While they have more or less the same right ascension, they have quite distinct declinations when plotted on the rete diagrams.<sup>30</sup>

$\beta$  Pegasi (1) / Markab

Latin: Humerus equi / “shoulder of the horse”

Equi – Cap. 11 Fig.  
 Equi humerus – Cap. 11 Fig.  
 Humerus equi – Cap. 11 Fig.; SL 1-A; SL 3-A; SL 3-B  
 Humerus equi alati – SL 1 var.

*from the Arabic*

Menachil – SL 1 var.  
 Menchel – SL 1 var.  
 Menthel – SL 1 var.  
 Mentichel – SL 1  
 Mentichil – SL 1 var.

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<sup>29</sup> Misnamed: Alhaiot ( $\alpha$  Aurigae/Capella/Alhaioth) has a declination of about +45°, while the pointer in M $\eta$  is about -10°.

<sup>30</sup> At some point in the 15<sup>th</sup> century, John of Gmunden (or his associates in Vienna) introduced into Europe an erroneous description and naming of the two stars,  $\alpha$  Peg and  $\beta$  Peg. The name *scheat* (modern: Scheat), meaning *crus* ([lower] leg, shank) of  $\delta$  Aqr (i.e., the shank/shin of Aquarius) was erroneously transferred to  $\beta$  Peg, which thus became “Scheat Alferaz id est crus equi”; and  $\alpha$  Peg became “Markab Alferaz id est humerus equi” (and these wrongly applied names continued to be used up to today, i.e., Scheat for  $\beta$  Peg and Markab for  $\alpha$  Peg). [PK] See Paul Kunitzsch, “Sterntabellen bei Johannes von Gmunden und ihre Nachwirkung,” in *Johannes von Gmunden (ca. 1384-1442), Astronom und Mathematiker*, ed. Rudolf Simek and Kathrin Chlench, *Studia Mediaevalia Septentrionalia* 12 (Vienna: Fassbaender, 2006), pp. 91-103.

Mentichyl – SL 1 var.

Mentithil – SL 1 var.

Bibliography: Kunitzsch, *Typen*, p. 56 (VIII-47) and p. 43 (VI-39); Kunitzsch, *Sternnamen*, pp. 84, 176-177; Paul Kunitzsch, “The Star Catalogue Commonly Appended to the Alfonsine Tables”, *Journal for the History of Astronomy*, 17 (1986), 89-98; rpr. *The Arabs and the Stars* (1989), text XXII; see p. 94.

β Pegasi (2) / Alferaz

Arabic: mankib al-faras / منكب الفرس / “shoulder of the horse”

Latin: Crus Equi<sup>31</sup> [shin of the horse]

Crupa Equi – Cap. 11 Fig.

Crpua Et'i – Cap. 11 Fig.

*from the Arabic*

Alf – Cap. 11 Fig.

Alfam – Cap. 11 Fig.

Alfan – Cap. 11 Fig.

Alfas – Cap. 11 Fig.

Alfat – SL 1 var.

Alfayaz – SL 2 var.

Alfaz – Cap. 11 Fig.

Alfaz~ – SL 1 var.

Alferach – SL 1 var.

Alferam – Cap. 11 Fig.; SL 1 var.

Alferan – SL 1 var.; SL 2 var.

Alferas – SL 1-A var.

Alferaz – Cap. 11 Fig.; SL 1; SL 1-A; SL 2; SL 3-A var.; SL 3-B

Alfos? – Cap. 11 Fig.

Alnicelfans – SL 2 var.

Alpharaz – SL 2 var.

Alpheraz – SL 2 var.; SL 3-A

Elfa' – Cap. 11 Fig.

Elfa's – Cap. 11 Fig.

Elferaz – SL 2 var.

Halferaz – SL 3-A var.

A~ mentel – SL 2 var.

A~ 3echel – SL 2 var.

A~ menkeb – SL 2 var.

A~ menthel – SL 2 var.

A~ methel – SL 2 var.

Bibliography: Kunitzsch, *Typen*, p. 56 (VIII-46) and p. 28 (III-6); Kunitzsch, *Sternnamen*, pp. 85-87, 203-204; Kunitzsch, “The Star Catalogue Commonly Appended to the Alfonsine Tables”, p. 94.

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<sup>31</sup> See previous note. “Crupa equi” is probably a corruption of “Cru[s] Pe[gasi] equi.” [PK]

ε Peg [21<sup>h</sup> 44<sup>m</sup>] [+09° 53']

ε Pegasi / Enif<sup>32</sup>

Arabic: anf / انف / “nose [of Pegasus]”

anf al-faras / انف الفرس / “nose of the horse”

Latin: Musida<sup>33</sup> equi / “muzzle of the horse”

Am equi – SL 1-A var.

Musid' eq' – Cap. 11 Fig.

Musida equi – Cap. 11 Fig.; SL 1-A

*from the Arabic*

Alfeferaz – SL 2 var.

Cmfelferaz – SL 1 var.

Emfalferaz – SL 1 var.

Emfalferam – SL 2 var.

Emfelferaz – SL 1 var.; SL 2 var.

Emfelfyn – SL 2 var.

Emphalferaz – SL 1 var.; SL 2 var.

Emphalpheloz – SL 2 var.

Emphelferaz – SL 2 var.

Emphelperaz – SL 2 var.

Enfalferaz – SL 1 var.; SL 2 var.

Enfelfora – SL 1 var.

Enifalfa – Cap. 11 Fig.

Enifalfar – SL 1 var.

Enifalfat – SL 1 var.

Enifalfaz – Cap. 11 Fig.

Enifasfaz – SL 1 var.

Enifelfarin – SL 1 var.

Enifelfaz – SL 1 var.

Enifelferaz – SL 1 var.; SL 2

Enipapheraz – SL 2 var.

Eniphafeiraz – SL 2 var.

Eniphalferaz – SL 2 var.

Eniphalpheraz – SL 2 var.

Eniphelferaz – SL 2 var.

Eniphelperaz – SL 2 var.

Epelferam – SL 2 var.

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<sup>32</sup> See also α Ari.

<sup>33</sup> From *musis*, *musum*, “muzzle” (Niermeyer). ε Peg stands in Ptolemy’s star catalogue in the *Almagest* on the πύγχοσ of Pegasus, i.e., “the muzzle”. The Arabic translations render that as *jahfala* (“lip [of a horse]”), which in turn was translated into Latin by Gerard of Cremona as *mus(c)ida*. This is the term that also appears here. *Anf* (“nose”) has so far not yet been spotted in an Arabic text; it seems to have been introduced by star table VI-37 and from there spread into other texts (as in star table VIII-43). [PK]

Semphephezaz – SL 2 var.

Semphepharaz – SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 83, 162-163; idem, *Typen*, pp. 56 (VIII-43), 58 and 43 (VI-37).

**α Per** [03<sup>h</sup> 24<sup>m</sup>] [+49° 52']

α Persei / Algenib (also known as Mirfak, “elbow”)

Arabic: al-janb / الجنب / “flank”, “side” [of Perseus]

Latin: frons Algonis<sup>34</sup>

*from the Arabic*

Alban(?) – Cap. 11 Fig.

Alg~ – Cap. 11 Fig.

Algeb – SL 1 var.

Algebim<sup>ym</sup> – SL 2 var.

Algebin – SL 2 var.

Algebuni – SL 2 var.

Algebunin – SL 2 var.

Algebunym – SL 2 var.

Algebunyn – SL 2 var.

Algen – SL 3-A var.

Algeneb – SL 1-A, var.

Algenib – Cap. 11 Fig.; SL 1; SL 1-A; SL 2

Algenip – SL 2 var.

Algenub – Cap. 11 Fig.

Algerab – SL 1 var.

Algo~ – Cap. 11 Fig.

Algon – Cap. 11 Fig.; SL 1 var.; SL 1-A var.; SL 3-A; SL 3-B

Algonib – SL 1 var.

Algonue(?) – Cap. 11 Fig.

Augenib – SL 1 var.

Algeuu' – SL 2 var.

Caput Algon – Cap. 11 Fig.

Fron [= Frons Algonis?] – Cap. 11 Fig.

Longo – SL 3-B var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 69, 113-115; idem, *Typen*, pp. 55 (VIII-7: “algenib / frons algonis”) and 42 (VI-8).

**β Per** [03<sup>h</sup> 08<sup>m</sup>] [+40° 57']

β Persi / Algol

Arabic: ra's al-gūl / رأس الغول / “head of the ghou” [in the hand of Perseus]

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<sup>34</sup> Origin unknown; perhaps a contraction of “Algenib” or “Algonib”? Presumably it refers to Perseus.

Latin: *from the Arabic*

Algol – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen*, pp. 69, 115-116; idem, *Typen*, p. 28 (III-24).

