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*E. A. F. Peters*

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PTOLEMY'S CATALOGUE OF STARS

A REVISION OF THE ALMAGEST

BY

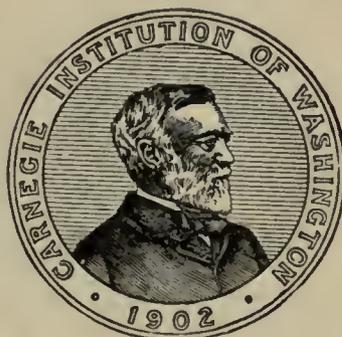
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CHRISTIAN HEINRICH FRIEDRICH PETERS, PH. D.

AND

EDWARD BALL KNOBEL

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## PREFACE.

The following work embraces the results of the whole of the long and laborious researches of the late Dr. Christian Heinrich Friedrich Peters on the Catalogue of Stars in Ptolemy's Almagest. Some account of this investigation, which he began about the year 1876, will be found in the opening pages. Quite unknown to each other, I had myself taken up the same subject in 1876, but it was not until a few years later that some communications I made to the Royal Astronomical Society brought Dr. Peters into direct correspondence with me, and on learning that he was engaged in the same investigation of Ptolemy's Catalogue of Stars, I offered to place all of my materials at his disposal, and accordingly I sent him, for his free use, the collations of all the manuscripts I had made. These had been prepared with rather an undue amount of labor, as being closely engaged in manufacturing business far from London, it was only on rare days that I could visit the British Museum and other public libraries.

When Dr. Peters and myself met in Paris in April 1887, we had some long conversations on the subject. He told me he did not intend to visit England, and it was agreed that I should investigate all the sources of information possessed in the libraries there, and I particularly undertook to examine the Greek Selden Almagest at Oxford, and several Arabic manuscripts, and send him the results. In this and the following year many letters and discussions passed between us. In a letter dated August 14, 1888, received by Dr. Peters August 25, I asked what steps he had taken towards publication, and considering the contributions I had made from the manuscripts in this country, I asked "How far he would like, and would think it right, that my name should be associated with his as a joint author?" But I assured him "I was quite single-minded in the matter, and that my interest was removed from any idea of a personal character." This letter remained unanswered, probably because no steps had been taken towards preparing any part of the work for publication.

On July 18, 1890, Dr. Peters died. It is unnecessary here to give an account of his life, which has been so fully dealt with in the addresses delivered on that occasion by Dr. Isaac H. Hall and Professor Oren Root, and in the pages of the monthly notices of the Royal Astronomical Society.

On September 3, 1890, I addressed a letter to the executors of Dr. Peters, asking to be informed in what state his work on the Almagest remained with reference to publication, and requesting that the manuscripts might be sent to me to complete, and on November 9, 1891, all of his manuscripts and notes relating to this work, with some important exceptions, were sent to me.

The various subjects and sections of the investigation were each contained in a separate envelope. These were at once marked by letters and have been preserved in that state to the present day.

The following is the schedule:

- Cahier A. Ulugh Beg. Collations and notes on various manuscripts by Peters and Knobel.
- B. Aboul Hhassan. Notes and comparisons of his catalogues, all in pencil.
- C. Collations of Greek, Latin, and Arabic manuscripts by Knobel.
- D. Ptolemy's Catalogue of Stars. Final places with variants in 28 authorities, and comparison of the catalogue with modern observations.
- E. Rough-draft catalogue of which revised copy is contained in D.
- F. Reductions of the right ascension and declination of all stars to longitude and latitude.
- G. Collations and notes of 24 manuscripts by Peters and 4 manuscripts by Knobel.
- H. Translations of 6 chapters of the *Almagest* from Greek into German, minute German script in pencil.
- I. Calculations and notes on various catalogues, all in pencil.
- J. Computation of proper motions; and comparison of the zodiacal stars in the *Almagest* with modern observations.
- K. Comparison of Ptolemy's and other magnitudes with Harvard Photometry, all in pencil.

The examination of the manuscripts made it at once apparent that no preparation whatever had been made for publication. All the collations of manuscripts, notes, tables, and computations, were in very minute, close writing, and much of it in pencil, necessitating the copying out of most portions of the work for study, and in form for printer, involving much labor. Many notes were written in minute German script which have been troublesome and unduly expensive to translate. Among others are found several chapters from Books III, V, and VII of the *Almagest*, written in pencil in minute German script, being translations by Dr. Peters from the Greek into German, which have proved very difficult to decipher. No assistance towards the expense involved was obtainable in this country, and it seemed highly improbable that any society would undertake the publication of the work in the complete form which I considered indispensable. What to do under these circumstances has been a source of great anxiety.

On June 6, 1899, I met Professor Simon Newcomb in London, when he at once said he wished to see me about Dr. Peters' manuscripts. We adjourned to my club and discussed the matter fully for over half an hour. I explained my difficulties about publication and proposed that the work should be published in the United States. Professor Newcomb, referring to the Arabic and Greek, expressed a doubt whether they had the necessary type. No suggestion, however, was made for carrying out my proposal. I need only add that many years ago I made provision in my will that, on my death, the whole of the manuscripts and researches should be sent to the National Academy at Washington.

The present work is limited to the investigation of Ptolemy's Catalogue of Stars, but Dr. Peters also took up the question of Ulugh Beg's Catalogue, and for that purpose he collated several Persian manuscripts. I have added to this by collating all the Persian manuscripts of Ulugh Beg and the Arabic manuscripts of Al Sûfi to be found in this country. This it is hoped to publish in the future as a separate memoir.

It has been my object to make this investigation as exhaustive as possible, but where so much material has had to be examined, analyzed, and checked, and where the whole work has had to be done single-handed, it is hardly possible to

avoid some mistakes. The present investigation has shown how prone are all copyists to make mistakes; every care has been taken, and I can only hope that no very serious errors will be found.

I desire to record my obligations to the late Earl of Crawford, for kindly lending me the very valuable manuscript of the *Almagest* in his library; to the late Mr. Nicholson, Bodley's Librarian at Oxford, for the exceptional favor of sending the Bodleian Arabic *Almagest* to London for my examination; and to the late Dr. Rieu, Keeper of Oriental Manuscripts in the British Museum, for much valuable assistance.

I am much indebted to Prof. H. H. Turner for his kindness in supervising the reduction of the star places to the epoch B. C. 130.

I desire to express my gratitude to the Hon. Elihu Root, to Professor E. C. Pickering, and to the Executive Committee of the Carnegie Institution of Washington, for their sympathy and interest in the work of the late Dr. Peters, and for the generosity which has now enabled his laborious and exhaustive researches on the most ancient Catalogue of Stars we possess, to be added to astronomical literature.

E. B. KNOBEL.

32 TAVISTOCK SQUARE, LONDON, W. C.,  
*October 1914.*



FIG. 1.—Diagram (referred to on page 8) showing the errors in longitude and latitude of Ptolemy's Zodiacal Stars computed for the Epoch A. D. 100.

## HISTORICAL.

The Catalogue of Stars contained in the seventh and eighth books of Ptolemy's *Μεγάλη Σύνταξις*, commonly called The Almagest, must always be considered of unique interest. It is the first and most ancient document we possess which gives a description of the heavens of sufficient exactness to admit of comparison with modern observations. For many centuries it was held in the highest repute, and indeed, until the time of Tycho Brahe it was practically the only source of information of the positions of the stars which the world possessed; for though in the fifteenth century Ulugh Beg prepared a much more accurate catalogue of Ptolemy's stars, it never came into general use. Ptolemy's catalogue has accordingly been the subject of many researches and investigations. Up to the present time six editions of the catalogue have been printed in Greek, viz.: Grynæus, Halley, Montignot, Halma, Baily, and Heiberg; also several editions in Latin, particularly those of Trapezuntius, Schreckenfuchs, and Flamsteed, translated from the Greek; those of Liechtenstein and Copernicus, translated from the Arabic by Gerard of Cremona, and the Alfonsine Tables, also translated from the Arabic. The translation into French from the Arabic of Abd Al Rahman Al Sûfi, by Schjellerup, is simply Ptolemy's catalogue for a different epoch; and recently an edition of the Almagest has been published in German by Dr. Karl Manitius.

Dr. Peters began his study of Ptolemy's catalogue probably in 1876 or the early part of 1877. In the latter year he wrote:\*

"A close examination of the exactitude of the catalogue of stars by Hipparchus, transmitted to us by Ptolemy, has never yet been made. Flamsteed, Lalande, and Bode have contented themselves with a merely superficial comparison of the separate positions of the stars. By happy conjectures Baily has corrected several of the figures which had been corrupted in the manuscripts; and for this same purpose a comparison will be found useful with the catalogue of Al Sûfi, which is formed from the catalogue of Ptolemy by the addition of a constant to the longitudes. Nevertheless, many stars are left, the identification of which has not been possible or is doubtful. But if we wish to compare the condition of the starry sky at the time of the ancients with the present day, if we desire to recognize what has really changed in the sky during the last two thousand years, it is above all things necessary to know in how far a position of Ptolemy could be in all probability faulty."†

Dr. Peters was not content with the wealth of material offered by those editions of Ptolemy's catalogue which up to his time had been printed, and so, about the year 1883, he determined to investigate, as exhaustively as possible, all the various manuscripts containing the catalogue of stars which might exist in the libraries of Europe. In February 1884 he wrote: "During a journey made in Europe within the last few months, an opportunity was given me of examining in various libraries

\*Ueber die Fehler des Ptolemäischen Sternverzeichnisses. Vierteljahrsschrift Ast. Gesell. 1877.

†Cf. Pliny (A. D. 77) Nat. Hist., Lib. II, cap. 26. "Hipparchus . . . discovered a new star that had appeared in his own age and, by observing its motions on the day on which it shone, he was led to doubt whether it does not often happen that those stars have motion which we suppose to be fixed. And the same individual attempted what might seem presumptuous even in a deity, viz.: to number the stars for posterity and to express their relations by appropriate names; having previously devised instruments by which he might mark the places and the magnitudes of each individual star. In this way it might be easily discovered, not only whether they were destroyed or produced, but whether they changed their relative positions, and likewise whether they were increased or diminished; the heavens being thus left an inheritance to anyone who might be found competent to complete his plan."

the manuscripts of the *Almagest* which they contained." He began his investigations at Vienna, proceeding thence to Venice, Florence, and Rome. No further examination of manuscripts was made by him till the year 1887, when, taking advantage of a visit to Paris to attend the International Astrographic Congress, he then collated the important Greek manuscripts found in the *Bibliothèque Nationale*. The manuscripts he examined are given in the Table of Manuscripts Collated.

The investigation of Peters differs from all those hitherto made, for in order to assist in the identification of the stars, and to determine the actual errors of their positions, he began by calculating from modern observations the longitudes and latitudes of all of Ptolemy's stars, using for this purpose Piazzini's catalogue reduced to the epoch he assumed of A. D. 100, rather than to the epoch Ptolemy gives, which is the first year of Antoninus Pius, A. D. 138. These lengthy and laborious computations finally embraced every probable star near Ptolemy's places, corrected as far as possible for proper motion.

In his paper cited above, Peters compares 349 of Ptolemy's zodiacal stars, taken from the printed editions, with their computed positions for A. D. 100, and he arrives at the conclusion that the equinox requires a correction of  $+34'.9$ , equal to a precession of 42 years. He also deduces that the errors in longitude as well as in latitude give evidence of considerable periodicity. He illustrates this with a diagram,\* and says: "It will be seen that the curve of errors in longitude has its chief maximum close to  $180^\circ$ , and its chief minimum near to  $0^\circ$ : the curve of errors in latitude has a maximum near to  $140^\circ$ , and a minimum near  $320^\circ$ ." And he adds that "the conclusions arrived at from this as to the faulty erection of the instrument, and the position of the axes and circles of the armillary sphere which was used, will be seen more clearly when the comparison has been further extended to the stars outside the zodiac," but he did not pursue this interesting inquiry in that direction.

Dr. Peters brought into the whole investigation of Ptolemy's catalogue a rare ability, which it would be difficult to equal. Besides a fluent acquaintance with most European languages, he had an excellent knowledge of Greek, Latin, Hebrew, Arabic, Persian, and Turkish; and to these qualifications he added a high mathematical power and a facility and accuracy in computation which can only be fully appreciated by the examination of his papers. It is truly said that he was wonderfully swift in his perceptions, and this penetrating acumen is visible in the notes he made whilst collating and discussing the various authorities. Every manuscript was studied with scrupulous care, and every point of doubt investigated exhaustively. Nothing escaped his acute examination, and it is to be deplored that he was not spared to complete the publication of labors in which he had shown himself so preeminent.

Of the writer's share in the investigations contained in the present volume, it may be mentioned that in 1876 he first came to the determination of collating as many manuscripts as possible of Ptolemy's catalogue in order to obtain a more correct edition than we possessed. He commenced the work by the publication in

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\*Reproduced on page 6.

1876 of the Catalogue of Aboul Hhassan, which consists of 240 of Ptolemy's stars reduced to A. D. 622;\* followed in 1879 by the collation of a Persian manuscript of Ulugh Beg.† In 1881 he collated three Latin manuscripts of the *Almagest* and the important Arabic *Almagest* in the British Museum, followed in 1885 by the collation of the Arabic *Almagest* contained in the Bodleian Library at Oxford, which Bodley's librarian had kindly sent to London for his investigation. Various other manuscripts were subsequently collated, and the whole of the material thus obtained was sent to Dr. Peters, and was discussed and used by him in the resulting catalogue. The manuscripts collated, together with some examined since Dr. Peters' death, are given in the Table of Manuscripts. One or two manuscripts of the *Almagest* are said to exist at the Escorial and at Toledo, but it has not been possible to examine them.

It may be safely asserted that no correct copy of Ptolemy's original catalogue exists in any manuscript, and where all codices contain so many errors it is difficult to say which copy is the most reliable. The centuries that elapsed between Ptolemy's period and the oldest manuscripts known have resulted in numerous errors in the longitudes and latitudes of the stars, due to the scribe, who was either careless or ignorant of what he was writing. Errors in the description of the stars would be very rare, as the scribe would understand the words, but in copying the letters signifying the figures of longitude and latitude he would have nothing whatever to guide him as to their correctness.

The original catalogue was doubtless written in the uncial Greek characters of the second century, for it is improbable that such a work would be written in cursive Greek. The form of the early uncial Greek letters suggests an explanation of some errors not so available from consideration of the Paris Codex 2389 and the Vatican Codex 1594, both of the ninth century. The majority of the errors found in the longitudes and latitudes of the stars must be ascribed to the early writing. All other Greek manuscripts are written in minuscule letters which first came into use only in the ninth century, and some errors may be due to this form of writing.

The most common error in all manuscripts is that of confounding the uncial Greek letters alpha  $\text{A}=\text{I}$  and delta  $\Delta=4$  (see Facsimiles). In the Table of the Collations of Manuscripts, examples of this error in all codices will be found in the longitudes of 44 stars and the latitudes of 36 stars. As such errors appear also in the Arabic codices, it would seem that they existed in the Greek used by Al Mamon for his translation about A. D. 827. Errors are found also from confusion between the alpha  $\text{A}=\text{I}$  and the lambda  $\Lambda=30$ ; such errors in Nos. 766 and 767 have been repeated by Grynæus and Halma, also errors of the lambda for the delta. On reference to the photograph of the Paris Codex 2389, the possibility of such confusion will be seen in the longitude and latitude of the twenty-second star of Ursa Major, which is not the case in the photograph of the Vatican Codex 1594. Another common error is mistaking the epsilon  $\epsilon=5$  for theta  $\Theta=9$ , of which examples will be found in many manuscripts, in the longitudes of 12 stars, and the

\*Chronology of Star Catalogues. Mems. R. A. S., vol. XLIII.

†Mon. Nots. R. A. S., vol. XXXIX.

latitudes of 5 stars. In the Greek uncials of the second century these letters were circular in shape, with little difference between thick and fine strokes (see Facsimiles), and the opening in the epsilon for the cross-stroke was narrow; thus confusion between the two letters was very probable.

About the ninth century the kappa  $\kappa = 20$  began to be written with the angular part of the letter removed from the vertical stroke. (See Facsimiles and the photograph of Venice Codex 313.) The effect of this was that the angular part was taken to be the character for  $\eta\mu\sigma\nu = \frac{1}{2}$ . Thus we find in most Greek manuscripts instances (Nos. 179, 277, 441, 572) where  $\kappa\Gamma'$  has been taken to be  $20^{\circ}\frac{1}{3} = 20^{\circ} 20'$ , instead of  $1 = 10^{\circ} < = \frac{1}{2}$   $\Gamma' = \frac{1}{3} = 10^{\circ} 50'$ . This is the explanation of the two readings of the latitude of No. 572 in the Paris Codex 2389.

Another error found in some manuscripts, particularly the Vatican Codex Reg. 90, and the Bodleian Codex 3374, where the minuscule  $\nu = 50$  is written for the  $\eta = 8$  or vice versa (which in form are quite dissimilar), is derived from the uncial letters, which sometimes closely resemble each other. This appears in the photograph of the Paris manuscript 2389, in the latitude of the eighteenth star of Ursa Major, where the uncial  $\nu$  may easily be taken for the uncial  $\eta = \text{H}$ , but not so in Vat. 1594.

The above sources of difficulty in determining the probable original figures apply mainly to the *degrees* of longitude or latitude. As is well known, the minutes are always represented in Greek as fractions of a degree, where the significant letter with an accent expresses the denominator of the fraction. Innumerable errors occur from the omission of the accent, which then converts the letter into a whole number, affecting the degrees. Examples are given in the Facsimiles. The origin of the sign for  $\eta\mu\sigma\nu = \frac{1}{2}$  is rather obscure. As is seen in the Facsimiles, it takes various forms, becoming in later manuscripts and in printed Greek a form closely resembling the stigma  $\varsigma$ . One feature should be mentioned upon which Dr. Peters held a decided opinion, but which the writer finds it difficult to accept: The Greeks usually represented  $40'$  by  $\Gamma_0$  or  $\Gamma_\beta = \frac{2}{3}$ , the  $o$  in the first case being simply a contraction for  $\beta$ . They represented  $50'$  by the combination of  $\frac{1}{2} + \frac{1}{3}$ . But in several Greek manuscripts is found the combination of  $\frac{1}{2} + \frac{1}{10} = 40'$  (see Facsimiles). Dr. Peters thought that this should be read as  $\frac{1}{2}$ , with variant  $\frac{1}{10}$ . But in no case is it written as all other variants yet noted, where the variant is always written above, or in the margin, or with some separation; and as this expression is found in so many manuscripts, it seems more probable that the characters should be read as a combination, and so they have been taken in the Table of Collations.