**ο Pup** [07<sup>h</sup> 39<sup>m</sup>] [-26° 48']

ο Puppis / Markep

Arabic: markab / مركب / “ship”<sup>35</sup>

Latin: *from the Arabic*

Marchep – Cap. 11 Fig.; SL 1 var.

Markab – Cap. 11 Fig.

Marke~ – Cap. 11 Fig.

Markeb – Cap. 11 Fig.; SL 1-A

Markel – SL 1 var.

Markep – Cap. 11 Fig.; SL 1

Market – Cap. 11 Fig.

Merkep – Cap. 11 Fig.

Mikel – Cap. 11 Fig.

Bibliography: Kunitzsch, *Sternnamen* 74, 177-178 idem, *Typen*, pp. 55 (VIII-16) and 42 (VI-17).

**α Sco** [16<sup>h</sup> 29<sup>m</sup>] [-26° 26']

α Scorpii/Scorpionis / Antares

Arabic: qalb al-<sup>c</sup>aqrab / قلب العقرب / “the heart of the scorpion”

Latin: Cor Scorpii / “the heart of the scorpion”

Cor Leonis<sup>36</sup> – Cap. 11 Fig.

Cor Scorpii – Cap. 11 Fig.; SL 1-A var.

Cor Scorpionis – Cap. 11 Fig.; SL 1-A

*from the Arabic*

Cabalacrab – SL 2 var.

Cabalag<sup>a</sup> – SL 3-A var.

Cabalecrab – SL 2 var.

Calbalacab – SL 1 var.; SL 3-B

Calbalac<sup>a</sup>li – SL 2 var.

Calbalac<sup>b</sup> – SL 3-B var.

Calbalacrab – SL 1 var.; SL 2

Calbalacral – SL 1 var.

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<sup>35</sup> *Markab* is one of the Arabic names that so far have not been found spelled out in any Arabic text. It belongs to the group of Arabic names that were first used by the author of the Type VI star list who seems to have had access to Arabic material still unknown to us (cf. also ε Peg / Enif / Arabic: *anf*). [PK]

<sup>36</sup> An obvious scribal error.

Calbalag' – SL 3-B var.  
 Calbalag<sup>a</sup> – SL 3-A var.  
 Calbalag-b – SL 3-B var.  
 Calbalagra – SL 3-A; SL 3-B var.  
 Calbalagrab – SL 1 var.  
 Calbalag<sup>u</sup> – SL 3-B var.  
 Calbalantab – SL 3-B var.  
 Calbalat<sup>a</sup>b – SL 3-B var.  
 Calbala'th – SL 3-B var.  
 Calbalatrap – SL 1 var.  
 Calbalecrab – SL 2 var.  
 Calbaletrab – SL 2 var.  
 Calbalifb – SL 3-B var.  
 Calbazacrab – SL 2 var.  
 Calbolagar – SL 3-A var.  
 Calibacrab – SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, p. 169; idem, *Typen*, pp. 55 (VIII-32), 28 (III-4) and 43 (VI-29).

**β Sco** [16<sup>h</sup> 05<sup>m</sup>] [-19° 48']

β Scorpii/Scorpionis<sup>37</sup> / Graffias

Arabic: origin/meaning uncertain; possibly from al-iklīl / الاكليل ] “crown”

Latin: *from the Arabic*

Alachil – SL 1  
 Alachyl – SL 1 var.  
 Aladil – Cap. 11 Fig.  
 Alechl – SL 3-B var.  
 Alfadil – Cap. 11 Fig.  
 Alheba – SL 3-B var.  
 Alhelil – SL 3-B var.  
 Alielil – SL 3-A; SL 3-B var.  
 Alielis – SL 3-A var.; SL 3-B var.  
 Halhelil – SL 3-B  
 Halhellil – SL 3-B var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 80, 168; idem, *Typen*, pp. 55 (VIII-30).

**λ Sco** [17<sup>h</sup> 34<sup>m</sup>] [-37° 06']

λ Scorpii/Scorpionis

Latin: *Cauda Scorpionis* / “tail of the scorpion”

Cauda – Cap. 11 Fig

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<sup>37</sup> Now known to be a multiple-star system.

Cauda Scor[pionis] – Cap. 11 Fig.

Note: Identification probable; see Kunitzsch, *Typen*, pp. 79 (XII-38) and 82; 91 (XIII-30) and 93; 114 (XVII-33) and 115.

**$\alpha$  Tau** [04<sup>h</sup> 36<sup>m</sup>] [+16° 31']

$\alpha$  Tauri / Aldebaran

Arabic: al-dabarān / الدبران / “the follower” [of the Pleiades?]

Latin: Oculus Tauri / “eye of the bull/Taurus”

also Cor Tauri<sup>38</sup> / “heart of the bull/Taurus”

Cor Tauri – Cap. 10, ln. 18; Cap. 10, ln. 25; Cap. 10 Fig.; Cap. 11 Fig.

Cor Thauri – Cap. 10 Fig.

Oculus Tauri – Cap. 10, ln. 18 var; Cap. 10, ln. 25 var

*from the Arabic*

Aabaran – SL 2 var.

Abdebaran – SL 3-B var.

Abdrebran – SL 2 var.

Adebran – SL 3-B var.

Albedaran – SL 2 var.

Aldabaran – Cap. 10 Fig.

Ald'bař – SL 3-B var.

Aldeban – Cap. 11 Fig.

Aldebanar – Cap. 11 Fig.; SL 1-A var.

Aldebans – Cap. 11 Fig.

Aldebar' – SL 2 var.

Aldebaram – SL 1 var.; SL 2 var

Aldebaran – Cap. 10, ln. 18 var; Cap. 10 Fig.; Cap. 11 Fig.; Cap. 22 Fig. var; SL 1; SL 1-A.; SL 2; SL 3-A; SL 3-B

Aldebarant – SL 3-B var.

Aldebarim – SL 3-B var.

Aldeboran – Cap. 10, ln. 18 var

Aldenaran – SL 3-A var.

Aldevaram – SL 3-A var.

Altebarum – SL 2 var.

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<sup>38</sup>  $\alpha$  Tau is on the eye of the bull (according to Ptolemy), which is also how it is designated in the Greek name for the star. “Cor Tauri” is an incorrect development in Arabic astronomy; following the model of “Cor Scorpium” and “Cor Leonis” (the major stars in those constellations); the Arabs also called Aldebaran “Cor Tauri” to reflect its predominance in the constellation. But the constellation Taurus consists of a side view of only of the head and front part of the bull’s body, and  $\alpha$  Tau is definitely in the head and not in the body where the heart would be. [PK]

For Ptolemy, see Paul Kunitzsch, *Claudius Ptolomäus. Der Sternkatalog des Almagest. Die arabisch-mittelalterliche Tradition*, 3 vols. (Wiesbaden: Harrassowitz, 1986-1991).

Atabanar – Cap. 11 Fig.

Bibliography: , *Sternnamen*, pp. 70, 109-110; idem, *Typen*, pp. 55 (VIII-9), 28 (III-19) and 41 (VI-10).

**α UMa** [11<sup>h</sup> 04<sup>m</sup>] [+61° 45']

α Ursae Maioris / Dubhe

Arabic: al-dubb / الدب / “[the back of the Great] Bear”

Latin: *from the Arabic*

Dibhe – Cap. 11 Fig.

Dubhe – Cap. 11 Fig.; SL 1; SL 1-A; SL 2

Dulhe – SL 1 var.

Ednb – SL 1-A var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 77, 158-159; idem, *Typen*, pp. 55 (VIII-23) and 42 (VI-18).

**β UMa** [11<sup>h</sup> 02<sup>m</sup>] [+56° 23']

β Ursae Maioris / Merak, Mirak

Latin: Ursa<sup>39</sup>

Benenar<sup>40</sup> – Cap. 11 Fig.

Benenaz<sup>41</sup> – Cap. 11 Fig.

Egg(?) – Cap. 11 Fig.

Gel – Cap. 11 Fig.

Ur – Cap. 11 Fig.

Ursa – Cap. 11 Fig.

Veniutab<sup>42</sup> – Cap. 11 Fig.

**η UMa** [13<sup>h</sup> 48<sup>m</sup>] [+49° 19']

η Ursae Maioris / Alkaid, Benetnash

Arabic: qā'id banāt naʿš / قائد بنات نعش / “the leader of the daughters of the bier”

<sup>39</sup> It is difficult to ascertain which star in Ursa Maior is meant here, since “Ursa” could be any one of a number of stars (and the name is certainly used to label other stars in the astrolabe rete diagrams, e.g., stars in Libra). But given its position in Leo or Virgo, it is most likely that β UMa is meant here.

<sup>40</sup> Variant of Benetnasch (η UMa).

<sup>41</sup> Variant of Benetnasch (η UMa).

<sup>42</sup> Variant of Benetnasch (η UMa)? Kunitzsch recorded “venetuala” as a variant for η UMa (*Typen*, p. 29).

Latin: Ursa maior – Cap. 11 Fig.

*from the Arabic*

Becnenas – SL 1-A var.

Bemenaz – SL 1 var.

Bene – Cap. 11 Fig.

Bene~ – Cap. 11 Fig.

Beneñ – Cap. 11 Fig.

Benanaz – SL 3-B var.

Benenaz – Cap. 11 Fig.; SL 1 var.; SL 1-A var.; SL 2 var.; SL 3-A;  
SL 3-B var.

Benenah – SL 3-A var.

Benenaiz – SL 3-A var.

Benenas – SL 3-A var.

Benetnaz – SL 1-A var.

Beninenaz – SL 1 var.

Benmenaz – SL 1 var.

Bennax – SL 2 var.

Bennaz – Cap. 11 Fig.

Benne – Cap. 11 Fig.

Bennenar – SL 1 var.

Bennenas – SL 2

Bennenaz – SL 1; SL 1-A; SL 2 var.; SL 3-B

Bennenez SL 2 var.

Bennennas SL 2 var.

Beynemanz – SL 1 var.

Bunnenaz – SL 3-B var.

Denenaz – SL 3-B var.

Rebene – Cap. 11 Fig.

Siennemias – SL 2 var.

Sunmaz – SL 2 var.

Sunznaz – SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 78, 149-150; idem, *Typen*, pp. 55 (VIII-27), 28 (III-10) and 42 (VI-23).

**θ UMa** [09<sup>h</sup> 33<sup>m</sup>] [+51° 41']

θ Ursae Maioris

Arabic: al-rukba / الركبة / “the knee [of the Great Bear]”

Latin: Ursa – SL 1-A var.

*from the Arabic*

Affachaba – SL 1 var.

Alrubaba – SL 1 var.

Alrucaba – SL 1; SL 3-A; SL 3-B

Alruchaba – SL 1 var.

Alrucuba – SL 1 var.

Alrukaba – SL 1 var.; SL 3-B var.

Alrukalu – SL 1 var.

Altucaba – SL 1 var.

Arucaba – SL 3-B var.

Bibliography: Kunitzsch, *Typen*, pp. 55 (VIII-23), 28 (III-26), and 69 (XI-13).

ι UMa<sup>43</sup> [08<sup>h</sup> 59<sup>m</sup>] [+48° 03']

ι Ursae Maioris / Talitha (Borealis)

Arabic: *possibly* al-rijl / رِجْل / “the [hind] foot [of the Great Bear]”

Latin: *from the Arabic*

Eg<sup>e</sup>gez – SL 3-B var.

Eggregez – SL 3-B var.

Eggreguz – SL 1 var.

Egragez – SL 3-B var.

Egrogen[us] – Cap. 11 Fig.

Egreger – SL 1 var.

Egrees – SL 1 var.; SL 3-A var.; SL 3-B var.

Egregez – SL 1; SL 3-A; SL 3-B

Egrogot – SL 3-B var

Bibliography: Kunitzsch, *Typen*, pp. 55 (VIII-17) and 28 (III-27); idem, “Three Dubious Stars,” pp. 66-69.

α Vir [13<sup>h</sup> 25<sup>m</sup>] [-11° 10']

α Virginis / Azimech, Spica

Arabic: al-simāk al-<sup>c</sup>azal / السمّاك الاعزل / “the unarmed *simāk*”<sup>44</sup>

Latin: Spica [Virginis] / “[Virgo’s] ear of grain”

Spica<sup>45</sup> – Cap. 11 Fig.

*from the Arabic*

Alazel – Cap. 11 Fig.

Alchim[*illeg.*] – Cap. 11 Fig.

Alchim<sup>c</sup> – Cap. 11 Fig.

Alchimach – Cap. 10 Fig.

Alchimec – Cap. 11 Fig.; SL 1-A var.; SL 2 var.; SL 3-B var.

Alchimech – Cap. 10 Fig.; Cap. 11 Fig.; SL 1 var.; SL 1-A var.; SL 2 var.; SL 3-A var.;

<sup>43</sup> Paul Kunitzsch noted that in 1999 he changed his earlier view that Eggegez was μ UMa, and concluded that it was ι UMa instead. See his “Three Dubious Stars,” pp. 66-69.

<sup>44</sup> The identification of “simāk” and/or its etymology has escaped modern scholars.

<sup>45</sup> In Bε there are two pointers for α Vir, labeled Alchimeth and Spica; the latter appears to be a later addition.

## SL 3-B

Alchimedi – SL 2 var.  
 Alchimeh – SL 1 var.; SL 2 var.  
 Alchimet – Cap. 11 Fig.; SL 1 var.; SL 3-B var.  
 Alchimeth – Cap. 11 Fig.; SL 1; SL 1-A; SL 2; SL 3-A var.  
 Alchimoch – Cap. 11 Fig.  
 Alchiniech – SL 1 var.  
 Alchmeet – SL 2 var.  
 Alchymech – Cap. 11 Fig.; SL 1 var.; SL 2 var.  
 Alchymeth – SL 1 var.  
 Alcimehe – SL 3-A var.  
 Alcimeth – SL 2 var.  
 Alfumech – Cap. 11 Fig.  
 Alhimeh – Cap. 11 Fig.  
 Alhimeth – Cap. 11 Fig.  
 Alkimech – SL 3-B var.  
 Allumeth – Cap. 11 Fig.  
 Alramech<sup>46</sup> – Cap. 11 Fig.  
 Altamech – Cap. 11 Fig.  
 Althimec – Cap. 11 Fig.  
 Althimech – Cap. 10 Fig.  
 Altimeth – Cap. 11 Fig.; SL 3-A  
 Alutimech – Cap. 11 Fig.  
 Azimech – SL 2 var.  
 Azimet – SL 2 var.

Bibliography: Kunitzsch, *Sternnamen*, pp. 78, 146-147; idem, *Typen*, pp. 55 (VIII-26), 28 (III-12) and 42 (VI-25).

## UNIDENTIFIED

? In Cancer or Virgo: Algol' – Cap. 11 Fig.  
     Algon – Cap. 11 Fig.  
 ? In Libra: Denle – Cap. 11 Fig.  
 ? In Sagittarius: *illeg.* – Cap. 11 Fig.  
 ? In Aquarius: Pegasus – Cap. 11 Fig.  
 ? In Aquarius: Alhera – Cap. 11 Fig.  
 ? In Aquarius: *illeg.* – Cap. 11 Fig.  
 ? In Pices: Sichil – Cap. 11 Fig.  
     Slichil – Cap. 11 Fig.

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<sup>46</sup> It appears that the names for  $\alpha$  Vir/Alchimet and  $\alpha$  Boo/Alramech have been reversed in ms M $\eta$ .

## Aldiran/Aldiraan [Leo]

Kunitzsch suggested that this may be a duplication of  $\alpha$  Gem or a “ghost star” for  $\alpha$  Hyd. Aldiran is also the name used for  $\alpha$  Cep (q.v.).

Image: “in the forehead of the lion”

Variants:

Aldira – SL 3-B var.

Aldiraan – SL 3-A; SL 3-B var.

Aldiraau – SL 3-A var.

Aldirain – SL 3-B var.

Aldiram – SL 1 var.; SL 3-B var.

Aldiran – SL 1; SL 3-B

Aldirani – SL 3-B var.

Alduam – SL 1 var.

Aldyran – SL 1 var.

Bibliography: Kunitzsch, *Typen*, p. 57 (VIII-24); idem, “Three Dubious Stars,” pp. 63-66.