For nearly three centuries the only available edition of the *Almagest* in Greek was that published at Basel by Grynæus in 1538, but great uncertainty exists as to the manuscript he used. It is stated that the manuscript belonged to Regiomontanus, to whom it was given by Cardinal Bessarion, and that it was deposited at Nürnberg. No Greek manuscript of the *Almagest* exists at Nürnberg. Dr. Peters investigated the work of Doppelmayer (*Histor. Nachricht. von der Nürnbergschen Mathematicis und Künstlern, Nürnberg, 1730*), on which he made several notes. It appears that Regiomontanus devoted considerable study to the *Almagest* and to the other works of Ptolemy, and particularly to the commentary of Theon,

all of which he found in Rome in the original Greek. Bessarion presented to him the manuscript of Theon, which contained the following inscription in the Cardinal's writing: "Theonis in Ptolemæum liber meus Bessar. Cardin. Tuscul.," under which Regiomontanus wrote "nunc Johannis de Regiomonte." Doppelmayer states that Bessarion valued the *Almagest* so highly that he would not have exchanged it for a province, and he adds that this is attested by Camerarius in the dedication which he placed at the commencement of the *Almagest* printed at Basel in 1538 (Grynæus edition). On this point Doppelmayer is in error, for the dedication of Camerarius is to the commentary of Theon, and not to the *Almagest*. In the year 1450 one or two Greek codices of the *Almagest* had been found in Greece and brought to Rome. The first translation of them was made by Georgius Trapezuntius about 1460, subsequently published at Venice in 1528; this translation was not considered very correct, and Regiomontanus undertook a new translation, which, however, was never printed. When Regiomontanus died in Rome, July 6, 1476, Walther bought all his library and works and refused to allow any of the manuscripts to be printed or any inspection of the works. After the death of Walther, his library was dispersed, except a portion which was bought by a magistrate at Nürnberg.

The work given by Cardinal Bessarion to Regiomontanus was clearly the commentary of Theon, and there is no reliable evidence that Bessarion gave him a copy of the *Almagest*, which "he would be unwilling to exchange for a province." Doppelmayer states that Camerarius (real name Liebhard, born 1500, died 1574) caused the Commentary of Theon to be added to the *Almagest* of Ptolemy in the edition published by Grynæus in 1538, "after the codex of Regiomontanus," presumably the codex of Theon.

The only further material evidence on the question is found in Montignot (*Etat des Etoiles Fixes au second siècle par Claude Ptolemée, Nancy, 1786*). He says: "The manuscript of the work of Ptolemy is an original document, carefully preserved in the library of Nürnberg. It was brought from Greece by Cardinal Bessarion, after the siege of Constantinople." (A. D. 1453.) "I ought to state that I had requested M. Moers to supply, from the manuscript of Nürnberg, some omissions of the catalogue, and to verify some longitudes which lead me to suspect mistakes of printing. I have followed very exactly the print of the Greek edition Basel 1538." Dr. Peters remarks: "As in the edition of Grynæus the latitudes of 15, 16, and 17 Ophiuchi are missing, and also the longitude and latitude of 21 Tauri, why did not Montignot supply them from the manuscript? The notes of Montignot about the manuscript said to be existing in Nürnberg must be regarded with distrust. Who was M. Moers? In the edition of Montignot there are absolutely no sure signs of a correction of the edition of Grynæus after an original manuscript." Delambre considered Montignot's edition "peu exacte."

The M. Moers referred to is no doubt Christophorus Theophilus de Murr, who in 1786 published at Nürnberg a work entitled "*Memorabilia Bibliothecarum pub. Norimbergensium*." This work is not in the British Museum, but a copy exists in the Bodleian with manuscript notes by the author. It is quite clear that he mentions no manuscript of the *Almagest* at Nürnberg. The manuscript of Theon's

commentary on the *Almagest*, which he describes, has the following sentences: "Τοῦ Θεώνος εἰς τὴν μεγάλην σύνταξιν Βίβλος ἐμὸν βησσαριῶνος καρδιάλιός τοῦ τῶν τουσκλῶν." "Theonis in ptolemæum liber meus b. Card. Tusculani, nunc Ioannis de regiomonte. Donaverat nimirum Bessarion Regiomontano codicem." From the description by Zanetti (*Græca D. Marci Bibliotheca*) of the Venice Codex 310, which bears the autograph of Cardinal Bessarion, it has been considered that Grynæus based his edition on this manuscript. This is open to doubt, inasmuch as in this Venice Codex  $\frac{2}{3}$  is always represented by gamma over beta, and never by gamma alone or beta alone, as in Grynæus. The oft-repeated statement that Grynæus based his edition on a manuscript given by Bessarion to Regiomontanus and deposited at Nürnberg is due to an erroneous reading of the above Greek sentence, which refers only to Theon's commentary.

In the Grynæus edition the whole number 3 is given by  $\gamma$  or  $\Gamma$ . The use of the character  $\Gamma'$  is twofold. Throughout the work it represents  $\frac{1}{3} = 20'$ , but from the commencement to the end of Sagittarius (with the exception of the 15th star in Bootes) it also represents  $\frac{2}{3} = 40'$ . From Capricornus to the end,  $\frac{2}{3} = 40'$  is represented by  $\beta'$ . In the Paris Codex 2389,  $\frac{2}{3}$  is represented by  $\Gamma'\beta$  or  $\Gamma'o$ , where  $o$  is an abbreviation for  $\beta$ . This is in conformity with the manner of expressing fractions by the Greeks, viz., to write the denominator as an exponent. Thus, for example, in Archimedes,  $\frac{9}{11}$  is expressed by  $\theta^4$ , the numerator below the denominator. In our case  $\frac{2}{3}$  is conformable to  $\bar{\beta}''$  or in uncials  $\beta\Gamma'$  or more simply  $\Gamma'_\beta$  finally  $\Gamma'_\beta$ .

The Paris Codex Græcus 2394 exhibits many points of resemblance to the Grynæus edition. This manuscript is a copy, made in 1733 for the Bibliothèque du Roi, of a thirteenth century manuscript at Constantinople belonging to the Prince of Walachia, apparently afterwards destroyed by fire. The Paris manuscript has all the errors of print in Grynæus, but it has some omissions and it also gives some latitudes (248–250) which are wanting in Grynæus. It is significant that  $\frac{2}{3}$  is represented in the first part of the catalogue by  $\gamma'$ , and from Capricornus to the end by  $\beta'$ , precisely as in Grynæus. This offers a strong probability that the manuscript used by Grynæus and the archetype of Paris 2394 had the same origin.

The Latin manuscripts are of less importance, though the translation from the Greek by Trapezuntius elucidates several doubtful points. It is uncertain which was the actual Greek manuscript used by Trapezuntius; it is stated to have been a copy of a Greek manuscript in the Vatican. The remaining Latin manuscripts are all copies of the translation from the Arabic by Gerard of Cremona, and may best be considered in connection with the Oriental codices. The principal error in all Latin manuscripts of the Middle Ages is confounding the figures 1 and 2, which sometimes are identical.

The Arabic manuscripts are especially valuable for comparison with the Greek, as the errors are of a different kind. Unlike the Greeks, who wrote the minutes of longitude and latitude in fractions of a degree, the Arabs wrote the minutes in figures, and thus these two different methods form a valuable check one on the other. In numerous cases where the Greek reading is vitiated by the omission of an accent, the correct value is found in the Arabic sources.

Two different and independent Arabic translations from the Greek are known: First, that of the British Museum Codex 7475. This is written in a very cursive character with a lamentable neglect of diacritical points, rendering it difficult to decipher. It is not written in the Maghribi or African character, but clearly it has been derived from a manuscript in that character. Secondly, that of the codices Bodleian 369, Laurentian 156, British Museum Reg. 16, and the manuscripts of Al Sûfi, which are all from the same source, generally recognized as the translation from the Greek made by Al Mamon about A. D. 827. These manuscripts are written in the character called Neskhi, and in considering the probable errors of their texts it should be borne in mind that Neskhi, which is the ordinary form of Arabic writing, was only invented about the beginning of the fourth century of the Hejira = A. D. 912. Consequently the original translation of Al Mamon was probably in Cufic Arabic, and rewriting this into Neskhi would give an opening for very many errors. This adds a further difficulty to the problem of arriving at Ptolemy's original catalogue.

In the year 1887 Dr. Peters thus expressed to the writer his views on the value of the Arabic manuscripts:

"On the whole the Arabic sources agree all pretty well together in the figures of Ptolemy's catalogue. The Arabs were altogether much more accurate than the Greek scribes, so that I am able to reconstruct the version of Al Mamon's copy almost without doubt. We must try to reduce all that has come down to us of the catalogue of the Almagest to two sources: (1) the direct Greek tradition; and (2) the Arabic, which represents the copy of certainly high antiquity that Al Mamon brought home and had translated. We know that there were two translations of the Almagest made at Baghdad,\* or that the first reduction was revised and improved upon several years later. This may account for some of the variants that are sustained, from both sides, by more than one of the sources of Arabic origin: I mean variants that do not come from the very frequent mistakes of the diacritical points."

The most common error in Arabic manuscripts is the omission of a diacritical point: thus the numbers 10 and 50 in combination differ only by a point; *e. g.*,  $\text{ع} = 18$  and  $\text{ح} = 58$ . Many such mistakes will be found in the manuscripts of Gerard of Cremona. Another common error is confusion between the Jeem  $\text{ج} = 3$  and the Hâ  $\text{ح} = 8$ , which seems to be due to the omission of a point, but in none of the manuscripts examined is the  $\text{ج} = 3$  written in a form resembling the  $\text{ح} = 8$ , and it is more probable that the error may be traced to the Cufic original, where both letters are written exactly alike without any point. The letter Ya  $\text{ي} = 10$ , when signifying *ten*, is most frequently written in the pure Cufic form. Confusion also occurs between the letters Tâ  $\text{ت} = 9$ , and Kaf  $\text{ك} = 20$ , possibly due to the original Cufic letters here shown, which might easily be confounded. In the British Museum Codex 7475 there are several mistakes between 3 and 4, which in some writing might easily be made, and it is clear that the scribe was sometimes doubtful which was correct, as in those cases he has written both letters; and in the same manuscript there are several mistakes of 10, 30, and 50 in combination; the absence of the point making 10 and 50 alike, and writing the Lâm  $\text{ل} = 30$  rather short makes it indistinguishable from either. In all manuscripts there is frequently confusion between

\*The first by Abu Jafar Almansur (ob. A. D. 775), the predecessor of Harun Al Rashid, and the second by Al Mamon (ob. A. D. 833), who was the son of that celebrated Khalif.

the letters Zā ڙ = 7 written without a point, and Waw ڥ = 6. Examples of all these errors will be found in the Table of Collations, and it will be noted that such mistakes are quite different to those that occur in Greek.\*

A curious series of mistakes, which appears to have escaped notice, is found in all manuscripts of Gerard of Cremona (A. D. 1114-1187), which were almost certainly made by him, and not by the copyist. The *latitudes* of 1 star in Ursa Minor, 5 in Draco, 8 in Cepheus, 9 in Hercules, 6 in Lyra, and 6 in Cygnus—that is to say, all stars of true latitude 60 and odd degrees—were all written as 300 and odd degrees. In some manuscripts a more recent scribe has altered these latitudes by erasure. It is not difficult to find an explanation. In all probability Gerard of Cremona learned his Arabic from the Moors. In the Maghribi or African numerical value of the letters, the letter Sin ڤ = 300, but in the Neskhi or usual Arabic, that letter = 60. The inference is that Gerard of Cremona used a manuscript from the East; that he was ignorant of the fact that the numerical value of the letters differed from that of the Moors or Western Arabs,† and had not sufficient knowledge of the subject to detect the gross mistake in the latitudes.‡ The edition of the *Almagest* printed by Liechtenstein in 1515 is the translation of Gerard of Cremona in which these errors are corrected.

Baily's investigation of Ptolemy's catalogue (*Memoirs Royal Astronomical Society*, Vol. XIII) is limited to the printed editions of the *Almagest*, which he most carefully examined, and his notes on these editions and his identification of the stars are of great value and assistance. All references in the present work are to the ordinal numbers of his catalogue.

Ptolemy's Catalogue of Stars has been very fully discussed by Delambre, who has pointed out the error in the latitude adopted for Alexandria and the defects in the position of the armillary sphere employed, and he has also remarked on the neglect of the influence of refraction; so that it is only necessary to refer to the valuable appendix he contributed to Halma's translation. Colonel Drayson§ has discussed the method of observation adopted by Ptolemy, which he assumes as measuring the difference of longitude, first between the sun and the moon, and then that between the moon and the star. In the case of either of these bodies being near the horizon, he shows how it would be possible to introduce errors in the longitudes of the stars of as much as 1° due to the neglect of the influence of refraction.

One interesting feature was remarked by Dr. Peters, viz.: that the instrument used for the longitudes of the original catalogue was graduated differently to that used for the latitudes. With three exceptions, all in the constellation Virgo,

\*Professor Nallino, in his important and exhaustive work on the "Opus Astronomicum" of Al Battani, has fully discussed the mistakes he found in translating the Arabic manuscripts of that author.

†The difference between the numerical value of letters with Eastern and Western Arabs is as shown in the table at the right.

‡Roger Bacon (A. D. 1214-1292) wrote: "Though we have numerous translations of all the sciences by Gerard of Cremona, Michael Scot, Alfred the Englishman, Hermann the German, and William the Fleming, there is such a falsity in their works that none can sufficiently wonder at it. . . . Not one of these translators had any true knowledge of the languages or of the sciences."

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	Eastern.	Western.
60	س	ص
90	ص	س
300	ش	س
800	ض	ظ
900	ظ	غ
1000	غ	ش

the minutes of longitude are either 10', 20', 30', 40', or 50'; whereas in the latitudes there are 144 stars where the minutes are either 15' or 45', clearly indicating a difference in the graduation of the instruments.

It is not, however, at all clear from Ptolemy's description how his instruments were used, and it is needless to inquire very closely into that question, if the views of Delambre, Peters, and the writer are substantiated, that the catalogue is that of Hipparchus transmitted to us by Ptolemy. Dr. Peters made some calculations of the position of stars for B. C. 200, rather before the time of Hipparchus, but quite incomplete. In Catalogue III will be found the whole catalogue reduced to the epoch of Hipparchus B. C. 130, by deducting  $2^{\circ} 40'$  from Ptolemy's longitudes, being the difference which Ptolemy states he found between the longitudes of Hipparchus and those of his time, and leaving the latitudes unaltered. The catalogue thus reduced is compared with modern observations computed for the epoch of Hipparchus, and a subsidiary table (Table I) is added, showing the average errors in the longitudes for the two epochs A. D. 100 and B. C. 130. In the construction of this table stars of very uncertain identification and those with large errors in longitude or latitude are omitted. Notwithstanding Ptolemy's statement that he "observed as many stars as it was possible to perceive, even to the sixth magnitude," it will be seen that the above evidence confirms the theory that the catalogue is in all probability that of Hipparchus reduced by the addition of a constant to the longitudes, and retaining his original latitudes. The descriptions of the stars were probably amended by Ptolemy.

Reference has been made to Dr. Peters' early paper on the errors of Ptolemy's catalogue, and to the results which he derived from the printed editions of the *Almagest*. As many of the figures differ from the finally adopted catalogue now submitted, a new table of the mean errors of zodiacal stars has been made (Table II), and for comparison is appended the mean errors of the same stars for the epoch of Hipparchus B. C. 130 (Table III). It will be seen that all the inferences drawn by Dr. Peters in his original paper are not affected. The comparison of the longitudes of zodiacal stars only for A. D. 100 shows a mean error of  $+34'.9$ , equivalent to 42 years, making the true epoch of Ptolemy's Catalogue A. D. 58, which is not very dissimilar to A. D. 63 adopted by Bode. The year A. D. 58 is 187 years after the epoch of Hipparchus, which gives a difference of precession of  $2^{\circ} 36'$ , agreeing closely with the difference  $2^{\circ} 40'$  which Ptolemy states he found between the longitudes of Hipparchus and those of his time. It is clear that his correction to Hipparchus could not represent observed positions in A. D. 138, and the conclusion is obviously in support of the view that the catalogue is simply that of Hipparchus modified by a constant added to the longitudes.

TABLE I.—Comparison of the average errors of the longitudes in Ptolemy's Catalogue for the assumed epoch A. D. 100, and the errors of Ptolemy's longitudes  $-2^{\circ} 40'$  for the epoch of Hipparchus B. C. 130.

Constellation.	No. of stars.	Mean latitude.	Longitude, average error.		Error $\times$ cos. lat.	
			A. D. 100.	B. C. 130.	A. D. 100.	B. C. 130.
<i>Northern.</i>						
Ursa Minor.....	8	+72 35	87.0	88.5	26.0	26.5
Ursa Major.....	35	+37 36	49.2	28.6	39.0	22.7
Draco.....	31	+78 48	143.4	133.9	27.8	26.0
Cepheus.....	13	+66 7	49.6	41.5	20.1	16.8
Bootes.....	22	+44 16	57.4	35.0	41.1	25.1
Corona Borealis.....	8	+46 56	66.5	35.2	45.4	24.0
Hercules.....	27	+56 41	76.5	51.8	42.0	28.4
Lyra.....	10	+58 42	97.1	69.1	50.4	35.9
Cygnus.....	16	+57 8	23.3	20.0	12.6	10.8
Cassiopeia.....	11	+48 7	67.8	39.1	45.2	26.1
Perseus.....	27	+25 14	43.3	18.1	39.2	16.4
Auriga.....	10	+18 38	33.2	11.0	31.5	10.4
Ophiuchus.....	27	+14 11	57.0	27.7	55.3	26.8
Serpens.....	14	+24 36	56.5	36.0	51.4	32.7
Sagitta.....	5	+38 56	53.4	34.0	41.5	26.4
Aquila.....	12	+26 20	57.5	36.1	51.5	32.3
Delphinus.....	8	+30 45	27.2	21.2	23.4	18.2
Equuleus.....	4	+23 2	40.5	14.0	37.3	12.9
Pegasus.....	20	+25 2	35.9	19.0	32.5	17.2
Andromeda.....	23	+31 21	26.0	20.7	22.2	17.7
Triangulum.....	4	+18 51	18.2	27.7	17.2	26.2
<i>Zodiacal.</i>	335				Mean 36.65	Mean 22.87
Aries.....	17	+5 32	26.9	14.4		
Taurus.....	41	-2 43	30.8	21.5		
Gemini.....	20	+0 31	32.1	10.2		
Cancer.....	11	0 0	43.4	22.4		
Leo.....	31	+4 45	41.9	18.0		
Virgo.....	27	+3 53	47.7	20.0		
Libra.....	17	+1 35	46.9	19.0		
Scorpius.....	24	-9 24	46.2	17.7		
Sagittarius.....	25	-2 43	45.2	17.0		
Capricornus.....	27	-0 11	19.3	25.3		
Aquarius.....	42	-4 26	32.2	14.1		
Pisces.....	33	+4 39	26.0	14.3		
<i>Southern.</i>						
Cetus.....	18	-18 16	16.0	20.9		
Orion.....	38	-18 41	26.5	25.6		
Eridanus.....	26	-34 58	13.7	30.0		
Lepus.....	11	-39 36	24.8	52.9		
Canis Major.....	26	-48 52	30.5	35.3		
Canis Minor.....	2	-14 42	38.5	8.5		
Argo Navis.....	29	-54 12	59.5	35.2		
Hydra.....	24	-20 23	40.8	16.1		
Crater.....	7	-17 2	39.4	11.5		
Corvus.....	7	-16 29	42.4	13.0		
Centaurus.....	24	-26 55	66.3	38.6		
Lupus.....	17	-22 4	51.3	29.3		
Ara.....	om.					
Corona Australis.....	13	-17 5	47.0	19.2		
Piscis Austrinus.....	11	-19 21	22.5	16.4		

TABLE II.—Zodiacal stars. Mean errors of Ptolemy's longitudes from comparison with modern observations reduced to A. D. 100.