## INDEX OF VARIANTS

*Arabic based names*

Aabaran – $\alpha$ Tau	Alchairoch – $\alpha$ Aur	Aldiram – [Unidentified]
Abchair – $\alpha$ Aql	Alchair – $\alpha$ Aql	Aldiran – $\alpha$ Cep [Unidentified]
Abdebaran – $\alpha$ Tau	Alchaue – $\alpha$ Oph	Aldirani – [Unidentified]
Abdrebran – $\alpha$ Tau	Alchauni – $\alpha$ Oph	Aldria – $\alpha$ Cep
Abera – $\alpha$ Cep	Alchim[ <i>illeg.</i> ] – $\alpha$ Vir	Alduam – [Unidentified]
Abhena – $\alpha$ Cep	Alchim <sup>c</sup> – $\alpha$ Vir	Aldura – $\alpha$ Cep
Abhera – $\alpha$ Cep	Alchimec – $\alpha$ Vir	Aldyran – $\alpha$ Cep [Unidentified]
Addig~ – $\alpha$ Cyg	Alchimech – $\alpha$ Vir	Alechl – $\beta$ Sco
Addigega – $\alpha$ Cyg	Alchimedi – $\alpha$ Vir	Aleif – $\alpha$ Cyg
Addigege – $\alpha$ Cyg	Alchimeh – $\alpha$ Vir	Alf – $\beta$ Peg(2)
Addigge – $\alpha$ Cyg	Alchimet – $\alpha$ Boo, $\alpha$ Vir	Alf~ – $\alpha$ CrB, $\alpha$ Hya
Addygege – $\alpha$ Cyg	Alchimeth – $\alpha$ Vir	Alfa' – $\alpha$ CrB
Adebran – $\alpha$ Tau	Alchimoch – $\alpha$ Vir	Alfaca – $\alpha$ CrB
Adigege – $\alpha$ Cyg	Alchiniech – $\alpha$ Vir	Alfadil – $\beta$ Sco
Adiran – $\alpha$ Cep	Alchmeet – $\alpha$ Vir	Alfam – $\beta$ Peg(2)
Adria – $\alpha$ Cep	Alchymech – $\alpha$ Vir	Alfan – $\beta$ Peg(2)
Afeca – $\alpha$ CrB	Alchymeth – $\alpha$ Vir	Alfara – $\alpha$ Hya
Affachaba – $\theta$ UMa	Alcimehe – $\alpha$ Vir	Alfarad – $\alpha$ Hya
Agentenar – $\tau^2$ Eri	Alcimeth – $\alpha$ Vir	Alfarath – $\alpha$ Hya
Ahamath – $\alpha$ Boo	Alcramech – $\alpha$ Boo	Alfarch – $\alpha$ Hya
Ahaue – $\alpha$ Oph	Aldabaran – $\alpha$ Tau	Alfard – $\alpha$ Hya
Ahzera – $\alpha$ Cep	Ald'bař – $\alpha$ Tau	Alfart – $\alpha$ Hya
Al – $\alpha$ Aur, $\alpha$ Boo	Aldeban – $\alpha$ Tau	Alfarat – $\alpha$ Hya
Alabor – $\alpha$ CMa	Aldebanar – $\alpha$ Tau	Alfaret – $\alpha$ Hya
Alachil – $\beta$ Sco	Aldebans – $\alpha$ Tau	Alfarta – $\alpha$ Hya
Alachyl – $\beta$ Sco	Aldebar' – $\alpha$ Tau	Alfarth – $\alpha$ Hya
Aladil – $\beta$ Sco	Aldebaram – $\alpha$ Tau	Alfas – $\beta$ Peg(2)
Alaioth – $\alpha$ Aur	Aldebaran – $\alpha$ Tau	Alfat – $\beta$ Peg(2)
Alaue – $\alpha$ Oph	Aldebarant – $\alpha$ Tau	Alfayaz – $\beta$ Peg(2)
Alazel – $\alpha$ Vir	Aldebarim – $\alpha$ Tau	Alfaz – $\alpha$ CrB; $\beta$ Peg(2)
Albabor – $\alpha$ CMa	Aldeboran – $\alpha$ Tau	Alfaz~ – $\beta$ Peg(2)
Albaioth – $\alpha$ Aur	Aldenaran – $\alpha$ Tau	Alfe – $\alpha$ CrB
Albalezed – $\alpha$ Leo	Aldera – $\alpha$ Cep	Alfeca – $\alpha$ CrB
Alban(?) – $\alpha$ Per	Aldevaram – $\alpha$ Tau	Alfecas – $\alpha$ CrB
Albedaran – $\alpha$ Tau	Aldigege – $\alpha$ Cyg	Alfecha – $\alpha$ CrB
Albega – $\alpha$ Lyr.	Aldigene – $\alpha$ Cyg	Alfeferaz – $\epsilon$ Peg
Alborap corvus – $\gamma$ Crv(2)	Aldigoge – $\alpha$ Cyg	Alfeka – $\alpha$ CrB
Alcaioth – $\alpha$ Aur	Aldira – $\alpha$ Cep [Unidentified]	Alfera – $\alpha$ CrB
Alcair – $\alpha$ Aql	Aldiraan – [Unidentified]	Alferach – $\beta$ Peg(2)
Alcar – $\alpha$ Aql	Aldiraau – [Unidentified]	Alferam – $\alpha$ Hya; $\beta$ Peg(2)
Alcayr – $\alpha$ Aql	Aldirab – $\alpha$ Cep	Alferan – $\beta$ Peg(2)
Alchabor – $\alpha$ Cma	Aldirain – [Unidentified]	Alferas – $\beta$ Peg(2)

Alferat – $\alpha$ Hya	Algeteuan – $\tau^2$ Eri	Algraza – $\alpha$ Ori
Alferaz – $\alpha$ Hya; $\beta$ Peg(2)	Algethenar – $\tau^2$ Eri	Alguega – $\alpha$ Lyr
Alferit – $\alpha$ Hya	Algeu – $\alpha$ Ori	Algumeiza – $\alpha$ Cmi
Alfert – $\alpha$ Hya	Algeusa – $\alpha$ Ori	Algurab – $\gamma$ Crv(2)
Alfeta – $\alpha$ CrB	Algeuse – $\alpha$ Ori	Algurah – $\gamma$ Crv(2)
Alfetaha – $\alpha$ CrB	Algeute – $\beta$ Ori	Algurali – $\gamma$ Crv(2)
Alfita – $\alpha$ CrB	Algeuu' – $\alpha$ Per	Alh~ – $\alpha$ Aur
Alfrad – $\alpha$ Hya	Algeuze – $\alpha$ Ori; $\beta$ Ori	Alha – $\alpha$ Aur, $\alpha$ Oph
Alfrat – $\alpha$ Hya	Alglari – $\gamma$ Crv(2)	Alha $\emptyset$ – $\alpha$ Oph
Alfos? – $\beta$ Peg(2)	Alglor – $\gamma$ Crv(2)	Alhabez – $\alpha$ CMA
Alfumech – $\alpha$ Vir	Algo~ – $\alpha$ Per	Alhabor – $\alpha$ CMA
Alg~ – $\alpha$ Per	Algocina – $\alpha$ Cmi	Alhaboz – $\alpha$ CMA
Algabor – $\alpha$ CMA	Algociā – $\alpha$ CMi	Alhae – $\alpha$ Aur
Algamensa – $\alpha$ Cmi	Algoesa – $\alpha$ CMi	Alhaimi – $\alpha$ Oph
Algari – $\gamma$ Crv(2)	Algol – $\beta$ Per	Alhaioc – $\alpha$ Aur
Algeb – $\alpha$ Per	Algol' – [Unidentified]	Alhaioch – $\alpha$ Aur
Algebim <sup>ym</sup> – $\alpha$ Per	Algom~ – $\alpha$ CMi	Alhaioh – $\alpha$ Aur
Algebin – $\alpha$ Per	Algomaza – $\alpha$ CMi	Alhaios – $\alpha$ Aur
Algebre – $\beta$ Ori	Algome – $\alpha$ Ori	Alhaiot – $\alpha$ Aur, $\tau^2$ Eri, $\beta$ Ori
Algebuni – $\alpha$ Per	Algomeira – $\alpha$ CMi	Alhailoth – $\alpha$ Aur
Algebutin – $\alpha$ Per	Algomeisa – $\alpha$ CMi	Alhailoz – $\alpha$ CMA
Algebutyn – $\alpha$ Per	Algomeiza – $\alpha$ CMi	Alhaitoth – $\alpha$ Aur
Algege – $\alpha$ Ori	Algoquera – $\alpha$ CMi	Alhalach – $\alpha$ Aur
Algeme – $\alpha$ Ori	Algomerza B $\gamma$ – $\alpha$ CMi	Alhalot – $\alpha$ Aur
Algemec – $\alpha$ Ori	Algomeuza – $\alpha$ Cmi	Alhane – $\alpha$ Oph
Algemeu – $\alpha$ Ori	Algomeyra – $\alpha$ CMi	Alhant – $\alpha$ Oph
Algemeza – $\alpha$ CMi	Algomeysa – $\alpha$ CMi	Alhanun – $\alpha$ Oph
Algen – $\alpha$ Ori; $\alpha$ Per	Algomeyza – $\alpha$ CMi	Alharic – $\alpha$ Oph
Algenb – $\alpha$ Per	Algomeza – $\alpha$ CMi	Alharoch – $\alpha$ Aur
Algeneb – $\alpha$ Per	Algomezim – $\alpha$ CMi	Alharoth – $\alpha$ Aur
Algenib – $\alpha$ Per	Algomezun – $\alpha$ CMi	Alhau~ – $\alpha$ Oph
Algenie – $\alpha$ Ori	Algomiza – $\alpha$ CMi	Alhaue – $\alpha$ Oph
Algenip – $\alpha$ Cet; $\alpha$ Per	Algomzi – $\alpha$ CMi	Alhaum – $\alpha$ Oph
Algensasa – $\alpha$ Ori	Algon – $\alpha$ Per; [Unidentified]	Alhaun – $\alpha$ Oph
Algente – $\alpha$ Ori	Algonib – $\alpha$ Per	Alhauni – $\alpha$ Oph
Algenub – $\alpha$ Per	Algonine <sup>e</sup> – $\alpha$ Ori	Alhaut – $\alpha$ Aur
Algenza – $\alpha$ Ori; $\beta$ Ori	Algoniza – $\alpha$ CMi	Alhauue – $\alpha$ Oph
Algenze – $\alpha$ Ori	Algonue(?) – $\alpha$ Per	Alhaye – $\alpha$ Aur
Algeoze – $\beta$ Ori	Algor~ – $\gamma$ Crv(2)	Alhayeth – $\alpha$ Aur
Algerab – $\alpha$ Per	Algorab – $\gamma$ Crv(2)	Alhayot – $\alpha$ Aur
Algere – $\alpha$ Ori	Algorab cori – $\gamma$ Crv(2)	Alhayoth – $\alpha$ Aur
Algetenar – $\tau^2$ Eri	Algorab corvus – $\gamma$ Crv(2)	Alheba – $\beta$ Sco
Algetenei – $\tau^2$ Eri	Algoraba corvus – $\gamma$ Crv(2)	Alhelil – $\beta$ Sco
Algetenir – $\tau^2$ Eri	Algorach – $\gamma$ Crv(2)	Alhenot – $\alpha$ Aur
Algetenor – $\tau^2$ Eri	Algotian – $\alpha$ CMi	Alhera – $\alpha$ Cep
	Algoumeiza – $\alpha$ CMi	Alheriot – $\alpha$ Aur

Alhimeh – $\alpha$ Vir	Alrubaba – $\theta$ UMa	Augenenar – $\tau^2$ Eri
Alhimet – $\alpha$ Boo	Alruchaba – $\theta$ UMa	Augenib – $\alpha$ Per
Alhimeth – $\alpha$ Vir	Alrucaba – $\theta$ UMa	Augerenax – $\tau^2$ Eri
Alielil – $\beta$ Sco	Alrucuba – $\theta$ UMa	Augetanar – $\tau^2$ Eri
Alielis – $\beta$ Sco	Alrukaba – $\theta$ UMa	Augetena – $\tau^2$ Eri
Alimega – $\alpha$ Lyr	Alrukalu – $\theta$ UMa	Augetenar – $\tau^2$ Eri
Aliwega – $\alpha$ Lyr	Alsehere – $\alpha$ CMi	Augetonar – $\tau^2$ Eri
Alkair – $\alpha$ Aql	Alta – $\alpha$ Aql	Auguthanar – $\tau^2$ Eri
Alkaiot – $\alpha$ Aur	Althahir – $\alpha$ Aql	Azerikar – $\alpha$ Cet
Alkimech – $\alpha$ Vir	Altaich – $\alpha$ Aql	Azimech – $\alpha$ Vir
Allahinn – $\alpha$ Oph	Altair – $\alpha$ Aql	Azimet – $\alpha$ Vir
Allgeuze – $\beta$ Ori	Altaire – $\alpha$ Aql	
Allumeth – $\alpha$ Vir	Altam – $\alpha$ Aql	Bacencaytoz – $\zeta$ Cet(1)
Alm – $\alpha$ Boo	Altamech – $\alpha$ Vir	Bachenkaytoz – $\zeta$ Cet(1)
Almega – $\alpha$ Lyr	Altani – $\alpha$ Aql	Bagel – $\beta$ Ori
Almiega – $\alpha$ Lyr	Altar – $\alpha$ Aql	Balzangense – $\alpha$ Gem
Almigea – $\alpha$ Lyr	Altayir – $\alpha$ Aql	Bantheukaitos – $\zeta$ Cet(1)
Almuga – $\alpha$ Lyr	Altayr – $\alpha$ Aql	Baratenkaytoz – $\zeta$ Cet(1)
Alnicelfans – $\beta$ Peg(2)	Altebarum – $\alpha$ Tau	Bataikaitos – $\zeta$ Cet(1)
Alpharat – $\alpha$ Hya	Althaioth – $\alpha$ Aur	Batecay~ – $\zeta$ Cet(1)
Alpharaz – $\beta$ Peg(2)	Althair – $\alpha$ Aql	Batekaytoz – $\zeta$ Cet(1)
Alpharth – $\alpha$ Hya	Altha – $\alpha$ Aql	Batencathos – $\zeta$ Cet(1)
Alpheca – $\alpha$ CrB	Althar – $\alpha$ Aql	Batencaytoz – $\zeta$ Cet(1)
Alphefacta – $\alpha$ CrB	Althau – $\alpha$ Aql	Batenk' – $\zeta$ Cet(1)
Alpheraz – $\beta$ Peg(2)	Althayr – $\alpha$ Aql	Batenkaatoz – $\zeta$ Cet(1)
Alpheta – $\alpha$ CrB	Althimec – $\alpha$ Vir	Batenkaihos – $\zeta$ Cet(1)
Alr – $\alpha$ Boo	Althimech – $\alpha$ Vir	Batenkaitoz – $\zeta$ Cet(1)
Alř – $\alpha$ Boo	Altimeth – $\alpha$ Vir	Batenkartoz – $\zeta$ Cet(1)
Alra – $\alpha$ Boo	Altucaba – $\theta$ UMa	Batenkatoz – $\zeta$ Cet(1)
Alra' – $\alpha$ Boo	Alumega – $\alpha$ Lyr	Batenkautos – $\zeta$ Cet(1)
Alram' – $\alpha$ Boo	Aluuega – $\alpha$ Lyr	Batenkaytar – $\zeta$ Cet(1)
Alramch – $\alpha$ Boo	Alutimech – $\alpha$ Vir	Batenkayton – $\zeta$ Cet(1)
Alramco – $\alpha$ Boo	Alvega – $\alpha$ Lyr	Batenkaytor – $\zeta$ Cet(1)
Alrame' – $\alpha$ Boo	Alwega – $\alpha$ Lyr	Batenkaytoz – $\zeta$ Cet(1)
Alramech – $\alpha$ Boo, $\alpha$ Vir	Alyif – $\alpha$ Cyg	Bathebiro – $\zeta$ Cet(1)
Alrameh – $\alpha$ Boo	Angetenar – $\tau^2$ Eri	Bathekaidoz – $\zeta$ Cet(1)
Alrameht – $\alpha$ Boo	Aramec – $\alpha$ Boo	Bathekardoz – $\zeta$ Cet(1)
Alramek – $\alpha$ Boo	Aramech – $\alpha$ Boo	Bathenaytoz – $\zeta$ Cet(1)
Alramer – $\alpha$ Boo	Arameth – $\alpha$ Boo	Bathenk' – $\zeta$ Cet(1)
Alramet – $\alpha$ Boo	Arfart – $\alpha$ Hya	Bathenkaitoz – $\zeta$ Cet(1)
Alrameth – $\alpha$ Boo	Arucaba – $\theta$ UMa	Bathenkaythos – $\zeta$ Cet(1)
Alramich – $\alpha$ Boo	Astif – $\alpha$ Cyg	Bathenkaythoz – $\zeta$ Cet(1)
Alranech – $\alpha$ Boo	Atabanar – $\alpha$ Tau	Bathenkayto~ – $\zeta$ Cet(1)
Alrb' – $\alpha$ Boo	Augea – $\tau^2$ Eri	Bathenkaytoz – $\zeta$ Cet(1)
Alremech – $\alpha$ Boo	Augekanar – $\tau^2$ Eri	Batsaben – $\gamma$ Dra
Alrif – $\alpha$ Cyg	Augekauar – $\tau^2$ Eri	Bazalgenze – $\alpha$ Gem