Longitude, Ptolemy.	No. of stars.	Sums.		Mean value.		$\Delta l - 34'.9$
		$\Delta l$	$\Delta b$	$\Delta l$	$\Delta b$	
0 0		'	'	'	'	'
0-20	14	+318	-137	+22.7	-9.8	-12.2
20-40	16	+446	-85	+27.9	-5.3	-7.0
40-60	11	+277	+154	+25.2	+14.0	-9.7
60-80	10	+257	+168	+25.7	+16.8	-9.2
80-100	10	+427	+96	+42.7	+9.6	+7.8
100-120	9	+336	+125	+37.3	+13.9	+2.4
120-140	13	+566	+257	+43.5	+19.7	+8.6
140-160	11	+481	+240	+43.7	+21.8	+8.8
160-180	9	+499	+71	+55.4	+7.9	+20.5
180-200	8	+386	+44	+48.2	+5.5	+13.3
200-220	14	+608	-69	+43.4	-4.9	+8.5
220-240	13	+619	-251	+47.6	-19.3	+12.7
240-260	13	+546	-108	+42.0	-8.3	+7.1
260-280	11	+432	-151	+39.2	-13.7	+4.3
280-300	14	+237	-168	+16.9	-12.0	-18.0
300-320	20	+608	-444	+30.4	-22.2	-4.5
320-340	15	+433	-278	+28.8	-18.5	-6.1
340-0	7	+144	-66	+20.6	-9.4	-14.3
	218	+7620		+7620		
				$\frac{\quad}{218} =$	+34.9	

TABLE III.—Mean errors of Ptolemy's longitudes  $-2^\circ 40'$  from comparison with modern observations reduced to B. C. 130.

Longitude, Ptolemy $-2^\circ 40'$ .	No. of stars.	Sums.		Mean value.		$\Delta l - 4'.6.$
		$\Delta l$	$\Delta b$	$\Delta l$	$\Delta b$	
0 0		'	'	'	'	'
0-20	14	-102	-91	-7.3	-6.5	-11.9
20-40	16	-34	-103	-2.1	-6.4	-6.7
40-60	11	-52	+146	-4.7	+13.3	-9.3
60-80	10	-43	+149	-4.3	+14.9	-8.9
80-100	10	+127	+80	+12.7	+8.0	+8.1
100-120	9	+66	+106	+7.3	+11.8	+2.7
120-140	13	+163	+245	+12.5	+18.8	+7.9
140-160	11	+150	+240	+13.6	+21.8	+9.0
160-180	9	+228	+76	+25.3	+8.4	+20.7
180-200	8	+127	+52	+15.9	+6.5	+11.3
200-220	14	+160	-50	+11.4	-3.6	+6.8
220-240	13	+239	-225	+18.4	-17.3	+13.8
240-260	13	+145	-91	+11.1	-7.0	+6.5
260-280	11	+110	-134	+10.0	-12.2	+5.4
280-300	14	-183	-154	-13.0	-11.0	-17.6
300-320	20	+3	-430	+0.1	-21.5	-4.5
320-340	15	-23	-278	-1.5	-18.5	-6.1
340-0	7	-66	-71	-9.4	-10.1	-14.0
	218	+1015		+1015		
				$\frac{\quad}{218} =$	+4.6	

TABLE IV.—*List of manuscripts collated.*

P= Peters. K=Knobel.

No.	Title.	Codices.	No.	Collated by
<i>Greek.</i>				
1	Almagest.....	Codex Parisinus, Græcus.....	2389	P., K.
2	do.....	do.....	2390	P.
3	do.....	do.....	2391	P.
4	do.....	do.....	2392	P.
5	do.....	do.....	2394	P.
6	do.....	Codex Viennæ, Græcus.....	14	P.
7	do.....	Codex Venitiis, Græcus.....	302	P.
8	do.....	do.....	303	P.
9	do.....	do.....	310	P.
10	do.....	do.....	311	P.
11	do.....	do.....	312	P.
12	do.....	do.....	313	P.
13	do.....	Codex Laurentianus, Græcus, Plut. 28..	1	P.
14	do.....	do..... Plut. 28..	39	P.
15	do.....	do..... Plut. 28..	47	P.
16	do.....	Codex Laurentianus, Græcus, Plut. 89..	48	P.
17	do.....	Codex Vaticanus, Græcus.....	1038	P.
18	do.....	do.....	1046	P.
19	do.....	do.....	1594	K.
20	do.....	Codex Vaticanus, Reginensis, Græcus..	90	P.
21	do.....	Codex Bodleian, Selden, Græcus.....	3374	K.
<i>Latin.</i>				
22	Almagest.....	Codex Viennæ, Trapezuntius.....	24	P.
23	do.....	Codex Laurentianus.....	6	P.
24	do.....	do.....	45	P.
25	do.....	Codex British Museum, Burney.....	275	K.
26	do.....	Codex British Museum, Sloane.....	2795	K.
27	do.....	Codex Crawford.....	148-9	K.
28	do.....	Codex New College, Oxford.....	281	K.
29	do.....	Codex All Souls College, Oxford.....	95	K.
<i>Arabic.</i>				
30	Almagest.....	Codex Laurentianus.....	156	P.
31	do.....	Codex British Museum.....	7475	K.
32	do.....	Codex Bodleian, Pocock.....	369	K.
33	Al Sûfi.....	Codex India Office.....	2389	K.
34	do.....	Codex British Museum.....	7488	K.
35	do.....	do.....	1407	K.
36	do.....	do.....	5323	K.
37	do.....	Codex Parisinus.....	2488	K.
38	do.....	do.....	2489	K.
39	do.....	do.....	2490	K.
40	do.....	Codex Bodleian, Pocock.....	257	K.
41	do.....	Codex Bodleian, Huntingdon.....	212	K.
42	do.....	Codex Bodleian, Marsh.....	144	K.
43	Nassir Al Din Al Tûsi (Compendium of Almagest).	British Museum, Regis.....	16	K.
<i>Persian.</i>				
44	Ulugh Beg.....	Codex Parisinus.....	366	P.
45	do.....	do.....	164	P.
46	do.....	do.....	172	P.
47	do.....	Codex Royal Astronomical Society.....	.....	K.
48	do.....	Codex British Museum.....	16742	K.
49	do.....	do.....	7699	K.
50	do.....	do.....	11637	K.
51	do.....	Codex Crawford.....	709	K.
52	do.....	Codex Bodleian.....	548	K.
53	do.....	Codex Bodleian, Marsh.....	396	K.
54	do.....	Codex Bodleian, Pocock.....	226	K.
55	do.....	Codex Bodleian, Gravius.....	5	K.

## NOTES ON THE MANUSCRIPTS OF THE ALMAGEST.

### GREEK.

1. *Paris Codex 2389.* This, and No. 19, Codex Vaticanus Græcus 1594, are the oldest manuscripts of the Almagest yet discovered. Codex 2389 was probably originally in the Laurentian library at Florence, and it was bought by Catherine de Medici, who brought it to Paris; on her death it probably came to the library, now the Bibliothèque Nationale. It bears the stamp in gold of Henri IV. The manuscript is assigned to Sæc. IX and is very clearly written in uncial Greek. Halma attributed it to the seventh or eighth centuries, but Dr. Peters was not inclined to this view. He remarks that it can not be older than the end of the ninth century, and says further:

“Besides, it remains to be examined whether the writing is not, at least in parts, perhaps nothing but a copy of the older way of writing, and whether the handwriting itself is not of a considerably later date. To be noted is the transition of the sign for  $\eta\mu\sigma\nu$  into a later cursive (minuscule) form. A curious form of delta which occurs a few times was also taken into consideration.”

The manuscript of the catalogue is in two forms of uncial Greek, and has apparently been written by two scribes. From the commencement to the end of the constellation Virgo, that is, to the end of Book VII of the Almagest, the writing is in the well-recognized characteristic form of uncial Greek of the ninth century. (Plate II.) The contrast of light and heavy strokes and a decline in regularity are characteristic. From the commencement of Book VIII, with the constellation Libra, to the second star in the constellation Hydra, the writing is in round uncials of a much older type. It is far more regular and is beautifully written. The letters  $\epsilon$ ,  $\theta$ ,  $\omicron$ , and  $\varsigma$ , which in the first part are oval, are here circular. (Plate III.) It is probably from the consideration of this portion of the manuscript that Halma assigned it to the seventh or eighth centuries, as it certainly resembles writing of an earlier period. The peculiar form of delta noticed by Dr. Peters occurs only in this portion of the manuscript. It is apparently an ancient cursive form of the delta employed as far back as the second century. In the margin also are found a few examples of an old cursive form of the alpha. Dr. Peters remarks upon a variant to the longitude of the twenty-sixth star of Capricornus as if it was a small  $\text{H}$  which had been cancelled, but it is really an old cursive form of the letter  $\eta$ . The later form of the sign for  $\eta\mu\sigma\nu$  referred to has not been detected, though this sign is written in several varying forms. From the third star in Hydra to the end, the writing is the same as the first part of the catalogue. M. Omont states that “the manuscript is homogeneous from beginning to end, and is written throughout by one scribe who varied his writing, inasmuch as the two forms of writing referred to are intermixed in various places, or possibly a second scribe was employed.” The highest authorities assign the whole manuscript to the ninth century. Variants are in many cases added to the longitudes and latitudes of the stars, which indicate that the scribe copied from more than one manuscript or was doubtful of the exact character. For instance, in some cases where two readings are given of alpha and delta in the usual

letters, the scribe has written in the margin an old cursive alpha as explanatory.\* The magnitudes are given very correctly. Writing 25 cm. high, 18 cm. wide.

2. *Paris Codex 2390.* About Sæc. XII. Clearly and neatly written in small characters with many abbreviations. Halma states that he used in his edition the Florence manuscript 2390. There is no manuscript of the *Almagest* at Florence so numbered. He thus describes it: "Il est au commencement du 12<sup>m</sup>e siècle; caractères très menus; très difficile à lire à cause du grand nombre de ligatures et d'abréviations de l'écriture." The mistakes he found, which are given by Baily, show an identity with Paris 2390, and there can be little doubt that its designation as a Florence manuscript is erroneous.
3. *Paris Codex 2391.* About Sæc. XV. Complete. Neatly written.
4. *Paris Codex 2392.* About Sæc. XV. Incomplete. The catalogue terminates with the third star of Corona Borealis. A very bad copy.
5. *Paris Codex 2394.* "Codex chartaceus Constantinopoli nuper in Bibliothecam Regiam illatus. Is codex descriptus est exemplari sæculo decimo tertio exarato, quod in illustrissima Valachiæ Principio Bibliotheca asservatur." The manuscript is a copy made in 1733 for the Bibliothèque du Roi. This copy shows that the resemblance of the archetype with Grynæus is very close. It contained all the errors of print of Grynæus, but having omissions, it can not be the manuscript used by Grynæus. It also had the latitudes of Baily's stars 248-250, which are wanting in the edition of Grynæus.
6. *Vienna Codex 14.* About Sæc. XVI. Contains only the longitudes of the stars. It seems a copy of No. 14, the Laurentian Codex 39. The extreme errors seem to be the same as No. 20, the Vatican Codex Reg. 90.
7. *Venice Codex 302.* About Sæc. XV. In rather small minuscules, but the figures and accents are well and accurately written.
8. *Venice Codex 303.* About Sæc. XIV. Writing is distinct and some variants are written above the longitude and latitude. Some stars are omitted. The words *μείζων* and *ἐλάσσων* are omitted after Bootes and the magnitudes were not compared. It seems to be more correct than No. 10. Venice Codex 311.
9. *Venice Codex 310.* About Sæc. XIV. Written in very clear and neat minuscules. The positions of the stars show much similarity to No. 12, Venice Codex 313, and particularly to No. 16, Laurentian Codex 48.
10. *Venice Codex 311.* Given in Zanetti's catalogue as about Sæc. XII, but in Peters' opinion it is undoubtedly later. It is suggested by Morelli that this manuscript is a copy of Venice 313, or perhaps Venice 303. It is carelessly written, the *μείζων* and *ἐλάσσων* being repeatedly omitted, and there is some confusion.
11. *Venice Codex 312.* Zanetti gives the date about Sæc. XII; Morelli as about Sæc. XIII. The longitudes of the catalogue are those of Ptolemy increased by 17°. It is observable that the true longitudes of Ptolemy were first written and then the modified longitudes written over the first figures. Various errors in the zodiacal signs have resulted. In examining the volume Peters discovered some correspondence, dating from the year 1817, between Morelli and the Abbé Halma, from which it appears that Halma never had in his hands the Venice Codex, which he erroneously calls 313 instead of 312. At his request Morelli sent him as a specimen a comparison of the positions of the stars in Ursa Minor and Ursa Major with Grynæus. A list of the positions where these differ is found in the original of one of Morelli's letters, and it is this list which Halma gives in his list of variants (vol. II, p. 435).

\*Photographs of the whole Catalogue in this manuscript are deposited at the Carnegie Institution of Washington.

12. *Venice Codex 313*. Attributed by Zanetti to about Sæc. X, but considered by Morelli as Sæc. XI. This important manuscript is complete for the catalogue. Some few variants are given in the margin by the same hand. The magnitudes are given as correctly as in any other known manuscript. See further under No. 19, Vatican Codex 1594.
13. *Laurentian Codex. Pluteus 28, 1*. About Sæc. XIII. Catalogue complete.
14. *Laurentian Codex. Pluteus 28, 39*. About Sæc. XI. Contains only Books VII and VIII. Catalogue gives descriptions and longitudes only, omitting the latitudes and magnitudes; the writing is large and clear. This seems to originate from the same source as Vienna Codex 14 and the Vatican Codex Reg. 90, the mistakes and omissions being the same, but the Vatican Codex contains the latitudes and is complete.
15. *Laurentian Codex. Pluteus 28, 47*. About Sæc. XIV. Badly written, and ink much faded. Seems to have been written by a learned man who paid more attention to the matter than to beauty of style.
16. *Laurentian Codex. Pluteus 89, 48*. About Sæc. XI. Beautifully written with great exactness, and with the additions of *μείζων* and *ἐλάσσων* to the magnitudes. Much similarity between this manuscript and Codex Venetiis 310.
17. *Vatican Codex 1038*. About Sæc. XII. The figures are clearly and plainly written, but sometimes without care. The copyist seems to have written vertically, so that the fractions are often displaced by one line. Halma (Preface, page lii) speaks of a manuscript at the Vatican numbered 560, which contains the Almagest following a manuscript of Euclid. As the first portion of the Vatican Codex 1038 is occupied by a manuscript of Euclid, it is probable that this is the manuscript referred to as 560.
18. *Vatican Codex 1046*. Sæc. XVI. Somewhat carelessly written. Contains the whole Almagest, but in the catalogue the figures for the positions and magnitudes are given only up to the thirteenth star of Draco. In a note the copyist complains of the contractions and illegibility of the archetype. Hence each book terminates with the remark *Θεῶ Χάρις* (God be thanked). This may perhaps be the manuscript referred to by Halma as No. 184. (Preface, page lii.)
19. *Vatican Codex 1594*. Sæc. IX. The most beautifully written Greek manuscript of the Almagest thus far discovered.\* (Plate IV.) This was investigated by Heiberg in his Greek edition of the Almagest, 1898–1903, and by Manitius in his German translation of the Almagest, 1912. The manuscript is written in small uncial characters with great regularity. Some variants are inserted in the margin. Notes in the margin are in very early form of minuscules. The whole of the catalogue appears to be written by one hand. The *μείζων* and *ἐλάσσων* are correctly added to the magnitudes, and, with the exception of three stars in Cetus, agree with Codex Venetiis 313. Several errors in the longitudes and latitudes are found equally in Venice Codex 313, indicating a common origin.
20. *Vatican Codex, Reg. 90*. This codex is probably not very old, as the writer has used many contractions (*vide* Nos. 6 and 14).
21. *Bodleian Codex, Selden 3374*. Early Sæc. XIV. A perfect copy, beautifully written, without variants.

## LATIN.

22. *Vienna Codex 24 (Trapezuntius)*. A fine codex written for Matthias Corvinus, but somewhat carelessly done, as the signs and notations of the latitudes are frequently omitted. The title is "Magnæ compositionis Claudii Ptolomæi libri a

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\*Photographs of the whole Catalogue in this manuscript are deposited at the Carnegie Institution of Washington.