Bazalgeuze – $\alpha$ Gem	Cabalacrab – $\alpha$ Sco	Dea? – $\alpha$ Cyg
Bazelgeuze – $\alpha$ Gem	Cabalag <sup>a</sup> – $\alpha$ Sco	Debnecaitoz – $\beta$ Cet
Bazilgeuse – $\alpha$ Gem	Cabalecrab – $\alpha$ Sco	Den – $\alpha$ Cyg
Baztaben – $\gamma$ Dra	Cabalezed – $\alpha$ Leo	Dena/Deta Alhaiet – $\alpha$ Cyg
Beastaben – $\gamma$ Dra	Cabeleret – $\alpha$ Leo	Denabalezt – $\beta$ Leo
Becnenas – $\eta$ Uma	Calbalacab – $\alpha$ Sco	Dene – $\alpha$ Cyg
Bed – $\delta$ Oph	Calbalac <sup>a</sup> li – $\alpha$ Sco	Deneb – $\alpha$ Cyg, $\beta$ Cet
Bedegenza – $\alpha$ Ori	Calbalac <sup>b</sup> – $\alpha$ Sco	Deneba – $\delta$ Cap
Bedegeuze – $\alpha$ Ori	Calbalacer – $\alpha$ Leo	Denebagedi – $\delta$ Cap
Bedel – $\alpha$ Ori	Calbalacet – $\alpha$ Leo	Denebakeyzech – $\beta$ Leo
Bedelgeiza – $\alpha$ Ori	Calbalacrab – $\alpha$ Sco	Denebalazed – $\beta$ Leo
Bedelgenze – $\alpha$ Ori	Calbalacral – $\alpha$ Sco	Denebaldegi – $\delta$ Cap
Bedelgeuze – $\alpha$ Ori	Calbalag <sup>c</sup> – $\alpha$ Sco	Denebalered – $\beta$ Leo
Bedengelse – $\alpha$ Ori	Calbalag <sup>a</sup> – $\alpha$ Sco	Denebalezed – $\beta$ Leo
Beldegense – $\alpha$ Ori	Calbalag-b – $\alpha$ Sco	Denebalezet – $\beta$ Leo
Beldegeuze – $\alpha$ Ori	Calbalagra – $\alpha$ Sco	Denebalg~ – $\delta$ Cap
Beldergenze – $\alpha$ Ori	Calbalagrab – $\alpha$ Sco	Denebalgadi – $\delta$ Cap
Beldezgeuze – $\alpha$ Ori	Calbalag <sup>u</sup> – $\alpha$ Sco	Denebalgeda – $\delta$ Cap
Bemenaz – $\eta$ UMa	Cabalantab – $\alpha$ Sco	Denebalgedi – $\delta$ Cap
Benanaz – $\eta$ UMa	Calbalat <sup>a</sup> b – $\alpha$ Sco	Denebalgedy – $\delta$ Cap
Benbalezed – $\beta$ Leo	Calbala <sup>c</sup> th – $\alpha$ Sco	Denebalgodi – $\delta$ Cap
Benbalezet – $\beta$ Leo	Calbalatrap – $\alpha$ Sco	Denebalgydi – $\delta$ Cap
Bene – $\eta$ UMa	Calbalazed – $\alpha$ Leo	Denebaligedi – $\delta$ Cap
Bene~ – $\eta$ UMa	Calbalecrab – $\alpha$ Sco	Denebalozed – $\beta$ Leo
Benebalezed – $\beta$ Leo	Calbaletrab – $\alpha$ Sco	Denebazeleth – $\beta$ Leo
Beneñ – $\eta$ UMa	Calbalezath – $\alpha$ Leo	Denebcaithoz – $\beta$ Cet
Benenaiz – $\eta$ UMa	Calbalezeb – $\alpha$ Leo	Denebcaitoz – $\beta$ Cet
Benenar – $\beta$ UMa	Calbalezed – $\alpha$ Leo	Denebcaycoz – $\beta$ Cet
Benenas – $\eta$ UMa	Calbalezet – $\alpha$ Leo	Denebcaydoz – $\beta$ Cet
Benenaz – $\beta$ UMa, $\eta$ UMa	Calbalezeth – $\alpha$ Leo	Denebcaythos – $\beta$ Cet
Benepcautoz – $\beta$ Cet	Calbalifb – $\alpha$ Sco	Denebcayton – $\beta$ Cet
Benetnaz – $\eta$ UMa	Calbalized – $\alpha$ Leo	Denebcaytos – $\beta$ Cet
Beninenaz – $\eta$ UMa	Calbalzed – $\alpha$ Leo	Denebcaytoz – $\beta$ Cet
Benmenaz – $\eta$ UMa	Calbazacrab – $\alpha$ Sco	Denebfaytoz – $\beta$ Cet
Bennax – $\eta$ UMa	Calbeleleret – $\alpha$ Leo	Denebizaitoz – $\beta$ Cet
Bennaz – $\eta$ UMa	Calbelezed – $\alpha$ Leo	Denebkaicoz – $\beta$ Cet
Benne – $\eta$ UMa	Calbezed – $\alpha$ Leo	Denebkaim – $\beta$ Cet
Bennenar – $\eta$ UMa	Calbolagar – $\alpha$ Sco	Denebkaitos – $\beta$ Cet
Bennenaz – $\eta$ UMa	Calibacrab – $\alpha$ Sco	Denebkaitos – $\beta$ Cet
Bennenez – $\eta$ UMa	Casbeteced – $\alpha$ Leo	Denebkaiton – $\beta$ Cet
Bennennas – $\eta$ UMa	Cenok – $\delta$ Aqr	Denebkaitos – $\beta$ Cet
Betelgeuze – $\alpha$ Ori	Cmfelferaz – $\varepsilon$ Peg	Denebkaitoz – $\beta$ Cet
Beynemanz – $\eta$ UMa	Colbalerech – $\alpha$ Leo	Denebkaitoz – $\beta$ Cet
Bunnenaz – $\eta$ UMa		Denebkantoz – $\beta$ Cet
	Daventanet – $\zeta$ Cet(1)	Denebkartoz – $\beta$ Cet
	De – $\alpha$ Cyg	Denebkaudos – $\beta$ Cet

Denebkaudoz – $\beta$ Cet	Egregez – $\iota$ UMa	Fulgentis – $\beta$ Ori
Denebkaythoz – $\beta$ Cet	Egregot – $\iota$ UMa	Futekaytoz – $\zeta$ Cet(1)
Denebkaytor – $\beta$ Cet	Elfa' – $\alpha$ CrB, $\beta$ Peg(2)	Ged – $\delta$ Oph
Denebkaytos – $\beta$ Cet	Elfaca – $\alpha$ CrB	Halbelil – $\beta$ Sco
Denebkaytoz – $\beta$ Cet	Elfa's – $\beta$ Peg(2)	Halferaz – $\beta$ Peg(2)
Denebkidoz – $\beta$ Cet	Elfeca – $\alpha$ CrB	Halhane – $\alpha$ Oph
Denebolezad – $\beta$ Leo	Elfeka – $\alpha$ CrB	Halhelil – $\beta$ Sco
Deneb[ <i>illeg.</i> ]zed – $\beta$ Leo	Elfeol – $\alpha$ CrB	Halhellil – $\beta$ Sco
Denecaitoz – $\beta$ Cet	Elfera – $\alpha$ CrB	Jed – $\delta$ Oph
Denechtar <sup>ezz</sup> – $\beta$ Cet	Elferaz – $\beta$ Peg	Kalbalezeh $\alpha$ Leo
Denefbaychos – $\beta$ Cet	Elfeta – $\alpha$ CrB	Kalbalezet – $\alpha$ Leo
Denehal – $\delta$ Cap	Elgeuse – $\alpha$ Ori	Libedaneb – $\delta$ Cap
Denenalgedi – $\delta$ Cap	Elgeuze – $\alpha$ Ori	Libedeneb – $\delta$ Cap
Denenaz – $\eta$ UMa	Ellefeca – $\alpha$ CrB	Libedenep – $\delta$ Cap
Denepaytoz – $\beta$ Cet	Elpert – $\alpha$ CrB	Libedenes – $\delta$ Cap
Denepcaicoz – $\beta$ Cet	Emfalferaz – $\epsilon$ Peg	Libederneb – $\delta$ Cap
Denepcaitoz – $\beta$ Cet	Emfelferam – $\epsilon$ Peg	Libedydop – $\delta$ Cap
Denepkayza – $\beta$ Cet	Emfelferaz – $\epsilon$ Peg	Liberneneb – $\delta$ Cap
Deneptaye <sup>orum</sup> – $\beta$ Cet	Emfelfyn – $\epsilon$ Peg	Libideneb – $\delta$ Cap
Deneptaytoz – $\beta$ Cet	Emphalferaz – $\epsilon$ Peg	Libedeuech – $\delta$ Cap
Deni – $\alpha$ Cyg	Emphalpheraz – $\epsilon$ Peg	Longo – $\alpha$ Per
Denle – [Unidentified]	Emphelferaz – $\epsilon$ Peg	Lybedeneb – $\delta$ Cap
Dens – $\alpha$ Cyg	Emphelperaz – $\epsilon$ Peg	Malhaiot – $\alpha$ Aur
Dera – $\alpha$ Cyg	Enfalferaz – $\epsilon$ Peg	Marchep – $\rho$ Pup
Deuebalezeh – $\beta$ Leo	Enfelferaz – $\epsilon$ Peg	Markab – $\rho$ Pup
Deuebalgedi – $\delta$ Cap	Enfelfora – $\epsilon$ Peg	Marke~ – $\rho$ Pup
Dibhe – $\alpha$ UMa	Enif – $\alpha$ Ari	Markeb – $\rho$ Pup
Donec cartor – $\beta$ Cet	Enifalfa – $\epsilon$ Peg	Markel – $\rho$ Pup
Donet carthos – $\beta$ Cet	Enifalfar – $\epsilon$ Peg	Markep – $\rho$ Pup
Donet carto – $\beta$ Cet	Enifalfat – $\epsilon$ Peg	Market – $\rho$ Pup
Dubhe – $\alpha$ UMa	Enifalfaz – $\epsilon$ Peg	Mega – $\alpha$ Lyr
Dulhe – $\alpha$ UMa	Enifasfaz – $\epsilon$ Peg	Mekar – $\alpha$ Cet
Ednb – $\alpha$ UMa	Enifelfarin – $\epsilon$ Peg	Melzar – $\alpha$ Cet
Efa' – $\alpha$ CrB	Enifelfaz – $\epsilon$ Peg	Memkar – $\alpha$ Cet
Effeca – $\alpha$ CrB	Enifelferaz – $\epsilon$ Peg	Menachil – $\beta$ Peg(1)
Effecta – $\alpha$ CrB	Enipaphferaz – $\epsilon$ Peg	Menbair – $\alpha$ Cet
Effefa – $\alpha$ CrB	Eniphafeiraz – $\epsilon$ Peg	Menc – $\alpha$ Cet
Efeca – $\alpha$ CrB	Eniphalfaraz – $\epsilon$ Peg	Mencar – $\alpha$ Cet
Eg <sup>e</sup> gez – $\iota$ UMa	Eniphelperaz – $\epsilon$ Peg	Menchar – $\alpha$ Cet
Eggregez – $\iota$ UMa	Enit – $\alpha$ Ari	Menchel – $\beta$ Peg(1)
Eggreguz – $\iota$ UMa	Enphelperaz – $\epsilon$ Peg	
Egragez – $\iota$ UMa	Enyl – $\alpha$ Ari	
Egrogen[us] – $\iota$ UMa	Epelferam – $\epsilon$ Peg	
Egreger – $\iota$ UMa	Erut – $\alpha$ Ari	
Egreges – $\iota$ UMa		

Menhar – $\alpha$ Cet	Pantacaytoz – $\zeta$ Cet(2)	Rafaligence – $\alpha$ Gem
Menhkar – $\alpha$ Cet	Pantachaitos – $\zeta$ Cet(2)	Ragal – $\beta$ Ori
Menk – $\alpha$ Cet	Pantachayt – $\zeta$ Cet(2)	Ragalgeuze – $\alpha$ Gem
Menkar – $\alpha$ Cet	Pantacratos – $\zeta$ Cet(2)	Ragel – $\beta$ Ori
Menkarz – $\alpha$ Cet	Pantaikatoz – $\zeta$ Cet(2)	Rahtaben – $\gamma$ Dra
Menkhar – $\alpha$ Cet	Pantaitoz – $\zeta$ Cet(2)	Rartaben – $\gamma$ Dra
Ment – $\alpha$ Cet	Pantakaatoz – $\zeta$ Cet(2)	Rasalugue – $\alpha$ Oph
Menter – $\alpha$ Cet	Pantakai – $\zeta$ Cet(2)	Ratalgeuze – $\alpha$ Gem
Menthel – $\beta$ Peg(1)	Pantakaitoz – $\zeta$ Cet(2)	Ratarlem – $\alpha$ Gem
Mentichel – $\beta$ Peg(1)	Pantakay – $\zeta$ Cet(2)	Rathaben – $\gamma$ Dra
Mentichil – $\beta$ Peg(1)	Pantakaytor – $\zeta$ Cet(2)	Rathalegue – $\alpha$ Oph
Mentichyl – $\beta$ Peg(1)	Pantakaytoz – $\zeta$ Cet(2)	Rathalgeuze – $\alpha$ Gem
Mentithil – $\beta$ Peg(1)	Pantaketicoz – $\zeta$ Cet(2)	Ratzhaben – $\gamma$ Dra
Merchm – $\alpha$ Cet	Pantancaitos – $\zeta$ Cet(2)	Razaben – $\gamma$ Dra
Mencach – $\alpha$ Cet	Pantancaitoz – $\zeta$ Cet(2)	Razagenze – $\alpha$ Gem
Menkath – $\alpha$ Cet	Pantanc[ay]ta – $\zeta$ Cet(2)	Razageuze – $\alpha$ Gem
Menkaz – $\alpha$ Cet	Pantankaytos – $\zeta$ Cet(2)	Razalage – $\alpha$ Oph
Mentrar – $\alpha$ Cet	Pantat <sup>a</sup> toz – $\zeta$ Cet(2)	Razalague – $\alpha$ Oph
Merkep – $\rho$ Pup	Pantaytoz – $\zeta$ Cet(2)	Razalee – $\alpha$ Oph
Mikel – $\rho$ Pup	Pantekai – $\zeta$ Cet(2)	Razalege – $\alpha$ Oph
Mirac – $\beta$ And	Pantekar – $\zeta$ Cet(2)	Razalegile – $\alpha$ Oph
Mirach – $\beta$ And	Pantenkai' – $\zeta$ Cet(2)	Razalegne – $\alpha$ Oph
Mirat – $\beta$ And	Panth' – $\zeta$ Cet(2)	Razalegua – $\alpha$ Oph
Myrach – $\beta$ And	Panthacaythos – $\zeta$ Cet(2)	Razalegue – $\alpha$ Oph
Mzcalen – $\gamma$ Dra	Panthacayton – $\zeta$ Cet(2)	Razaleuge – $\alpha$ Oph
	Panthacaytos – $\zeta$ Cet(2)	Razalevze – $\alpha$ Gem
Nasalgenze – $\alpha$ Gem	Panthakai – $\zeta$ Cet(2)	Razalgenze – $\alpha$ Gem
Nazalague – $\alpha$ Oph	Panthakaitos – $\zeta$ Cet(2)	Razalgeuze – $\alpha$ Gem
	Panthakaitos – $\zeta$ Cet(2)	Razaraben – $\gamma$ Dra
Ocheath – $\delta$ Aqr	Panthakartos – $\zeta$ Cet(2)	Razazaben – $\gamma$ Dra
	Panthakay – $\zeta$ Cet(2)	Razcaben – $\gamma$ Dra
Paandoz – $\zeta$ Cet(2)	Panthakaythos – $\zeta$ Cet(2)	Razdaben – $\gamma$ Dra
Pacacaitos – $\zeta$ Cet(2)	Panthakaythos – $\zeta$ Cet(2)	Razehgue – $\alpha$ Oph
Pacacaitoz – $\zeta$ Cet(2)	Panthakaytor – $\zeta$ Cet(2)	Razelegue – $\alpha$ Oph
Pacancaitoz – $\zeta$ Cet(2)	Panthakaytoz – $\zeta$ Cet(2)	Razelgeuza – $\alpha$ Oph
Padaithos – $\zeta$ Cet(2)	Pantkaytoz – $\zeta$ Cet(2)	Raztaben – $\gamma$ Dra, $\alpha$ Gem
Pancacayt' – $\zeta$ Cet(2)	Patakam – $\zeta$ Cet(2)	Raztabeu – $\gamma$ Dra
Pancancantoz – $\zeta$ Cet(2)	Patacaitoz – $\zeta$ Cet(2)	Raztaten – $\alpha$ Gem
Pancatacoz – $\zeta$ Cet(2)	Patancaitos – $\zeta$ Cet(2)	Razthaben – $\gamma$ Dra
Pancildaicon – $\zeta$ Cet(2)	Patancaitoz – $\zeta$ Cet(2)	Rebene – $\eta$ UMa
Pantacaidoz – $\zeta$ Cet(2)	Patencacaytoz – $\zeta$ Cet(2)	Regilal – $\beta$ Ori
Pantacaitoz – $\zeta$ Cet(2)	Paucartoz – $\zeta$ Cet(2)	Richel – $\beta$ Ori
Pantacay – $\zeta$ Cet(2)	Pentant'a – $\zeta$ Cet(2)	Rigel – $\beta$ Ori
Pantacayt' – $\zeta$ Cet(2)	Pitaucaitoz – $\zeta$ Cet(2)	Rigial – $\beta$ Ori
Pantacayt <sup>m</sup> – $\zeta$ Cet(2)		Rigib – $\beta$ Ori
Pantacaytos – $\zeta$ Cet(2)	Racalgenze – $\alpha$ Gem	Rigil – $\beta$ Ori