- Georgio Trapezuntio traducti." It is the translation from the Greek used for the Trapezuntius Almagest printed in 1528. The codex does not seem to be a copy of No. 23 Codex Laurentianus 6. The date is given at the end, "Finis 17 Marcii, 1467."
23. *Laurentian Codex 6.* Translation from the Greek by Georgius Trapezuntius. This Codex is dedicated to Pope Sixtus IV by Andreas Trapezuntius (son of the translator), which fixes the date between 1471 and 1484. It is carefully and clearly written.
24. *Laurentian Codex 45.* About Sæc. XIV. Beautifully written manuscript. Many variants added, some by the same hand, and others at a subsequent date. This, like the three following manuscripts, is a copy of the translation from the Arabic by Gerard of Cremona. There is a good deal of confusion in places and it does not appear to be a very accurate copy. As is found in other copies of Gerard of Cremona's translation, the *μείζων* and *ελάσσων* are indicated by the letters *em* and *el*.
25. *British Museum Codex. Burney 275.* Sæc. XIV. Translation from the Arabic by Gerard of Cremona. Formerly belonged to Pope Gregory XI (1370-1378) and was given by Clement VII to the Duc de Berri in 1387. It is a complete copy of the Almagest, beautifully written throughout, with handsome illuminations. The *μείζων* and *ελάσσων* are entirely omitted from the magnitudes.
26. *British Museum Codex, Sloane 2795.* Translation from the Arabic by Gerard of Cremona. The date of this manuscript is placed by Sir Edward Maunde Thompson as "circa 1300, possibly earlier, but hardly before the accession of Edward I, 1272." It is clearly written, but with many mistakes. The letters *em* and *el* for *μείζων* and *ελάσσων* are only in some cases appended to the magnitudes. The manuscript is imperfect, wanting several books.
27. *Crawford Codex.* A very fine illuminated manuscript of the complete Almagest, belonging to the Earl of Crawford. Sæc. XV. Translation from the Arabic by Gerard of Cremona. The original from which this manuscript was copied was evidently difficult to decipher, for the scribe has left blank spaces for many words, sometimes giving only the initial letters. There is no indication as to latitudes being north or south. The second page begins with the following sentence not found in the Liechtenstein Almagest: "Liber hic præcepto Maimonis regis Arabum qui regnavit in Baldach (Baghdad) ab Alhazen filio Josephi filio Maire, Arithmetici, et Sergio filio Elbe, cristiano, in anno XII et CC sectæ Saracenorum (A. D. 827) translatus est." Weidler describes a manuscript "Peirescianus" of Ptolemy which has this sentence at the end. It is to be noted in the Crawford manuscript that the word "stellam" in the original has been written "terram," which offers an explanation of Liechtenstein's curious description of the second star in Orion; "quæ appropinquat ad terram (? stellam) in humero Orionis."
28. *New College, Oxford, No. 281.* A very imperfect copy of Gerard of Cremona's translation. It contains the catalogue of stars. Descriptions are given to the stars only in the first eight constellations. The manuscript is carelessly written and contains numerous mistakes.
29. *All Souls College, Oxford, No. 95.* Baily quotes a reference to this manuscript by Fabricius. It is clearly the translation of Gerard of Cremona, but the catalogue of stars in Books VII and VIII is omitted, and it is evident that this was intentional, as the text follows on from Book VII, cap. 9, to Book VIII, cap. 2, which is on the Milky Way.

## ARABIC.

30. *Codex Laurentianus 156*. A carefully written manuscript in Neskhi or ordinary Arabic characters. Presumably a copy of the translation made by Al Mamon about A. D. 827.
31. *British Museum 7475*. An incomplete copy of the *Almagest*, wanting the first six books. Dated A. H. 615 = A. D. 1218. It is written in rather cursive Arabic, not in the Maghribi characters, but probably derived from an African manuscript; there is a lamentable absence of diacritical points, which makes the decipherment difficult. It is evidently a different translation from the Greek to No. 30 or No. 32. Whereas in these two manuscripts the *μεῖζων* and *ελάσσων* are expressed by the initials of the Arabic words *كبير* (Kabir) and *صغير* (Saghir) signifying "great" and "small," in *British Museum 7475*, the initials of the Greek words *Μ* (Mim) and *Λ* (Lām) are given. Many of the longitudes and latitudes differ from all other authorities.
32. *Bodleian Arabic Almagest, Pocock 369*. Dated A. H. 799 = A. D. 1396. A well-written complete copy in Neskhi or ordinary Arabic. It compares with No. 30 in being presumably a copy of Al Mamon's translation.
33. *British Museum Arabic Manuscript, Reg. 16, A. VIII*. A compendium of the *Almagest* by Nassir Al Din Al Tusi, commonly called "Nassir Eddin." A very beautiful and accurately written codex in Neskhi characters. The most carefully written Arabic manuscript yet examined. Sæc. XV or XVI. On the first page is written, "This booke belonged to Sultan Ahmed ye Turkish Empr. and cost about 100 crownes at ye first." The catalogue is complete, and several resemblances with *Bodleian Pocock 369* indicate that these two manuscripts had a common origin, though the copy of Nassir Eddin is more accurate. From the identity in the descriptions of the stars, the catalogue is taken from the translation of Al Mamon.

TABLE V.—*Errors in manuscripts.*

		<i>Stars.</i>
Errors of $\varsigma=6^\circ$ and $\varsigma'=10'$ .	Longitudes.	3, 281, 305, 354, 439, 508, 685, 716, 777, 861, 1022.
	Latitudes.	1, 121, 233, 376, 436, 476, 501, 509, 513, 596, 686, 913, 980.
Errors of $\Gamma=3^\circ$ and $\Gamma'=20'$ .	Longitudes.	180, 207, 375, 448, 452, 478, 686, 849, 899, 992.
	Latitudes.	42, 66, 129, 134, 154, 432, 449, 487, 572, 625, 701, 733, 748, 757, 954, 958, 1000, 1012.
Errors of $\Delta=4^\circ$ and $\Delta'=15'$ .	Longitudes.	533.
	Latitudes.	83, 86, 103, 138, 141, 395, 399, 402, 471, 645, 752, 769.
Errors of $\epsilon=5^\circ$ and $\Theta=9^\circ$ .	Longitudes.	19, 75, 90, 329, 341, 458, 524, 569, 570, 604, 605, 973.
	Latitudes.	281, 558, 755, 810, 855.
Errors of $\Lambda=1^\circ$ and $\Lambda=30^\circ$ .	Longitudes.	121.
	Latitudes.	766, 767, 980, 983, 994.
Errors of $\Lambda=30^\circ$ for $\Delta=4^\circ$	Longitudes.	1013, 1015.
Errors of $\Lambda=1^\circ$ and $\Delta=4^\circ$ .	Longitudes.	29, 155, 157, 158, 234, 265, 376, 382, 383, 402, 415, 463, 464, 465, 485, 486, 488, 495, 534, 539, 542, 544, 623, 644, 675, 682, 745, 749, 775, 782, 783, 797, 804, 829, 890, 912, 915, 970, 971, 983, 999, 1008, 1020, 1025.
	Latitudes.	52, 71, 73, 76, 111, 166, 167, 185, 193, 196, 212, 266, 308, 335, 357, 369, 429, 497, 534, 606, 662, 698, 715, 729, 739, 758, 759, 760, 813, 879, 897, 955, 959, 969, 998, 1028.

$$\begin{array}{ll}
 \zeta, \zeta', \zeta, \zeta, \zeta, \zeta, \zeta' & = \frac{1}{2} = 30' & \epsilon, \omega & = 2 \\
 \Gamma, \Gamma', \bar{\Gamma} & = \frac{1}{3} = 20' & \kappa, \bar{\omega} & = 20 \\
 \Delta', \Delta', \delta' & = \frac{1}{4} = 15' & \text{H, h} & = 8 \\
 \varsigma', \varsigma', \varsigma' & = \frac{1}{6} = 10' & \zeta, \beta & = 7 \\
 \rho, \beta, \omega', \epsilon, \varsigma, \varsigma' & = \frac{2}{3} = 40' & \Theta, \theta & = 9 \\
 \varsigma \Delta' & = \frac{1}{2} \frac{1}{4} = 45' & \epsilon, \epsilon, \epsilon & = 5 \\
 & & \text{H N, } \mu & = 50 \\
 \text{No 18. } \Lambda \Delta' & = 37^\circ 15' & \kappa \Gamma' & = 20^\circ 20' \\
 \text{M } \Delta & = 44^\circ 0' & \text{No 572. } \kappa \Gamma' & = 10^\circ 50' \\
 \Delta & = 1. \Delta = 4 & \lambda & = 30 \\
 \Lambda & = 1 & \lambda & = 30 \\
 & & & \text{5th Cent.}
 \end{array}$$

FIG. 2.—*Facsimiles from various manuscripts.*

ΚΩΣΙΣΚΑΝΗΝΙΚΗΤΥΚΑΧΤΕΒΡΗΝΗΝΙΚΗΦΑΙΡΗΝΗΧΕΤΕΡΙΚΑΝΥ  
ΑΠΦΩΣΙΣ:

ΧΡΚΤΙΥΑΝΚΡΑ

ΧΕΤΕΡΙΚΑΙΣ:

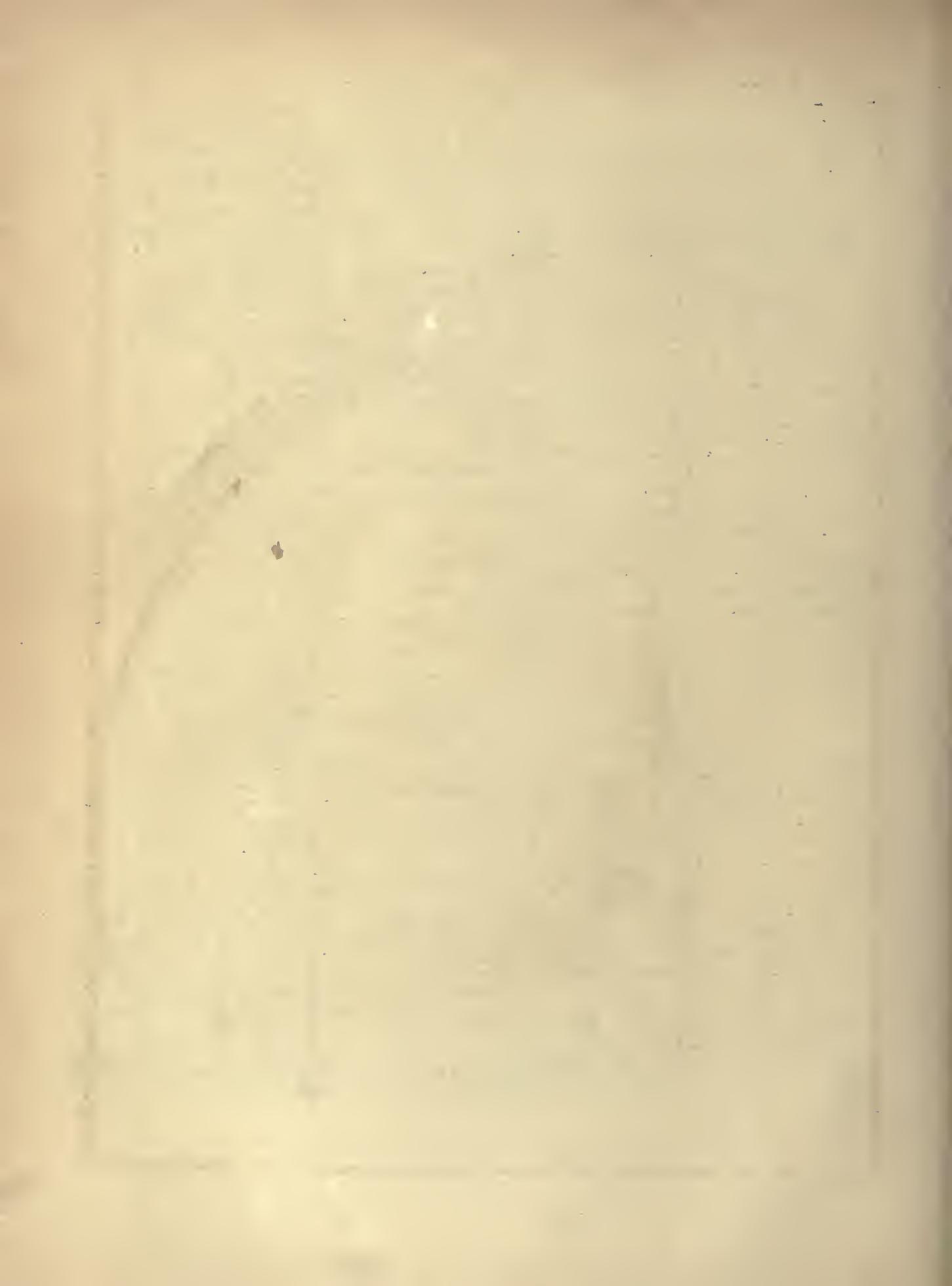
ΚΗΚΟΥΣΤΙΑΤΙΝΙ: ΜΕΓΕ  
ΜΟΙΡΑΙ: ΜΟΙΡΑΙ: ΘΙΣ:

ΑΡΚΤΟΣ ΔΙΚΡ

ΑΡΚΤΟΣ ΔΕΓΑ

ΘΕΠΑΚΡΑΙΤΗΣΟΥΡΑΣ	ΔΙΑΥ	00S	ΒΙΡ	3S	Γ
ΕΜΙΣΤΑΥΤΗΣΕΝΙΤΗΣΟΥΡΑΣ:	ΔΙΑΥ	ΕΥ	ΒΙΡ	0	Α
ΔΙΕΣΤΑΥΤΗΠΡΟΤΗΚΕΦΥΣΕΩΣΤΗΣΟΥΡΑΣ:	ΔΙΑΥ	IS	ΒΙΡ	0ΑΓ	Α
ΤΗΣΠΡΟΓΑΛΙΕΝΗΣΤΙΥΠΛΗΝΟΥΠΛΕΥΡΑΣ00	ΔΙΑΥ	Ι0Α	ΒΙΡ	0ΕΓ	Α
ΤΗΣΑΥΤΗΣΠΛΕΥΡΑΣΒΕΡΡΗΣ:	ΚΑΡ	ΓΓ	ΒΙΡ	0ΖΒ	Α
ΤΩΝΕΝΤΗΣΠΙΜΝΗΣΠΛΕΥΡΑΝΗΤΙΣ:	ΚΑΡ	ΙΖS	ΒΙΡ	0ΒΓ	Β
ΤΗΣΑΥΤΗΣΠΛΕΥΡΑΣΒΕΡΡΗΣ:	ΚΑΡ	ΚSS	ΒΙΡ	0ΔΓ	Β
ΧΙΤΤΕΡΕΣΖΩΝΕ ΜΕΓΕΤΙΥΕΒ ΓΑΔΑΠΕΡΙΑΥΤΗΝΑΜΙΦΩΤΙΣ:					
0ΤΙΣΕΝΤΗΣΠΙΜΝΗΣΠΛΕΥΡΑΣΠΕΝΤΕΚΑΚΑΝΗΠΩΤ	ΚΑΡ	ΕΓ	ΒΙΡ	0ΑΣ	Α
ΧΙΤΤΗΡΑ ΜΕΓΕΘ Δ:					
ΡΚΤΙΥΜΕΓΑΛΗΧΕΤΕΡΙΚΑΙΣ:					
ΘΕΠΑΚΡΙΥΤΙΥΥΓΧΙΥ:	ΔΙΑΥ	ΚΕΓ	ΒΙΡ	0ΑΓ	Α
ΤΩΝΕΝΤΗΣΑΥΤΗΣΦΑΛΜΙΝΟΠΡΗΓΙΥΜΕΝΙΣ:	ΔΙΑΥ	ΚΕΓ	ΒΙΡ	0ΜΓ	Ε
0ΕΠΙΜΝΗΣΑΥΤΩΝ:	ΔΙΑΥ	ΚSΓ	ΒΙΡ	0ΜΓ	Ε
ΤΩΝΕΝΤΩΧΙΤΩΠΩΒ0ΠΡΗΓΙΥΜΕΝΙΣ:	ΔΙΑΥ	ΚSΣ	ΒΙΡ	0ΜΖS	Ε
0ΕΠΙΜΝΗΣΑΥΤΩΝ:	ΔΙΑΥ	ΚSΓ	ΒΙΡ	0ΜΖ	Ε
0ΕΠΑΚΡΙΥΤΙΥΠΡΟΓΑΛΙΕΝΗΥΩΤΙΥ:	ΔΙΑΥ	ΚΗΣ	ΒΙΡ	0ΗΛ	Ε
ΤΩΝΕΝΤΩΤΡΑΧΗΛΩΒ0ΠΡΟΓΑΛΙΕΝΙΣ:	ΚΑΡ	0Γ	ΒΙΡ	0ΜΓ	Α
0ΕΠΙΜΝΗΣΑΥΤΩΝ:	ΚΑΡ	ΒΛ	ΒΙΡ	0ΜΑΓ	Α
ΤΩΝΕΝΤΩΣΤΗ0ΑΥΤΕΒ0ΒΕΡΡΗΣ:	ΚΑΡ	0	ΒΙΡ	0ΜΒ	Α
0ΝΟΤΩΤΕΡΕΣΑΥΤΩΝ:	ΚΑΡ	ΙΑ	ΒΙΡ	0ΜΑ	ΑΕ
0ΕΠΙΤΙΥΑΡΙΣΤΕΡΙΥΓΗΑΤΙΣ:	ΚΑΡ	ΙΓ	ΒΙΡ	0ΛS	Γ
ΤΩΝΕΝΤΩΜΠΡΟΤΗ0ΑΡΙΣΤΕΡΩΚΡΟΠΙΔΙΒΙΡ	ΚΑΡ	ΕΛ	ΒΙΡ	0ΚΑΓ	Γ
0ΠΡΟΤΕΡΕΣΑΥΤΩΝ:	ΚΑΡ	SΓ	ΒΙΡ	0ΚΗΓ	Γ
0ΕΠΑΝΩΤΙΥΔΕΖΙΥΓΗΑΤΙΣ:	ΚΑΡ	ΕΓ	ΒΙΡ	0ΛΕ	Α
0ΥΠΙΚΑΤΩΤΙΥΔΕΖΙΥΓΗΑΤΙΣ:	ΚΑΡ	ΕΛΓ	ΒΙΡ	0ΛΓ	Α
ΤΩΝΕΝΤΩΤΙΤΡΑΠΛΥΡΩ0ΠΙΤΟΥΝΗΤΟΥ:	ΚΑΡ	ΙΖΓ	ΒΙΡ	0ΜΑ	Β
0ΕΠΙΤΗΣΑΔΕ0ΝΟΣΑΥΤΩΝ:	ΚΑΡ	ΚΕS	ΒΙΡ	0ΜΛ	Β
0ΕΠΙΤΗΣΚΦΥΣΕΩΣΤΗΣΟΥΡΑΣ:	ΛΕΗ	ΓS	ΒΙΡ	0ΝΑ	Γ
0ΛΠΡΟΚΑΙΠΤΙΥΑΡΙΣΤΕΡΙΥΠΙ0ΙΥΜΗΡΙΥ:	ΛΕΗ	0	ΒΙΡ	0ΜSΛ	Β
ΤΩΝΕΝΤΩΠΙ0ΑΡΙΣΤΕΡΩΚΡΟΠΙΔΙΠΡΗΓ:	ΚΑΡ	ΚΕΓ	ΒΙΡ	0ΚΑΓ	Γ
0ΤΟΥΤΩΠΙΜΙΝΙΣ:	ΚΑΡ	ΚΑΣ	ΒΙΡ	0ΚΗΑ	Γ
0ΠΙΤΗΣΑΡΙΣΤΕΡΑΓΚΥΑΝΕ:	ΛΕΗ	ΑΓ	ΒΙΡ	0ΛΕΑ	ΑΜ
0ΕΝΤΩΔΕΖΙΩΠΙ0ΑΡΙΣΤΕΡΩΚΡΟΠΙΔΙΒΕΡΡΗΣΤ	ΛΕΗ	ΑΛΓ	ΒΙΡ	0ΚΕΓ	Γ
0ΠΙΤΕΡΕΣΑΥΤΩΝ:	ΛΕΗ	ΙΓ	ΒΙΡ	0ΚΕ	Γ
ΤΩΝΕΠΙΤΗΣΟΥΡΑΣ0ΜΕΤΑΤΗΝΚΦΥΣΗΠΡΩΤΙΣ:	ΛΕΗ	ΙΒS	ΒΙΡ	0ΗΓ	Β
0ΜΕΡΕΣΑΥΤΩΝ:	ΛΕΗ	ΙΗ	ΒΙΡ	0ΗΕΓ	Β
0ΤΡΙΤΗΚΑΙΕΠΑΚΡΑΙΤΗΣΟΥΡΑΣ:	ΛΕΗ	Ι0ΑΓ	ΒΙΡ	0ΗΑ	Β
ΧΙΤΤΗΡΕΚΖΩΝΗΜΕΓΕΘSΓΗΑΗΕΕ:					
ΤΩΝΥΠΛΟΥΤΗΝΑΜΙΦΩΤΩΝ:					
0ΥΠΙΤΗΝΙΥΡΑΝΑΠΩ0ΙΝΗΙΝΙΤΗΝ	ΛΕΗ	ΚΖΓ	ΒΙΡ	0ΑΗΑ	Γ
0ΤΙΥΤΙΥΠΡΗΓΙΥΜΕΝΙΣΑΜΑΥΡΟΤΕΡΕΣ:	ΛΕΗ	ΚS	ΒΙΡ	0ΑΑΓ	Ε
ΤΩΝΜΕΓΑΖΥΤΩΝΕΜΠΡΟΤΗ0ΑΠΙΔΩΝΗΤΗΣ	ΚΑΡ	ΙΕ	ΒΙΡ	0ΙΖΑ	Α
ΧΡΚΤΙΥΚΑΙΤΗΚΕΦΑΙΤΙΥΔ00ΝΤΙΤΕΡ					
0ΤΙΥΤΙΥΒΕΡΡΗΣΤΕΡΕΣ:	ΚΑΡ	ΙΓΓ	ΒΙΡ	0ΑS	Α