Rigli – $\beta$ Ori	Seheach – $\delta$ Aqr	Vega – $\alpha$ Lyr
Rozangente – $\alpha$ Gem	Semphephazaz – $\epsilon$ Peg	Vege – $\alpha$ Lyr
Rygel – $\beta$ Ori	Semphepharaz – $\epsilon$ Peg	Veneb kaitoz – B Cet
Rygil – $\beta$ Ori	Senach – $\delta$ Aqr	Veniutab – $\beta$ Uma
Rygyl – $\beta$ Ori	Sheach – $\delta$ Aqr	Vnega – $\alpha$ Lyr
	Shenath – $\delta$ Aqr	Voora – $\alpha$ Lyr
Sagita alh <sup>au</sup> – $\alpha$ Oph	Sichil – [Unidentified]	Vuega – $\alpha$ Lyr
Sc~ – $\alpha$ Cas	Siennemias – $\eta$ Uma	Vuego – $\alpha$ Lyr
Sceach – $\delta$ Aqr	Slichil – [Unidentified]	
Scead – $\delta$ Aqr	Steach – $\delta$ Aqr	We – $\alpha$ Lyr
Sceahc – $\delta$ Aqr	Sunmaz – $\eta$ UMa	Wega – $\alpha$ Lyr
Sceath – $\delta$ Aqr	Sunznaz – $\eta$ UMa	Wzega – $\alpha$ Lyr
Sced – $\alpha$ Cas		
Scedar – $\alpha$ Cas	Taben – $\gamma$ Dra	Yeb – $\delta$ Oph
Sceder – $\alpha$ Cas	Tazageuze – $\alpha$ Gem	Yed – $\delta$ Oph
Scedry – $\alpha$ Cas	Tenebraitoz – $\beta$ Cet	Yel – $\delta$ Oph
Scehach – $\delta$ Aqr	Thaben – $\gamma$ Dra	Yes – $\delta$ Oph
Scehah – $\delta$ Aqr	Tova – $\gamma$ Dra	Yet – $\delta$ Oph
Scenach – $\delta$ Aqr		
Scenath – $\delta$ Aqr	Uda – $\delta$ Oph	Zenebalgedi – $\delta$ Cap
Scezich – $\delta$ Aqr		Zinebalgedi – $\delta$ Cap
Schath – $\delta$ Aqr		
Scheat – $\delta$ Aqr		
Sechath – $\delta$ Aqr		
Seder – $\alpha$ Cas		
Sedes – $\alpha$ Cas		
Sega – $\alpha$ Lyr		

*Latin based names*

Alacorni – $\gamma$ Crv(2)	Cauda Chitor – B Cet	Crupa Equi – $\beta$ Peg(2)
Ala Corui – $\gamma$ Crv(2)	Cauda Leonis – $\gamma$ Crv(1), $\beta$ Leo	Crupa Et'i – $\beta$ Peg(2)
Am equi – $\epsilon$ Peg	Cauda Scor[pionis] – $\lambda$ Sco	De – ? Del
Cap[ud Serpentis] – $\gamma$ Dra	Chorus – $\gamma$ Crv(1)	Del – $\epsilon$ Del
Capella – $\alpha$ Aur	Cor Leonis – $\alpha$ Leo, $\alpha$ Sco	Delf/Delf' – $\epsilon$ Del
Caput Algon – $\alpha$ Per	Corona – $\alpha$ CrB	Delfi' – $\epsilon$ Del
Cap[ud] S[erpentis] – $\gamma$ Dra	Cor Scorpii – $\alpha$ Sco	Delfim – $\epsilon$ Del
Cau' – $\beta$ Leo	Cor Scorpionis – $\alpha$ Sco	Delfin – $\epsilon$ Del; ? Del
Caud' – $\beta$ Leo	Cor Tauri – $\alpha$ Tau	D[e]lfin – $\epsilon$ Del
Cauda – $\gamma$ Crv(2), $\beta$ Leo, $\lambda$ Sco	Corus – $\gamma$ Crv(1)	Delfinus – $\epsilon$ Del
Cauda Capricorni – $\delta$ Cap	Coruus – $\gamma$ Crv(1)	Delfium – $\epsilon$ Del; ? Del
Cauda Ceti – $\beta$ Cet	Corvus algorab – $\gamma$ Crv(2)	Delf <sup>n</sup> – $\epsilon$ Del

Delfyn –  $\epsilon$  Del  
 Delphil – ? Del  
 Delphin –  $\epsilon$  Del; ? Del  
 Delphinus –  $\epsilon$  Del  
  
 Egg(?) –  $\beta$  UMa  
 Equi –  $\beta$  Peg(1)  
 Equi humerus –  $\beta$  Peg(1)  
  
 Finis –  $\theta$  Eri  
 Finis Arietis –  $\theta$  Eri  
 Finis fluxus –  $\theta$  Eri  
 Finis fuxus –  $\theta$  Eri  
 Fluxus –  $\theta$  Eri  
 Fron [= Frons Algonis?] –  
      $\alpha$  Per  
  
 Gel –  $\beta$  UMa  
  
 Humerus equi –  $\beta$  Peg(1)  
 Humerus equi alati –  $\beta$  Peg(1)  
 Humerus Geminorum –  $\alpha$  Ori  
  
 Leo –  $\alpha$  Leo  
  
 Moriens Filius –  $\alpha$  CMi  
 Musid' eq' –  $\epsilon$  Peg  
 Musida equi –  $\epsilon$  Peg  
  
 Oculus Tauri –  $\alpha$  Tau  
  
 Pegasus – [Unidentified]  
 Pes Geminorum –  $\beta$  Ori  
 Prochion –  $\alpha$  Cmi  
  
 Stella lucida in corona  
     sept[entri]onali –  $\alpha$  CrB  
 Spica –  $\alpha$  Vir  
  
 Tauda –  $\beta$  Leo  
  
 Ur –  $\beta$  UMa  
 Ursa –  $\alpha$  Aur,  $\beta$  UMa,  $\theta$  UMa  
 Ursa maior –  $\eta$  UMa  
  
 Venter Chator –  $\zeta$  Cet(1)

## Appendix II Other Lists of Stars

- Bernkastel-Kues, St. Nikolaus-Hospitals, Bibliothek, ms. 209  
ff. 77va: a list containing 13 stars from Star List 2; not collated.
- Eu Erlangen, Friedrich-Alexander-Universität Erlangen-Nürnberg, Universitätsbibliothek, ms. 665  
fol. 28r: Kunitzsch, Type IX (*Typen*, p. 59)
- Kβ Karlsruhe, Badische Landesbibliothek, ms. EM 32  
fol. 106r: star list which is part of a different astrolabe text
- Lα Leyden, Bibliotheek der Rijksuniversiteit, ms. Scaligerani 64  
f. 120r: Kunitzsch, Type XII (*Typen*, p. 77)
- MA Montpellier, Bibliothèque Interuniversitaire, Section Médecine, ms. H 323  
fol. 88r: unidentified list of 40 stars, titled “Tabularum secundum modernos”
- Pθ Paris, Bibliothèque nationale de France, ms. lat. 7280  
fol. 82v: unidentified star list, dated AD 1364
- Pπ Paris, Bibliothèque nationale de France, ms. lat. 7413(2)  
Fol. 36r: unidentified star list, dated AD 1286
- Pυ Paris, Bibliothèque nationale de France, ms. lat. 7421  
fol. 203r: Kunitzsch, Type XIII (*Typen*, p. 88)
- Sγ Salamanca, Universidad de Salamanca, Biblioteca, ms. 2621  
fol. 10ra: unidentified list of 40 stars, but related to Kunitzsch Type VIII (*Typen*, p. 54)  
fol. 10rb: star list of Jean Fusoris (Kunitzsch, *Typen*, p. 5 n 8)  
fol. 116v: Kunitzsch, Type IX (*Typen*, p. 59)
- Sε Sankt Gallen, Kantonsbibliothek, Vadiana ms. 412  
fol. 95v: star list of Jean Fusoris (Kunitzsch, *Typen*, p. 5 n 8)
- Wε Wien, Österreichische Nationalbibliothek, ms. Palatinus 5412  
fol. 59v: star list of John of London, i.e., Kunitzsch Type VI (*Typen*, p. 40)
- Wκ Wolfenbüttel, Herzog August Bibliothek, Cod. Guelf. 81.26 Aug. 2<sup>o</sup>,  
fol. 139ra: unidentified list of 41 stars, but related to Kunitzsch Type VIII (*Typen*, p. 54)  
fol. 139rb: star list of Jean Fusoris (Kunitzsch, *Typen*, p. 5 n 8)