PHOTOGRAPH C. PARIS, 2389. IX CENTURY.



οσπρωιαριστεραλοισοομπρωι  
 ταιεντηχριστερακινμηβονοτιωτερος  
 οβορειωτεροσλυτωνυποτορονυ  
 τειντρυσεωστοουυδατοςαποτχειροσουρ  
 οεχομενοσεκνοτουτοουπροειριμενου  
 οτουτ'εχομενοσμετατηνικαμνην  
 οεπιτοουταηεπομενοσ  
 οτουτ'ενικαμνηαπομεσικμβριασ  
 τ'απομεσικμβριασλυτουββορειωτερος  
 ονοτιωτεροστυωνδυο  
 οαεστωσλυτωνπροσμεσικμβριμοναχοσ  
 τωνμεταλυτονβ'συνεχωνοπροηγουμενοσ  
 οεπομενοσλυτων  
 τ'εντηεχομενησυστροφηνγοβορειουσ  
 ομεσοστυων  
 οεπομενοσλυτων  
 ομοιωστωνεφεζνεγοβορειουσ  
 ονοτιωτεροστ'τρων  
 ομεσοσλυτων  
 τ'εντηλοπινησυστροφηνγονουμενοσ  
 τωνλοπινησβονοτιωτεροσ  
 οβορειωτεροσλυτων  
 οεσχατοστ'υδατ'ισαιεντ'στοματοστηνιχουσ  
 αστερεσικμβριωναμεγεδα'εδα'ιρε'ιρ'σ'α  
 οιπεριτονυδαροχοοναμορφωτοι  
 τ'επομητικαμνητουυδατοσγονουμεν  
 τ'λοπινησβοβορειωτεροσ  
 ονοτιωτεροσλυτων  
 αστερε'εμεγεδα'ε  
 ι'χουσναστεριεμοσ  
 οεντωιστοματιτουπροηγουμιχουσ  
 τ'εντωνικρανιωλυτουβονοτιωτεροσ  
 οβορειωτεροσλυτων  
 τωνεντωνωτωνβ'οιροντ'  
 οεπομενοσλυτων  
 τ'εντηκοιμαβ'οιροντ'  
 οεπομενοσλυτων  
 οεντηουρατουλυτουι'χουσ  
 τ'ικατατολινολυτουοιρωτοσαποτ'δυρασ  
 οεπομενοσλυτων  
 τ'εφεζνεσλαμπρωιγονροντ'  
 ομεσοσλυτων  
 οεπομενοστυωντρων  
 τ'υπαυτ'ενικαμνημικρωνβ'οβορειωτερ  
 ονοτιωτεροσλυτων

ΥΑΡΟ	ΑΒ	ΠΟ	ΟΛ	Ε
ΥΑΡΟ	ΠΓ	ΝΟ	Γ	Ε
ΥΑΡΟ	ΖΔ	ΜΟ	Ο	Ε
ΥΑΡΟ	ΙΕ	ΒΟ	Β	Α
ΥΑΡΟ	ΙΑΛΓ	ΒΟ	ΟΥ	Α
ΥΑΡΟ	ΙΖΕ	ΠΟ	ΑΣ	Α
ΥΑΡΟ	Κ	ΝΟ	Λ	Α
ΥΑΡΟ	ΚΛ	ΝΟ	ΑΓ	Α
ΥΑΡΟ	ΙΘ	ΝΟ	ΕΛ	Α
ΥΑΡΟ	ΙΟΛΓ	ΝΟ	ΑΣ	Α
ΥΑΡΟ	ΚΔ	ΝΟ	ΗΑ	Ε
ΥΑΡΟ	ΚΚΓ	ΝΟ	ΙΑ	Ε
ΥΑΡΟ	ΚΓΣ	ΝΟ	ΙΓ	Ε
ΥΑΡΟ	ΚΑΛ	ΝΟ	ΙΑ	Ε
ΥΑΡΟ	ΚΒΣ	ΝΟ	ΙΑΔ	Ε
ΥΑΡΟ	ΚΓΣ	ΝΟ	ΙΕΙ	Ε
ΥΑΡΟ	ΙΖ	ΝΟ	ΙΑΣ	Α
ΥΑΡΟ	ΠΓ	ΝΟ	ΙΕΛ	Α
ΥΑΡΟ	ΙΖ	ΝΟ	ΙΘ	Α
ΥΑΡΟ	ΙΑΛΓ	ΝΟ	ΙΑΔ	Α
ΥΑΡΟ	ΙΕΓ	ΝΟ	ΙΕΓ	Α
ΥΑΡΟ	ΠΣ	ΝΟ	ΙΑ	Α
ΥΑΡΟ	Ζ	ΝΟ	ΚΓ	Α
ΥΑΡΟ	ΚΣΙ	ΝΟ	ΙΕΛ	Α
ΥΑΡΟ	ΚΘΙ	ΝΟ	ΙΑΙ	Α
ΥΑΡΟ	ΚΘ	ΝΟ	ΗΙΑ	Α
ΥΑΡΟ	ΚΑΙ	ΒΟ	ΟΛ	Α
ΥΑΡΟ	ΚΑΣ	ΒΟ	ΖΛ	Α
ΥΑΡΟ	ΚΣ	ΒΟ	ΟΓ	Α
ΥΑΡΟ	ΚΗΣ	ΒΟ	ΟΛ	Α
ΥΑΡΟ	ΟΤ	ΒΟ	ΖΛ	Α
ΥΑΡΟ	ΚΣ	ΒΟ	ΑΛ	Α
ΥΑΡΟ	ΚΟΙ	ΒΟ	Π	Α
ΥΑΡΟ	Σ	ΒΟ	ΣΓ	Α
ΥΑΡΟ	ΙΑ	ΒΟ	ΕΛ	Α
ΥΑΡΟ	Π	ΒΟ	ΠΛ	Α
ΥΑΡΟ	ΙΖΣ	ΒΟ	ΒΑ	Α
ΥΑΡΟ	ΚΣ	ΒΟ	ΑΣ	Α
ΥΑΡΟ	ΚΓ	ΝΟ	Σ	Α
ΥΑΡΟ	ΚΒ	ΝΟ	Β	Α
ΥΑΡΟ	ΚΓ	ΝΟ	Ε	Α

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## THE CATALOGUE.

The longitudes, latitudes, and identifications of the stars in the following catalogue are almost entirely those decided on by Dr. Peters from a full consideration of all the materials. In selecting from the different readings in the manuscripts, he took into consideration not only the agreement with the computed position, but also the fair accordance with the general errors in Ptolemy's longitudes of the particular constellation. From this it is inferred that the original observations of the stars were made by constellations, and not indiscriminately. As has already been mentioned, he computed from Piazzzi the positions of all stars which might possibly be those observed by Ptolemy, reduced from A. D. 1800 to A. D. 100, which he assumed as the epoch of Ptolemy's longitudes.

The formula employed was

$$l' = l - 23^\circ 30'.1 + 13'.6 \cos l \tan b - 0'.7 \sin l \tan b \qquad b' = b - 13'.6 \sin l - 0'.7 \cos l$$

The computed positions are corrected as far as possible for proper motion from the following considerations:

*For computing the influence of Proper Motions.*

Generally

$$db = \cos \eta \cdot d\delta - \sin \eta \cdot \cos \delta da \qquad dl = \frac{\sin \eta}{\cos b} \cdot d\delta + \frac{\cos \eta}{\cos b} \cdot \cos \delta da$$

where

$$\cos b \sin \eta = \sin \epsilon \cos \alpha \qquad \cos b \cos \eta = \cos \epsilon \cos \delta + \sin \epsilon \sin \delta \sin \alpha$$

or

$$\sin \eta = \frac{\cos \alpha}{\cos b} \cdot \sin \epsilon \qquad \cot \eta = \frac{\cos \delta}{\cos \alpha} \cot \epsilon + \tan \alpha \sin \delta$$

$$\cos \delta \sin \eta = \sin \epsilon \cos l \qquad \cos \delta \cos \eta = \cos \epsilon \cos b - \sin \epsilon \sin b \sin l$$

or

$$\sin \eta = \frac{\cos l}{\cos \delta} \cdot \sin \epsilon \qquad \cot \eta = \frac{\cos b}{\cos l} \cot \epsilon - \tan l \sin b$$

Put

$$S \sin \varphi = \cos \delta \cdot da \qquad S \cos \varphi = d\delta \qquad (S \text{ and } \varphi \text{ from M\"adler's Bradley.})$$

then

$$\Delta b = S \cos (\eta + \varphi) \qquad \cos b \Delta l = S \sin (\eta + \varphi)$$

or

$$\Delta l = \frac{S \sin (\eta + \varphi)}{\cos b}$$

For computing  $\eta$ , put

$$\left. \begin{array}{l} m \sin M = \sin \epsilon \sin \alpha \\ m \cos M = \cos \epsilon \end{array} \right\} \tan M = \sin \alpha \tan \epsilon. \quad (\cos M \text{ always positive}).$$

or

$$\left. \begin{array}{l} n \sin N = \sin \epsilon \sin l \\ n \cos N = \cos \epsilon \end{array} \right\} \tan N = \sin l \tan \epsilon. \quad (\cos N \text{ always positive}).$$

then

$$\cos b \sin \eta = \cos a \sin \epsilon$$

$$\cos b \cos \eta = \frac{\cos (M-\delta)}{\cos M} \cdot \cos \epsilon$$

$$\cos \delta \sin \eta = \cos l \sin \epsilon$$

$$\cos \delta \cos \eta = \frac{\cos (N+b)}{\cos N} \cdot \cos \epsilon$$

If  $S$  is given in seconds for 1 century (as in Mädler),  $\Delta b$  and  $\Delta l$  are desired in minutes for the time of  $n$  centuries *before* the epoch;  $S$  is to be multiplied by the factor  $-\frac{n}{60}$ . For example, if  $n=20$  (which is about the time of Hipparchus),  $S$  is to be multiplied by  $-\frac{20}{60} = -\frac{1}{3}$ .

Usually  $\eta$  is between  $0^\circ$  and  $\pm 90^\circ$ , and may be computed simply from

$$\sin \eta = \frac{\cos l}{\cos \delta} \sin \epsilon$$

But when  $\cos (N+b)$ , *i. e.*,  $\cos \eta$  negative,  $\eta$  is between  $\pm 90^\circ$  and  $180^\circ$ . Computing (roughly)  $N$  from  $\tan N = \sin l \tan \epsilon$ , it is easily seen, when  $N+b > \pm 90^\circ$ —which will be only for stars near the pole of the ecliptic.

The following table gives  $N$  from  $10^\circ$  to  $10^\circ$  computed with  $\tan \epsilon = 9.6376$  (for 1800):

$$\tan N = \sin l \tan \epsilon$$

$l$	$N$	$l$	$N$	$l$	$N$
0	0 0	0	0 0	0	0 0
$\pm 0$	$\pm 0$ 0	$\pm 70$	$\pm 22$ 11	$\pm 130$	$\pm 18$ 23
10	4 19	80	23 9	140	15 35
20	8 27	90	23 28	150	12 15
30	12 15	100	23 9	160	8 27
40	15 35	110	22 11	170	4 19
50	18 23	120	20 36	180	0 0
60	20 36				

# PTOLEMY'S CATALOGUE OF STARS.

## CATALOGUE I.

The first column gives the number of the star in Baily's edition of Ptolemy's catalogue; the second gives Ptolemy's number and the description of the star in Latin, the text being taken from the Trapezuntius Almagest 1528, and revised from the Greek; the third gives the modern name; the fourth gives the longitude in signs, degrees, and minutes; the fifth the latitude; and the sixth the magnitude.

An asterisk (\*) is appended to those longitudes and latitudes which differ from Baily.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Northern Constellations.</i>					
URSA MINOR.					
			° /	° /	
1	1. Quæ est in extremitate caudæ.....	1 α.....	♐ 0 10	+66 0	3
2	2. Quæ post ipsam in cauda est.....	23 δ.....	2 30	70 0	4
3	3. Quæ post istam prope radicem caudæ.....	22 ε.....	*10 10	74 20	4
4	4. Australis stella præcedentis lateris figuræ quadrilateræ.....	16 ζ.....	29 40	75 40	4
5	5. Borealis ejusdem lateris.....	21 η.....	⊗ 3 40	77 40	4
6	6. Australis earum quæ in sequenti latere sunt.....	7 β.....	*17 10	72 50	2
7	7. Borealis ejusdem lateris.....	13 γ.....	26 10	+74 50	2
INFORMATA.					
8	1. Australissima extra figuram in recta sequentis lateris.....	5 Λ.....	⊗ 13 0	+71 10	4
URSA MAJOR.					
9	1. Quæ est in extremitate rictus.....	1 ο.....	♐ 25 20	+39 50	4
10	2. Præcedens earum quæ in duobus oculis sunt.....	2 Α.....	25 50	43 0	5
11	3. Sequens earum.....	4 π <sup>2</sup> .....	26 20	43 0	5
12	4. Præcedens earum quæ in fronte sunt.....	8 ρ.....	*26 10	47 10	5
13	5. Sequens earum.....	13 σ <sup>2</sup> .....	*27 40	47 0	5
14	6. Quæ in extremitate præcedentis auris est.....	24 δ.....	28 10	50 30	5
15	7. Præcedens earum quæ in collo sunt.....	14 τ.....	⊗ 0 30	43 50	4
16	8. Sequens earum.....	23 h.....	2 30	44 20	4
17	9. Borealis de duabus quæ in pectore sunt.....	29 υ.....	9 0	42 0	4
18	10. Australior ipsarum.....	30 φ.....	11 0	*37 15	4-5
19	11. Quæ in genu sinistro est.....	25 θ.....	10 40	35 0	3
20	12. Borealis earum quæ in anterioris extremitate pedis sinistri sunt.....	9 ι.....	5 30	29 20	3
21	13. Australior ipsarum.....	12 κ.....	6 20	28 20	3
22	14. Quæ supra genu dextrum est.....	18 ε.....	5 40	36 0	4
23	15. Quæ infra genu dextrum est.....	15 f.....	5 50	33 0	4
24	16. Earum quæ sunt in quadrilatera figura, illa in dorso est.....	50 α.....	17 40	49 0	2
25	17. Quæ de istis in ursæ latere est.....	48 β.....	*22 10	44 30	2
26	18. Quæ in radice caudæ.....	69 δ.....	♋ *3 10	51 0	3
27	19. Reliqua quæ est in posteriori sinistra coxa.....	64 γ.....	3 0	46 30	2
28	20. Præcedens earum quæ in extremitate posteriorum sinistri pedis sunt.....	33 λ.....	⊗ 22 40	29 20	3
29	21. Quæ istam sequitur.....	34 μ.....	24 10	28 15	3
30	22. Quæ est in poplite sinistro.....	52 ψ.....	♋ 1 40	35 15	4-3
31	23. Borealium earum quæ in extremitate posterioris dextri pedis sunt.....	54 ν.....	9 50	25 50	3
32	24. Australior earum.....	53 ξ.....	♋ 10 20	25 0	3
33	25. De tribus in cauda locatarum, prima post caudæ radicem.....	77 ε.....	12 10	53 30	2
34	26. Media ipsarum.....	79 ζ.....	18 0	55 40	2
35	27. Tertia, et in ipsa extremitate caudæ.....	85 η.....	29 50	+54 0	2

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Northern Constellations—continued.</i>					
INFORMATÆ.					
			° /	° /	
36	1. Quæ sub cauda procul ad austrum est.....	12 Can. Ven...	♁ 27 50	+39 45	3
37	2. Quæ istam præcedit obscurior.....	8 Can. Ven...	20 10	41 20	5
38	3. Australior quæ inter anteriores ursæ pedes et caput Leonis est.....	40 Lyncis.....	⊙ 15 0	17 15	4
39	4. Borealiior hac.....	38 Lyncis.....	13 20	19 10	4
40	5. Sequens reliquarum trium obscurarum.....	10 Leo Min....	16 10	20 0	obs.
41	6. Præcedens istam.....	IX 115.....	*15 10	*22 45	obs.
42	7. Hanc etiam præcedens.....	{36 Lyncis..... VIII 245.....}	11 10	*20 20	obs.
43	8. Quæ inter anteriores pedes et Geminos est.....	31 Lyncis.....	0 0	+22 15	obs.
DRACO.					
44	1. Quæ in lingua draconis est.....	21 μ.....	≈ 26 40	+76 30	4
45	2. Quæ in ore est.....	{24} ν..... {25}	♁ 11 50	78 30	4-3
46	3. Quæ supra oculum.....	23 β.....	13 10	75 40	3
47	4. Quæ in maxilla.....	32 ξ.....	27 20	80 20	4
48	5. Quæ supra caput.....	33 γ.....	29 40	75 30	3
49	6. Borealis de tribus quæ sunt in recta linea et in prima flexione colli.....	39 b.....	♁ 24 40	82 20	4
50	7. Australis ipsarum.....	46 c.....	♁ 2 20	78 15	4
51	8. Media ipsarum.....	45 d.....	♁ 28 50	80 20	4
52	9. Sequens istas versus ortum.....	47 o.....	♁ 19 30	81 10	4
53	10. Quæ in sequenti fluxu est, australior earum quæ sunt in præcedente latere quadrilateræ.....	58 π.....	♁ 8 0	81 40	4
54	11. Borealiior earum quæ sunt in antecedente latere..	57 δ.....	20 30	83 0	4
55	12. Borealis earum quæ sunt in latere sequente.....	63 ε.....	♁ 7 40	78 50	4
56	13. Australis lateris sequentis.....	67 ρ.....	♁ 22 50	77 50	4
57	14. Australis sequenti fluxu, trianguli.....	61 σ.....	♁ 10 40	80 30	5
58	15. Præcedens de reliquis duabus trianguli.....	52 υ.....	21 40	*81 40	5
59	16. Sequens de ipsis.....	60 τ.....	26 10	80 15	5
60	17. Sequens de tribus quæ in antecedente deinceps triangulo sunt.....	31 ψ.....	♁ 13 20	84 30	4
61	18. Australis de reliquis duabus trianguli.....	44 χ.....	♁ 20 20	83 30	4
62	19. Borealiior reliquis duabus.....	43 φ.....	11 50	84 50	4
63	20. Quæ de duabus parvis ad occidentalem partem trianguli sequitur.....	27 f.....	⊙ 28 40	87 30	6
64	21. Præcedens de ipsis.....	28 ω.....	21 40	86 50	6
65	22. Australior de tribus quæ deinceps per rectam lineam sunt.....	18 g.....	♁ 9 0	81 15	5
66	23. Media ipsarum.....	19 h.....	9 20	83 0	5
67	24. Borealiior ipsarum.....	22 ζ.....	8 20	84 50	3
68	25. Borealiior duarum quæ deinceps ad occasum sunt.	14 η.....	10 0	78 0	3
69	26. Australior ipsarum.....	13 θ.....	13 0	74 40	4-3
70	27. Quæ de istis in flexu caudæ ad occasum est.....	12 ι.....	12 40	70 0	3
71	28. Præcedens de duabus satis ab ista distantibus...	10 i.....	♁ 7 20	64 40	4
72	29. Quæ ipsas sequitur.....	11 a.....	11 10	65 30	3
73	30. Quæ istis prope caudam adhæret.....	5 κ.....	⊙ 19 10	61 15	3
74	31. Reliqua quæ in extremitate caudæ est.....	1 λ.....	13 10	+56 15	3
CEPHEUS.					
75	1. Quæ in pede dextro est.....	1 κ.....	♁ *5 0	+75 40	4
76	2. Quæ in pede sinistro.....	35 γ.....	3 0	64 15	4
77	3. Quæ ad cingulum est in dextro latere.....	8 β.....	♁ 7 20	71 10	4
78	4. Quæ super dextrum humerum est tangens ipsum.	5 α.....	♁ 16 40	69 0	3
79	5. Quæ supra dextrum cubitum tangens ipsum.....	3 η.....	9 20	+72 0	4

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Northern Constellations—continued.</i>					
CEPHEUS—continued.					
			° /	° /	
80	6. Quæ sub hoc cubito ipsum quoque tangens . . . . .	2 $\theta$ . . . . .	$\chi$ 10 0	+74 0	4
81	7. Quæ in pectore . . . . .	17 $\xi$ . . . . .	28 30	65 30	5
82	8. Quæ in sinistro brachio . . . . .	32 $\iota$ . . . . .	$\Upsilon$ 7 30	62 30	4-3
83	9. Australis de tribus quæ in tiara sunt . . . . .	23 $\epsilon$ . . . . .	$\chi$ 16 20	60 15	5
84	10. Media ipsarum . . . . .	21 $\zeta$ . . . . .	17 20	61 15	4
85	11. Borealis ipsarum . . . . .	22 $\lambda$ . . . . .	19 0	+61 20	5
INFORMATÆ.					
86	1. Præcedens tiaram . . . . .	$\mu$ . . . . .	$\chi$ 13 40	+64 0	5
87	2. Sequens tiaram . . . . .	27 $\delta$ . . . . .	21 20	59 30	4
BOOTES.					
88	1. Præcedens de tribus quæ sunt in manu sinistra . . . . .	17 $\kappa$ . . . . .	$\Upsilon$ 2 20	+58 40	5
89	2. Media et australior de tribus . . . . .	21 $\iota$ . . . . .	4 10	58 20	5
90	3. Sequens de tribus . . . . .	23 $\theta$ . . . . .	5 40	60 10	5
91	4. Quæ in sinistro cubito est . . . . .	19 $\lambda$ . . . . .	9 40	54 40	5
92	5. Quæ est in humero sinistro . . . . .	27 $\gamma$ . . . . .	19 40	49 0	3
93	6. Quæ est in capite . . . . .	42 $\beta$ . . . . .	26 40	53 50	4-3
94	7. Quæ in humero dextro . . . . .	49 $\delta$ . . . . .	$\cong$ 5 40	48 40	4-3
95	8. Borealis ipsarum et in collaro . . . . .	51 $\mu$ . . . . .	5 40	53 15	4
96	9. Adhuc borealis ista et in extremitate collaro . . . . .	{ 52 $\nu^1$ . . . . . 53 $\nu^2$ . . . . . }	5 0	57 30	4
97	10. Borealis duarum quæ sunt in clava sub humero . . . . .	2 $\eta$ Coronæ . . . . .	7 40	*46 30	4-3
98	11. Australior ipsarum . . . . .	1 $\omicron$ Coronæ . . . . .	8 30	45 30	5
99	12. Quæ in extremitate dextræ manus est . . . . .	45 $c$ . . . . .	8 10	41 40	5
100	13. Præcedens de duabus quæ in vola manus sunt . . . . .	43 $\psi$ . . . . .	6 40	41 40	5
101	14. Sequens ipsarum . . . . .	46 $b$ . . . . .	7 0	42 30	5
102	15. Quæ in extremitate capuli collaro . . . . .	41 $\omega$ . . . . .	7 40	40 20	5
103	16. Quæ in crure dextro juxta cingulum . . . . .	36 $\epsilon$ . . . . .	0 0	40 15	3
104	17. Sequens de duabus quæ in cingulo sunt . . . . .	28 $\sigma$ . . . . .	$\Upsilon$ 25 40	41 40	4
105	18. Præcedens ipsarum . . . . .	25 $\rho$ . . . . .	25 0	42 10	4-3
106	19. Quæ est in dextro calcaneo . . . . .	30 $\zeta$ . . . . .	$\cong$ 5 20	28 0	3
107	20. Borealis de tribus quæ sunt in sinistra tibia . . . . .	8 $\eta$ . . . . .	$\Upsilon$ 21 20	28 0	3
108	21. Media ipsarum . . . . .	4 $\tau$ . . . . .	20 30	26 30	4
109	22. Australis ipsarum . . . . .	5 $\nu$ . . . . .	21 20	+25 0	4
INFORMATÆ.					
110	1. Quæ est inter crura et vocatur Arcturus subrufa . . . . .	16 $a$ . . . . .	$\Upsilon$ 27 0	+31 30	1
CORONA BOREALIS.					
111	1. Fulgens earum quæ sunt in corona . . . . .	5 $a$ . . . . .	$\cong$ 14 40	+44 30	2-1
112	2. Quæ omnes istas præcedit . . . . .	3 $\beta$ . . . . .	11 40	*46 10	4-3
113	3. Borealis quæ istam sequitur . . . . .	4 $\theta$ . . . . .	11 50	48 0	5
114	4. Sequens istam et borealis ista . . . . .	9 $\pi$ . . . . .	13 40	50 30	6
115	5. Quæ fulgentem a meridie sequitur . . . . .	8 $\gamma$ . . . . .	17 10	44 45	4
116	6. Quæ istam propius sequitur . . . . .	10 $\delta$ . . . . .	19 10	44 50	4
117	7. Quæ post istas rursus sequitur . . . . .	13 $\epsilon$ . . . . .	21 20	46 10	4
118	8. Sequens cunctas quæ in corona sunt . . . . .	14 $\iota$ . . . . .	21 40	+49 20	4
HERCULES.					
119	1. Quæ in capite . . . . .	64 $a$ . . . . .	$\Upsilon$ 17 40	+37 30	3
120	2. Quæ in humero dextro penes axillam seu scapulam . . . . .	27 $\beta$ . . . . .	3 40	43 0	3
121	3. Quæ in brachio dextro . . . . .	20 $\gamma$ . . . . .	1 40	40 10	3
122	4. Quæ in cubito dextro . . . . .	7 $\kappa$ . . . . .	$\cong$ 28 0	37 10	4
123	5. Quæ in humero sinistro . . . . .	65 $\delta$ . . . . .	$\Upsilon$ 16 40	48 0	3
124	6. Quæ in brachio sinistro . . . . .	76 $\lambda$ . . . . .	22 0	+49 30	4-3

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Northern Constellations—continued.</i>					
HERCULES—continued.					
			° /	° /	
125	7. Quæ in sinistro cubito.....	86 $\mu$ .....	$\mathfrak{M}$ 27 40	+52 0	4-3
126	8. De tribus quæ sunt in sinistra manus vola illa quæ sequitur.....	103 $\circ$ .....	$\nearrow$ 5 30	52 50	4-3
127	9. Borealis de duabus reliquis.....	94 $\nu$ .....	1 40	54 0	4-3
128	10. Australior ipsarum.....	92 $\xi$ .....	1 30	53 0	4-3
129	11. Quæ in dextro latere.....	40 $\zeta$ .....	$\mathfrak{M}$ *3 50	*53 10	3
130	12. Quæ in latere sinistro.....	58 $\epsilon$ .....	10 10	53 30	4-3
131	13. Borealis in vertebro sinistrae coxæ.....	59 $d$ .....	10 0	*56 10	5
132	14. Quæ in capite cruris ejusdem.....	61 $c$ .....	11 10	58 30	5
133	15. Præcedens de tribus quæ sunt in sinistro crure.....	67 $\pi$ .....	14 0	59 50	4
134	16. Sequens istam.....	69 $e$ .....	15 20	60 20	4
135	17. Quæ adhuc istam sequitur.....	75 $\rho$ .....	16 20	61 15	4-3
136	18. Quæ in genu sinistro.....	91 $\theta$ .....	$\nearrow$ 0 50	61 0	4
137	19. Quæ in sinistra sura.....	85 $\iota$ .....	$\mathfrak{M}$ 22 10	69 20	4
138	20. Præcedens de tribus quæ sunt in extremitate pedis sinistri.....	74.....	15 20	70 15	6
139	21. Media de tribus.....	77 $x$ .....	16 50	71 15	6
140	22. Sequens ipsarum.....	82 $y$ .....	19 40	*72 0	6
141	23. Quæ in vertebro coxæ dextræ.....	44 $\eta$ .....	0 40	60 15	4-3
142	24. Borealis ista in eodem crure.....	35 $\sigma$ .....	$\cong$ 25 20	63 0	4
143	25. Quæ in genu dextro.....	22 $\tau$ .....	15 40	65 30	4-3
144	26. Australior duarum quæ in genu dextro sunt.....	11 $\phi$ .....	13 40	63 40	4
145	27. Borealis ipsarum.....	6 $v$ .....	10 10	64 15	4
146	28. Quæ in tibia dextra.....	1 $\chi$ .....	11 10	60 0	4
147	29. Quæ in extremitate dextri pedis est ipsa eadem in extremitate collarobi.....	{ 52 $\nu^1$ 53 $\nu^2$ } Bootis.	5 0	+57 30	4
INFORMATA.					
148	1. Australior illa quæ est in brachio dextro.....	24 $\omega$ .....	$\mathfrak{M}$ 2 40	+38 10	5
LYRA.					
149	1. Fulgens quæ in testa est et vocatur Lyra.....	3 $a$ .....	$\nearrow$ 17 20	+62 0	1
150	2. Borealis de duabus quæ isti adhærent.....	{ 4 $\epsilon^1$ 5 $\epsilon^2$ }	20 20	62 40	4-3
151	3. Australior ipsarum.....	{ 6 $\zeta^1$ 7 $\zeta^2$ }	20 20	61 0	4-3
152	4. Quæ istas sequitur et media inter ortum cornuum.....	12 $\delta^2$ .....	23 40	60 0	4
153	5. Borealis de duabus contiguis quæ sunt ad orientalem testæ partem.....	20 $\eta$ .....	$\bar{\sigma}$ 2 0	61 20	4
154	6. Australior ipsarum.....	21 $\theta$ .....	*2 40	60 20	4-5
155	7. Borealis duarum præcedentium quæ in jugo lyrae sunt.....	10 $\beta$ .....	$\nearrow$ 21 0	56 10	3
156	8. Australior ipsarum.....	9 $\nu^2$ .....	20 50	55 0	4-5
157	9. Borealis duarum sequentium quæ in jugo lyrae sunt.....	14 $\gamma$ .....	24 10	55 20	3
158	10. Australior ipsarum.....	15 $\lambda$ .....	24 0	+54 45	4-5
CYGNUS.					
159	1. Quæ est in ore.....	6 $\beta$ .....	$\bar{\sigma}$ 4 30	+*49 20	3
160	2. Quæ istam sequitur et est in capite.....	12 $\phi$ .....	9 0	50 30	5
161	3. Quæ in medio collo.....	21 $\eta$ .....	16 20	54 30	4-3
162	4. Quæ in pectore.....	37 $\gamma$ .....	28 30	57 20	3
163	5. Fulgens quæ in cauda est.....	50 $\alpha$ .....	$\cong$ 9 10	60 0	2
164	6. Quæ in cubito alæ dextræ est.....	18 $\delta$ .....	$\bar{\sigma}$ *19 40	64 40	3
165	7. Australis de tribus quæ sunt in pectine dextræ alæ.....	13 $\theta$ .....	22 30	69 40	4
166	8. Media de tribus.....	10 $\iota$ .....	21 10	+71 30	4-3

Catalogue I—continued.

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<i>Northern Constellations—continued.</i>					
CYGNUS—continued.					
			° ' /	° ' /	
167	9. Borealis ipsarum quæ est in extremitate pectinis.	1 κ . . . . .	♄ 16 40	+74 0	4-3
168	10. Quæ in cubito alæ sinistræ . . . . .	53 ε . . . . .	♄ 0 50	49 30	3
169	11. Borealiior ipsarum et in medio ejusdem alæ . . . . .	54 λ . . . . .	3 50	52 10	4-3
170	12. Quæ in extremitate pectinis alæ sinistræ . . . . .	64 ζ . . . . .	6 40	44 0	3
171	13. Quæ in pede sinistro . . . . .	58 ν . . . . .	10 0	55 10	4-3
172	14. Quæ in genu sinistro . . . . .	62 ξ . . . . .	14 30	57 0	4-3
173	15. Præcedens de duabus quæ sunt in pede dextro . . . . .	{ 30 ω <sup>1</sup> . . . . . 31 . . . . . }	1 10	64 0	4
174	16. Sequens ipsarum . . . . .	32 ω <sup>2</sup> . . . . .	2 40	64 30	4
175	17. Quæ in genu dextro nubi similis . . . . .	{ 45 ω <sup>1</sup> . . . . . 46 ω <sup>2</sup> . . . . . }	12 10	+*63 45	5
INFORMATÆ.					
176	1. Australior duarum quæ sunt sub ala sinistra . . . . .	{ 65 τ . . . . . 66 υ . . . . . }	♄ 10 40	+49 40	4-3
177	2. Borealiior ipsarum . . . . .	67 σ . . . . .	13 50	51 40	4-3
CASSIOPEIA.					
178	1. Quæ in capite . . . . .	17 ζ . . . . .	♄ 7 50	+45 20	4-3
179	2. Quæ in pectore . . . . .	18 α . . . . .	10 50	46 45	3
180	3. Borealiior ipsa et est in cingulo . . . . .	24 η . . . . .	13 0	47 50	4
181	4. Quæ supra sedem in cruribus est . . . . .	27 γ . . . . .	16 40	49 0	3-2
182	5. Quæ in genibus . . . . .	37 δ . . . . .	20 40	45 30	3
183	6. Quæ in tibia . . . . .	45 ε . . . . .	27 0	47 45	4
184	7. Quæ in extremitate pedis . . . . .	35 Hev. ι . . . . .	♄ 1 40	47 20	4
185	8. Quæ in sinistro brachio . . . . .	33 θ . . . . .	♄ 14 40	44 20	4
186	9. Quæ sub cubito sinistro . . . . .	34 φ . . . . .	17 40	45 0	5
187	10. Quæ in brachio dextro . . . . .	8 σ . . . . .	2 20	50 0	6
188	11. Quæ supra pedem sedis est . . . . .	15 κ . . . . .	15 0	52 40	4-5
189	12. Quæ in media sede seu cathedra . . . . .	11 β . . . . .	7 50	51 40	3
190	13. Quæ in extremitate sedis . . . . .	7 ρ . . . . .	*3 40	+51 40	6
PERSEUS.					
191	1. Quæ in dextræ manus extremitate et est nebulosa . . . . .	7 χ (cum) . . . . .	♄ 26 40	+40 30	Neb.
192	2. Quæ in dextro cubito . . . . .	15 η . . . . .	♄ 1 10	37 30	4
193	3. Quæ in humero dextro . . . . .	23 γ . . . . .	2 40	34 30	3-4
194	4. Quæ in humero sinistro . . . . .	13 θ . . . . .	♄ 27 30	32 20	4
195	5. Quæ in capite . . . . .	18 τ . . . . .	♄ 0 40	34 30	4
196	6. Quæ in occipite . . . . .	18 Hev. ι . . . . .	1 30	31 10	4
197	7. Fulgens quæ est in dextro latere Persei . . . . .	33 α . . . . .	4 50	30 0	2
198	8. Præcedens de tribus quæ sunt post illam quæ est in latere . . . . .	35 σ . . . . .	5 20	27 50	4
199	9. Media de tribus . . . . .	37 ψ . . . . .	7 0	27 40	4
200	10. Sequens ipsarum . . . . .	39 δ . . . . .	7 40	27 20	3
201	11. Quæ in cubito sinistro . . . . .	27 κ . . . . .	0 30	27 0	4
202	12. Fulgens quæ est in Gorgoneo . . . . .	26 β . . . . .	♄ 29 40	23 0	2
203	13. Quæ istam sequitur . . . . .	28 ω . . . . .	29 10	21 0	4
204	14. Quæ splendidam præcedit . . . . .	25 ρ . . . . .	27 40	21 0	4
205	15. Reliqua quæ istam adhuc præcedit . . . . .	22 π . . . . .	26 50	22 15	4
206	16. Quæ in genu dextro . . . . .	72 b (21 Hev.) . . . . .	♄ 14 50	*28 15	4
207	17. Præcedens ipsam et est supra genu . . . . .	47 λ . . . . .	13 0	28 10	4
208	18. Præcedens de duabus quæ supra poplitem . . . . .	48 c . . . . .	12 20	25 0	4
209	19. Sequens quæ in ipso poplite est . . . . .	51 μ . . . . .	14 0	26 15	4
210	20. Quæ in dextra sura . . . . .	53 d . . . . .	14 10	24 30	5
211	21. Quæ in talo dextro . . . . .	58 e . . . . .	16 20	18 45	5-4
212	22. Quæ in crure sinistro . . . . .	41 ν . . . . .	6 50	21 50	4-3
213	23. Quæ in genu sinistro . . . . .	45 ε . . . . .	8 40	+19 15	3

## Catalogue I—continued.

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<i>Northern Constellations—continued.</i>					
PERSEUS—continued.					
			° /	° /	
214	24. Quæ in tibia sinistra.....	46 ξ.....	♄ 8 20	+14 45	4
215	25. Quæ in sinistro calcaneo.....	38 ο.....	4 10	12 0	3-4
216	26. Quæ istam sequitur et est in extremitate pedis sinistri	44 ζ.....	6 20	+11 0	3-2
INFORMATÆ.					
217	1. Quæ ad ortum respectu ejus quæ in genu sinistro est	52 f.....	♄ 11 50	+18 0	5
218	2. Quæ ad septentrionem respectu earum quæ in genu dextro est.....	14 Hev. Camel	15 0	31 0	5
219	3. Præcedens earum quæ in Gorgoneo sunt.....	16 ρ <sup>1</sup> .....	♄ 24 40	+20 40	obs.
AURIGA.					
220	1. Australior de tribus quæ sunt in capite.....	33 δ.....	♄ 2 30	+30 0	4
221	2. Borealior et est supra caput.....	30 ξ.....	2 20	31 50	4
222	3. Quæ in humero sinistro et vocatur Capella.....	13 α.....	♄ 25 0	22 30	1
223	4. Quæ in humero dextro.....	34 β.....	♄ 2 50	20 0	2
224	5. Quæ in cubito dextro.....	32 ν.....	1 10	15 15	4
225	6. Quæ in vola dextra.....	37 θ.....	2 50	13 20	4-3
226	7. Quæ in cubito sinistro.....	7 ε.....	♄ 22 0	20 40	4-3
227	8. Sequens de duabus quæ sunt in vola sinistra et vocantur hædi.....	10 η.....	22 10	18 0	4-3
228	9. Præcedens ipsas.....	8 ζ.....	22 0	18 0	4
229	10. Quæ in talo sinistro.....	3 ι.....	19 50	10 10	3-4
230	11. Quæ in talo dextro communis cum Tauri cornu..	23 γ=β Taur.	25 40	5 0	3-2
231	12. Quæ ad septentrionem respectu ejus est in extremitate pedis.....	25 χ.....	26 0	8 30	5
232	13. Adhuc borealior ista et est in vertebro.....	24 φ.....	26 20	12 10	5
233	14. Parva quæ est supra sinistrum pedem.....	14.....	*23 0	+*10 20	6
OPHIUCHUS.					
234	1. Quæ in capite.....	55 α.....	♄ 24 50	+36 0	3-2
235	2. Præcedens de duabus quæ sunt in humero dextro.	60 β.....	28 0	27 15	4-3
236	3. Sequens ipsarum.....	62 γ.....	29 0	26 30	4
237	4. Præcedens de duabus quæ sunt in humero sinistro	25 ι.....	13 20	33 0	4
238	5. Sequens ipsarum.....	27 κ.....	14 40	31 50	4
239	6. Quæ in cubito sinistro.....	10 λ.....	8 20	*23 45	4
240	7. Præcedens de duabus quæ sunt in extremitate manus sinistræ.....	1 δ.....	5 0	17 0	3
241	8. Sequens ipsarum.....	2 ε.....	6 0	16 30	3
242	9. Quæ in cubito dextro.....	57 μ.....	26 40	15 0	4
243	10. Præcedens de duabus quæ sunt in extremitate manus dextræ.....	64 ν.....	♄ 2 20	13 40	4-5
244	11. Sequens ipsarum.....	69 τ.....	3 20	14 20	4
245	12. Quæ in genu dextro.....	35 η.....	♄ 21 10	7 30	3
246	13. Quæ in tibia dextra.....	40 ξ.....	*23 40	2 15	4-3
247	14. Præcedens de quatuor quæ sunt in pede dextro..	36 λ.....	23 0	- 2 15	4
248	15. Quæ istam sequitur.....	42 θ.....	24 20	1 30	4-3
249	16. Quæ adhuc istam sequitur.....	44 b.....	25 0	0 20	4
250	17. Reliqua de quatuor quæ omnes sequitur.....	51 c.....	25 50	*0 15	5
251	18. Quæ istas sequitur et tangit calcaneum.....	52 ? 2 Sagitt..	27 10	+ 1 0	5
252	19. Quæ in sinistro genu.....	13 ζ.....	12 10	11 50	3
253	20. Borealior de tribus quæ sunt in sinistra tibia secundum rectam lineam.....	8 φ.....	11 40	5 20	5-4
254	21. Media ipsarum.....	7 χ.....	10 40	3 10	5
255	22. Australior de tribus.....	4 ψ.....	9 50	*1 40	5-4
256	23. Quæ in sinistro calcaneo.....	9 ω.....	12 20	0 40	5
257	24. Quæ tangit plantam sinistri pedis.....	5 ρ.....	10 40	- 0 45	4

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<i>Northern Constellations—continued.</i>					
INFORMATÆ.					
			° ' /	° ' /	
258	1. Borealior de tribus quæ sunt ad ortum humeri dextri . . . . .	66 <i>n</i> . . . . .	♄ 2 0	+28 10	4
259	2. Media de tribus . . . . .	67 . . . . .	2 40	26 20	4
260	3. Australior ipsarum . . . . .	68 . . . . .	3 0	25 0	4
261	4. Sequens de tribus quasi supra mediam . . . . .	70 . . . . .	3 40	27 0	4
262	5. Borealior de quatuor et est solitaria . . . . .	72 . . . . .	4 40	+33 0	4
SERPENS.					
263	1. Quæ in extremitate maxillæ est de illis quæ in capite quadrilateræ sunt . . . . .	21 <i>ι</i> . . . . .	♁ 18 50	+38 0	4
264	2. Quæ nares tangit . . . . .	38 <i>ρ</i> . . . . .	21 40	40 0	4
265	3. Quæ in tempore . . . . .	41 <i>γ</i> . . . . .	24 20	36 0	3
266	4. Quæ in radice colli . . . . .	28 <i>β</i> . . . . .	22 0	34 15	3
267	5. Media quadrilateri et est in ore . . . . .	35 <i>κ</i> . . . . .	21 20	37 15	4
268	6. Exterior et ad septentrionem capitis . . . . .	44 <i>π</i> . . . . .	23 10	42 30	4
269	7. Quæ post primum colli flexum est . . . . .	13 <i>δ</i> . . . . .	21 40	29 15	3
270	8. Borealis de tribus deinceps sequentibus . . . . .	27 <i>λ</i> . . . . .	24 50	26 30	4
271	9. Media de tribus . . . . .	24 <i>α</i> . . . . .	24 20	25 20	3
272	10. Australis ipsarum . . . . .	37 <i>ε</i> . . . . .	26 20	24 0	3
273	11. Præcedens manum sinistram Ophiuchi post sequentem flexum . . . . .	32 <i>μ</i> . . . . .	28 50	16 30	4
274	12. Sequens eas quæ in manu sunt . . . . .	3 <i>ν</i> Oph.	♁ 8 10	*13 15?	5
275	13. Quæ post posteriorem partem dextri cruris Ophiuchi . . . . .	53 <i>ν</i> . . . . .	23 40	10 30	4
276	14. Australior de duabus sequentibus istam . . . . .	55 <i>ξ</i> . . . . .	27 0	8 30	4-3
277	15. Borealior ipsarum . . . . .	56 <i>ο</i> . . . . .	27 50	10 50	4
278	16. Quæ post manum dextram in flexu caudæ . . . . .	57 <i>ζ</i> . . . . .	♄ 3 40	20 0	4
279	17. Quæ istam sequitur et est in cauda similiter . . . . .	58 <i>η</i> . . . . .	8 40	21 10	4-3
280	18. Quæ in extrema cauda est . . . . .	63 <i>θ</i> . . . . .	18 20	+27 0	4
SAGITTA.					
281	1. Quæ in ferro sagittæ solitaria est . . . . .	12 <i>γ</i> . . . . .	♄ 10 10	+39 20	4
282	2. Sequens de tribus quæ in arundine sunt . . . . .	8 <i>ζ</i> . . . . .	6 40	39 10	6
283	3. Media ipsarum . . . . .	7 <i>δ</i> . . . . .	5 50	39 50	5
284	4. Præcedens de tribus . . . . .	5 <i>α</i> . . . . .	4 40	39 0	5
285	5. Quæ in extremitate <i>γλνφιδου</i> sagittæ . . . . .	6 <i>β</i> . . . . .	3 20	+*38 40	5
AQUILA.					
286	1. Quæ in medio capite . . . . .	63 <i>τ</i> . . . . .	♄ 7 10	+26 50	4
287	2. Quæ istam præcedit et est in collo . . . . .	60 <i>β</i> . . . . .	4 50	27 10	3
288	3. Fulgens quæ in occipite et vocatur Aquila . . . . .	53 <i>α</i> . . . . .	3 50	29 10	2-1
289	4. Quæ prope hanc ad septentrionem est . . . . .	59 <i>ξ</i> . . . . .	4 40	30 0	3-4
290	5. Præcedens de duabus quæ sunt in humero sinistro . . . . .	50 <i>γ</i> . . . . .	3 10	31 30	3
291	6. Quæ istam sequitur . . . . .	61 <i>φ</i> . . . . .	6 0	31 30	5
292	7. Præcedens de duabus quæ sunt in humero dextro . . . . .	38 <i>μ</i> . . . . .	♄ 29 40	28 40	5
293	8. Quæ hanc sequitur . . . . .	44 <i>σ</i> . . . . .	♄ 1 10	*26 40	5-4
294	9. Quæ sub Aquilæ cauda remotior est et lacteum circulum tangit . . . . .	17 <i>ζ</i> . . . . .	♄ 22 10	+36 20	3
INFORMATÆ.					
295	1. Præcedens de duabus quæ sunt ab australi capitis parte . . . . .	55 <i>η</i> . . . . .	♄ 3 40	+21 40	3
296	2. Quæ istam sequitur . . . . .	65 <i>θ</i> . . . . .	8 50	19 10	3
297	3. Quæ ab austro et africo dextri aquilæ humeri est . . . . .	30 <i>δ</i> . . . . .	♄ 26 0	25 0	4-3
298	4. Quæ a meridie hujus est . . . . .	41 <i>ι</i> . . . . .	28 10	20 0	3
299	5. Quæ australior hac adhuc est . . . . .	39 <i>κ</i> . . . . .	29 40	15 30	5
300	6. Quæ cunctas præcedit . . . . .	16 <i>λ</i> . . . . .	*20 10	+18 10	3

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DELPHINUS.					
			° /	° /	
301	1. Præcedens de tribus quæ in cauda sunt.....	2 ε.....	♄ 17 40	+ 29 10	3-4
302	2. Borealiior de duabus reliquis.....	5 ι.....	18 40	29 0	4-5
303	3. Australior ipsarum.....	7 κ.....	18 40	27 45	4
304	4. Australis earum quæ sunt in antecedente latere quadrilateri rhomboidis.....	6 β.....	18 30	32 0	3-4
305	5. Borealiior antecedentis lateris.....	9 α.....	20 10	*33 20	3-4
306	6. Australis sequentis lateris rhombi.....	11 δ.....	21 20	32 0	3-4
307	7. Borealis sequentis lateris.....	12 γ.....	23 10	33 10	3-4
308	8. Australis de tribus quæ sunt inter caudam et rhombum.....	3 η.....	17 30	30 15	6
309	9. Præcedens de duabus reliquis borealibus.....	4 ζ.....	*17 30	31 50	6
310	10. Reliqua de ipsis et sequens.....	8 θ.....	19 0	+31 30	6
EQUULEUS.					
311	1. Præcedens duarum quæ sunt in capite.....	8 α.....	♄ 26 20	+ 20 30	obs.
312	2. Quæ ipsam sequitur.....	10 β.....	28 0	20 40	obs.
313	3. Præcedens duarum quæ in ore sunt.....	5 γ.....	26 20	25 30	obs.
314	4. Quæ ipsam sequitur.....	7 δ.....	27 40	+25 0	obs.
PEGASUS.					
315	1. Quæ in umbilico est et communis cum capite Andromedæ.....	δ=21 α And.	♃ 17 50	+26 0	2-3
316	2. Quæ in lumbis et extremitate pennæ.....	88 γ.....	12 10	12 30	2-3
317	3. Quæ in humero dextro et in ipsa pedis radice.....	53 β.....	2 10	31 0	2-3
318	4. Quæ in occipite et humero alæ.....	54 α.....	♁ 26 40	19 40	2-3
319	5. Borealiior duarum quæ sunt in corpore sub ala.....	62 τ.....	♃ 4 30	25 30	4
320	6. Australior ipsarum.....	68 υ.....	5 0	25 0	4
321	7. Borealiior duarum quæ in genu dextro sunt.....	44 η.....	♁ 29 0	35 0	3
322	8. Australior ipsarum.....	43 ο.....	28 30	34 30	5
323	9. Antecedens duarum propin quarum quæ in pectore sunt.....	47 λ.....	26 10	29 0	4
324	10. Sequens ipsarum.....	48 μ.....	27 0	29 30	4
325	11. Præcedens duarum propin quarum quæ in collo sunt.....	42 ζ.....	18 50	18 0	3
326	12. Sequens ipsarum.....	46 ξ.....	20 30	19 0	4
327	13. Australior duarum quæ in juba sunt.....	50 ρ.....	21 20	15 0	5
328	14. Borealiior ipsarum.....	49 σ.....	20 30	16 0	5
329	15. Borealiior duarum propin quarum quæ in capite sunt.....	26 θ.....	*9 20	16 50	3
330	16. Australior ipsarum.....	22 υ.....	8 0	16 0	4
331	17. Quæ in rictu est.....	8 ε.....	5 20	22 30	3-2
332	18. Quæ in dextro talo.....	29 π.....	23 40	41 10	4-3
333	19. Quæ in genu sinistro.....	24 ι.....	17 40	34 15	4-3
334	20. Quæ in talo sinistro.....	10 κ.....	12 20	+36 50	4-3
ANDROMEDA.					
335	1. Quæ in occipite.....	31 δ.....	♃ 25 20	+24 30	3
336	2. Quæ in humero dextro.....	29 π.....	26 20	27 0	4
337	3. Quæ in humero sinistro.....	30 ε.....	24 20	23 0	4
338	4. Australis de tribus quæ sunt in dextro brachio.....	25 σ.....	23 40	32 0	4
339	5. Borealiior ipsarum.....	24 θ.....	24 40	33 30	4
340	6. Media de tribus.....	27 ρ.....	25 0	32 20	5
341	7. Australis de tribus quæ sunt in extremitate manus dextræ.....	17 ι.....	19 40	41 0	4
342	8. Media ipsarum.....	19 κ.....	20 40	42 0	4
343	9. Borealis de tribus.....	16 λ.....	22 10	44 0	4
344	10. Quæ in brachio sinistro.....	34 ζ.....	24 10	17 30	4
345	11. Quæ in cubito sinistro.....	38 η.....	25 40	15 50	4
346	12. Australior de tribus quæ sunt supra cingulum.....	43 β.....	♄ 3 50	+*26 20	3

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<i>Northern Constellations—continued.</i>					
ANDROMEDA—continued.					
			° /	° /	
347	13. Media ipsarum . . . . .	37 $\mu$ . . . . .	$\Upsilon$ 1 50	+30 0	4
348	14. Borealis de tribus . . . . .	35 $\nu$ . . . . .	2 0	32 30	4
349	15. Quæ supra pedem sinistrum . . . . .	57 $\gamma$ . . . . .	16 50	28 0	3
350	16. Quæ in pede dextro . . . . .	54 = $\varphi$ Pers. . . . .	17 10	37 20	4-3
351	17. Australior hac . . . . .	51 = $\nu$ Pers. . . . .	15 10	35 40	4-3
352	18. Borealiior duarum quæ sunt in poplite sinistro . . . . .	50 $\nu$ . . . . .	12 20	29 0	4-3
353	19. Australior ipsarum . . . . .	53 $\tau$ . . . . .	12 0	28 0	4
354	20. Quæ in genu dextro . . . . .	42 $\varphi$ . . . . .	10 10	35 30	5
355	21. Borealiior duarum quæ sunt in syrmate . . . . .	49 $\Lambda$ . . . . .	12 40	34 30	5
356	22. Australior ipsarum . . . . .	52 $\chi$ . . . . .	14 10	32 30	5
357	23. Exterior præcedensque de tribus quæ sunt in extremitate manus dextræ . . . . .	1 $\circ$ . . . . .	$\Upsilon$ 11 40	+44 0	3
TRIANGULUM.					
358	1. Quæ in vertice trianguli est . . . . .	2 $\alpha$ . . . . .	$\Upsilon$ 11 0	+16 30	3
359	2. Præcedens de tribus quæ sunt in basi . . . . .	4 $\beta$ . . . . .	16 0	20 40	3
360	3. Media ipsarum . . . . .	8 $\delta$ . . . . .	*16 20	19 40	4
361	4. Sequens de tribus . . . . .	9 $\gamma$ . . . . .	16 50	+19 0	3
<i>Zodiacal Constellations.</i>					
ARIES.					
362	1. Præcedens duarum quæ sunt in cornu . . . . .	5 $\gamma$ . . . . .	$\Upsilon$ 6 40	+ 7 20	3-4
363	2. Sequens ipsarum . . . . .	6 $\beta$ . . . . .	7 40	8 20	3
364	3. Borealiior duarum quæ in rictu sunt . . . . .	17 $\eta$ . . . . .	11 0	7 40	5
365	4. Australior ipsarum . . . . .	22 $\theta^1$ . . . . .	11 30	6 0	5
366	5. Quæ in collo est . . . . .	8 $\iota$ . . . . .	6 30	5 30	5
367	6. Quæ in lumbo est . . . . .	32 $\nu$ . . . . .	17 40	6 0	6
368	7. Quæ in radice caudæ . . . . .	48 $\epsilon$ . . . . .	21 20	4 50	5
369	8. Præcedens de tribus quæ in cauda sunt . . . . .	57 $\delta$ . . . . .	23 50	1 40	4
370	9. Media de tribus . . . . .	58 $\zeta$ . . . . .	25 20	2 30	4
371	10. Sequens ipsarum . . . . .	63 $\tau^2$ . . . . .	27 0	1 50	4
372	11. Quæ in posteriore parte cruris est . . . . .	45 $\rho^2$ . . . . . 46 $\rho^3$ . . . . .	19 40	*1 10	5
373	12. Quæ sub poplite . . . . .	43 $\sigma$ . . . . .	18 0	- 1 30	5
374	13. Quæ in extremitate posterioris pedis . . . . .	87 $\mu$ Ceti . . . . .	15 0	5 15	4-3
INFORMATÆ.					
375	1. Quæ supra caput est quam Hipparchus in collo dicit . . . . .	13 $\alpha$ . . . . .	$\Upsilon$ 10 40	+*10 0	3-2
376	2. Sequens fulgentiorque de quatuor quæ supra lumbos sunt . . . . .	41 $c$ . . . . .	21 40	10 10	4
377	3. Borealiior reliquarum trium minusque splendorum . . . . .	39 . . . . .	21 20	12 40	5
378	4. Media de tribus . . . . .	35 . . . . .	19 40	11 10	5
379	5. Australis ipsarum . . . . .	33 . . . . .	19 10	+10 40	5
TAURUS.					
380	1. Borealis de quatuor quæ sunt in abscissione . . . . .	5 $f$ . . . . .	$\Upsilon$ 26 20	- 6 0	4
381	2. Sequens ipsam . . . . .	4 $s$ . . . . .	26 0	7 15	4
382	3. Quæ istam adhuc sequitur . . . . .	2 $\xi$ . . . . .	*24 40	8 30	4
383	4. Australissima de quatuor . . . . .	1 $\circ$ . . . . .	24 20	9 15	4
384	5. Quæ istas sequitur et est in dextra scapula . . . . .	30 $e$ . . . . .	29 40	9 30	5
385	6. Quæ in pectore . . . . .	35 $\lambda$ . . . . .	$\alpha$ 3 40	8 0	3
386	7. Quæ in genu dextro . . . . .	49 $\mu$ . . . . .	6 40	12 40	4
387	8. Quæ in talo dextro . . . . .	38 $\nu$ . . . . .	3 0	14 50	4
388	9. Quæ in genu sinistro . . . . .	90 $c^1$ . . . . .	12 10	-10 0	4

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Zodiacal Constellations—continued.</i>					
TAURUS—continued.					
389	10. Quæ in cubito sinistro.....	88 <i>d</i> .....	♄ 13 0	0 13 0	4
390	11. De Hyades, sic enim vocantur quæ in facie sunt, ea quæ in naribus.....	54 $\gamma$ .....	9 0	5 45	3-4
391	12. Quæ inter hanc et borealem oculum est.....	61 $\delta^1$ .....	10 20	4 15	3-4
392	13. Quæ inter istam et australem oculum.....	{ 77 $\theta^1$ ..... 78 $\theta^2$ ..... }	10 50	5 50	3-4
393	14. Fulgens de Hyades, et est in oculo australi subrufa....	87 $\alpha$ .....	12 40	5 10	1
394	15. Reliqua quæ est in oculo boreali.....	74 $\epsilon$ .....	*11 50	3 0	3-4
395	16. Quæ est in radice australis cornu et in aure.....	97 <i>i</i> .....	*17 10	4 0	4
396	17. Australior duarum quæ sunt in cornu australi.....	104 <i>m</i> .....	20 20	5 0	5
397	18. Borealiior ipsarum.....	106 <i>l</i> .....	20 0	3 30	5
398	19. Quæ est in extremitate cornu australis.....	123 $\zeta$ .....	27 40	2 30	3
399	20. Quæ est in radice cornu borealis.....	94 $\tau$ .....	15 40	*0 15	4
400	21. Quæ est in extremitate borealis cornu, eademque in dextro pede Aurigæ.....	112 $\beta$ .....	25 40	+ 5 0	3
401	22. Borealiior duarum propin quarum quæ sunt in aure boreali.....	69 $v^1$ .....	12 0	0 30	5
402	23. Australior ipsarum.....	65 $\kappa$ .....	11 40	0 15	5
403	24. Præcedens duarum parvarum quæ in collo sunt.....	37 $\Lambda^1$ .....	7 0	0 40	5
404	25. Quæ ipsam sequitur.....	50 $\omega^2$ .....	9 0	-*1 0	6
405	26. Australior antecedentis lateris quadrilateræ figuræ quæ in collo est.....	44 $p$ .....	8 0	+ 5 0	5
406	27. Borealiior antecedentis lateris.....	42 $\psi$ .....	8 30	*7 10	5
407	28. Australior sequentis lateris.....	59 $\chi$ .....	12 0	3 0	5
408	29. Borealiior sequentis lateris.....	52 $\varphi$ .....	11 40	5 0	5
409	30. Borealis terminus antecedentis Pleiadum lateris.....	19 Taygeta	2 10	4 30	5
410	31. Australis terminus antecedentis lateris.....	23 Merope.	*2 30	3 40	5
411	32. Sequens et angustissimus Pleiadum terminus.....	27 Atlas...	3 40	3 40	5
412	33. Exterior et parva Pleiadum a septentrione.....	III 170.....	3 40	+ 5 0	4
INFORMATÆ.					
413	1. Quæ sub pede dextro est et scapula.....	10.....	♄ 25 0	-17 30	4
414	2. Præcedens de tribus quæ supra cornu australe.....	102 <i>i</i> .....	♄ 20 0	2 0	5
415	3. Media de tribus.....	109 <i>n</i> .....	*24 0	1 45	5
416	4. Sequens ipsarum.....	114 <i>o</i> .....	26 0	2 0	5
417	5. Borealiior de duabus quæ sunt sub extremitate cornu australis.....	126.....	29 0	6 20	5
418	6. Australior ipsarum.....	129.....	29 0	7 40	5
419	7. Præcedens de quinque quæ sub cornu boreali sequuntur	121.....	27 0	+ 0 40	5
420	8. Quæ istam sequitur.....	125.....	29 0	1 0	5
421	9. Quæ istam adhuc sequitur.....	132.....	♄ 1 0	1 20	5
422	10. Borealiior reliquarum duarum sequentium.....	136.....	2 20	3 20	5
423	11. Australior ipsarum.....	139.....	3 20	+ 1 15	5
GEMINI.					
424	1. Quæ est in capite præcedentis Geminorum.....	66 <i>a</i> .....	♄ 23 20	+*9 40	2
425	2. Quæ est in capite sequentis Geminorum, subrufa....	78 $\beta$ .....	26 40	6 15	2
426	3. Quæ est in sinistro præcedentis Geminorum cubito....	34 $\theta$ .....	16 40	10 0	4
427	4. Quæ in eodem brachio.....	46 $\tau$ .....	18 40	7 20	4
428	5. Quæ ipsam sequitur et est in occipite.....	60 <i>i</i> .....	22 0	5 30	4
429	6. Quæ istam sequitur et est in dextro humero ejusdem..	69 <i>v</i> .....	24 0	4 50	4
430	7. Quæ in humero sequenti sequentis Geminorum.....	77 $\kappa$ .....	26 40	2 40	4
431	8. Quæ in dextro latere antecedentis Geminorum.....	57 $\Lambda$ .....	21 40	2 40	5
432	9. Quæ in sinistro latere sequentis Geminorum.....	58.....	*23 10	*0 20	5
433	10. Quæ in sinistro genu præcedentis Geminorum.....	27 $\epsilon$ .....	13 0	+ 1 30	3

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Zodiacal Constellations—continued.</i>					
GEMINI—continued.					
			° /	° /	
434	11. Quæ sub sinistro genu sequentis Geminorum.....	43 ζ.....	♋*18 10	— 2 30	3
435	12. Quæ in sinistra sequentis Geminorum axilla.....	55 δ.....	21 40	0 30	3
436	13. Quæ supra dextrum poplitem ejusdem Geminorum...	54 λ.....	*21 40	*6 0	3
437	14. Quæ in extremo pede præcedentis Geminorum.....	7 η.....	6 30	1 30	4-3
438	15. Quæ hanc in eodem pede sequitur.....	13 μ.....	*8 10	1 15	4-3
439	16. Quæ in extremitate dextri pedis præcedentis Geminorum.....	18 ν.....	10 10	3 30	4-3
440	17. Quæ in extremitate sinistri pedis sequentis Geminorum.	24 γ.....	12 0	7 30	3
441	18. Quæ in extremitate dextri pedis sequentis Geminorum.	31 ξ.....	14 40	—10 30	4
INFORMATÆ.					
442	1. Præcedens extremitatem pedum antecedentis Geminorum.....	1 Η.....	♋ 4 10	— 0 40	4
443	2. Præcedens eam quæ est in genu antecedentis Geminorum et est splendida.....	44 κ Aurigæ.	6 30	+ 5 50	4-3
444	3. Quæ præcedit genu sinistrum sequentis Geminorum...	36 δ.....	15 10	— 2 15	5
445	4. Borealis trium sequentium dextram sequentis Geminorum per rectam lineam.....	85.....	28 20	1 20	5
446	5. Media de tribus.....	81 g.....	26 20	3 20	5
447	6. Australis ipsarum et ad cubitum manus.....	74 f.....	26 0	4 30	5
448	7. Quæ dictas tres sequitur et est splendida.....	16 ζ Cancrī.	♋ 5 40	— 2 40	4
CANCER.					
449	1. Media nubiformis convolutionis quæ in pectore dicta Præsepe.....	41 ε.....	♋ 10 20	+*0 40	Neb.
450	2. Borealis duarum præcedentium quadrilateræ figuræ, quæ est in nebula.....	33 η.....	7 40	1 15	4-5
451	3. Australior præcedentium duarum.....	31 θ.....	8 0	— 1 10	4-5
452	4. Borealis duarum sequentium quadrilateræ quæ vocantur Aselli.....	43 γ.....	10 20	+ 2 40	4-3
453	5. Australis ipsarum.....	47 δ.....	11 20	— 0 10	4-3
454	6. Quæ in australi forfice.....	65 α.....	16 30	5 30	4
455	7. Quæ in boreali forfice.....	48 ι.....	8 20	+11 50	4
456	8. Quæ in posteriore pede boreali.....	10 μ.....	2 40	1 0	5
457	9. Quæ in posteriore pede australi.....	17 β.....	7 10	—*10 30	4-3
INFORMATÆ.					
458	1. Quæ super cubitum australis forficis est.....	{ 62 σ <sup>1</sup> ..... 63 σ <sup>2</sup> ..... }	♋*15 40	— 2 20	4-5
459	2. Quæ sequitur extremitatem australis forficis.....	76 κ.....	21 10	5 40	4-5
460	3. Præcedens duarum sequentium quæ sunt super nebulam.....	69 ν.....	14 0	+*7 15	5
461	4. Sequens ipsarum.....	77 ξ.....	17 0	*4 50	5
LEO.					
462	1. Quæ in extremitate narīs.....	1 κ.....	♋ 18 20	+10 0	4
463	2. Quæ in apertione oris.....	4 λ.....	21 10	7 30	4
464	3. Borealior duarum quæ sunt in capite.....	24 μ.....	24 20	12 0	3
465	4. Australior ipsarum.....	17 ε.....	24 10	9 30	3-2
466	5. Borealis de tribus quæ in collo sunt.....	36 ζ.....	♋ 0 10	11 0	3
467	6. Sequens et media de tribus.....	41 γ.....	2 10	8 30	2
468	7. Australis ipsarum.....	30 η.....	0 40	4 30	3
469	8. Quæ est in corde et vocatur Regulus.....	32 α.....	2 30	0 10	1
470	9. Australior ipsa et est quasi in pectore.....	31 Α.....	3 30	— 1 50	4
471	10. Parum antecedens illam quæ in corde est.....	27 ν.....	0 0	0 15	5

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Zodiacal Constellations—continued.</i>					
LEO—continued.					
			° /	° /	
472	11. Quæ in genu dextro. . . . .	16 $\psi$ . . . . .	♁ 27 20	— 0 0	5
473	12. Quæ in anteriore dextræ vola. . . . .	5 $\xi$ . . . . .	24 10	3 40	6
474	13. Quæ in anteriore sinistræ vola. . . . .	14 $\omicron$ . . . . .	27 20	4 10	4
475	14. Quæ in genu sinistro. . . . .	29 $\pi$ . . . . .	♁ 2 30	4 15	4
476	15. Quæ in axilla sinistra. . . . .	47 $\rho$ . . . . .	9 10	0 10	4
477	16. Præcedens de tribus quæ sunt in ventre. . . . .	46 $i$ . . . . .	7 0	+ 4 0	6
478	17. Borealis reliquarum et sequentium duarum. . . . .	52 $k$ . . . . .	10 20	5 20	6
479	18. Australior ipsarum. . . . .	53 $l$ . . . . .	*12 20	2 20	6
480	19. Præcedens de duabus quæ sunt in lumbis. . . . .	60 $b$ . . . . .	11 20	12 15	5
481	20. Sequens ipsarum. . . . .	68 $\delta$ . . . . .	14 10	13 40	2-3
482	21. Borealis duarum quæ sunt in vertebris. . . . .	? . . . . .	14 20	*11 { <sup>20</sup> / <sub>10</sub> }	5
483					
484	22. Australior ipsarum. . . . .	70 $\theta$ . . . . .	16 20	9 40	3
485	23. Quæ in posterioribus cruribus. . . . .	78 $\iota$ . . . . .	20 20	5 50	3
486	24. Quæ in posterioribus poplitibus. . . . .	77 $\sigma$ . . . . .	21 40	1 15	4
487	25. Australior hac et quasi in cubitis. . . . .	84 $\tau$ . . . . .	24 40	— 0 50	4
488	26. Quæ in posterioribus volis. . . . .	91 $v$ . . . . .	27 30	—*3 0	5
	27. Quæ in extremitate caudæ. . . . .	94 $\beta$ . . . . .	24 30	+11 50	1-2
INFORMATÆ.					
489	1. Præcedens de duabus quæ sunt super scapulam. . . . .	41 Leo Min. . . . .	♁ 6 0	+13 20	5
490	2. Sequens ipsarum. . . . .	54. . . . .	8 10	15 30	5
491	3. Borealis de tribus, quæ sunt sub latere. . . . .	63 $\chi$ . . . . .	17 30	1 10	4-5
492	4. Media ipsarum. . . . .	59 $c$ . . . . .	17 10	— 0 30	5
493	5. Australior ipsarum. . . . .	58 $d$ . . . . .	18 0	2 40	5
494	6. Borealissimum convolutionis nubilosæ quæ Comæ Berenices vocatur, et est inter extrema Leonis et Ursæ. . . . .	15 $c$ Com. Ber. . . . .	24 50	+30 0	obs.
495	7. Præcedens de australibus eminentibus Comæ Berenices. . . . .	7 $h$ Com. Ber. . . . .	24 20	25 0	obs.
496	8. Sequens de ipsis in figura folii edere. . . . .	23 $k$ Com. Ber. . . . .	28 30	+25 30	obs.
VIRGO.					
497	1. Australis de duabus quæ sunt in extremo craneo Virginis. . . . .	3 $\nu$ . . . . .	♁*27 0	+ 4 15	5
498	2. Borealis ipsarum. . . . .	2 $\xi$ . . . . .	*26 20	5 40	5
499	3. Borealis de sequentibus ipsas in facie. . . . .	9 $\omicron$ . . . . .	♁ 0 40	8 0	5
500	4. Australior ipsarum. . . . .	8 $\pi$ . . . . .	0 10	5 30	5
501	5. Quæ est in extremitate australis alæ atque sinistræ	5 $\beta$ . . . . .	♁ 29 0	0 10	3
502	6. Præcedens de quatuor, quæ sunt in ala sinistra. . . . .	15 $\eta$ . . . . .	♁ 8 15	1 10	3
503	7. Quæ ipsam sequitur. . . . .	29 $\gamma$ . . . . .	13 10	2 50	3
504	8. Quæ adhuc istam sequitur. . . . .	46. . . . .	17 10	2 50	5
505	9. Ultima et sequens de quatuor. . . . .	51 $\theta$ . . . . .	21 0	1 40	4
506	10. Quæ est sub cingulo in dextro latere. . . . .	43 $\delta$ . . . . .	14 20	8 30	3
507	11. Præcedens de tribus quæ in dextra borealique ala sunt. . . . .	30 $\rho$ . . . . .	8 10	13 50	5
508	12. Australis reliquarum duarum. . . . .	32 $d^2$ . . . . .	10 10	11 40	6
509	13. Borealis ipsarum et vocatur Previndemiatrix. . . . .	47 $\epsilon$ . . . . .	12 10	16 0?	3-2
510	14. Quæ in extremitate manus sinistræ et vocatur Spica	67 $a$ . . . . .	26 40	— 2 0	1
511	15. Quæ sub cingulo juxta dextrum vertebrum. . . . .	79 $\zeta$ . . . . .	24 50	+ 8 40	3
512	16. Borealis antecedentis lateris quadrilateræ figuræ quæ est in crure sinistro. . . . .	74 $l$ . . . . .	26 20	3 20	5
513	17. Australis antecedentis lateris. . . . .	76 $h$ . . . . .	27 15	0 10	6
514	18. Borealis de duabus, quæ in sequenti latere sunt.	82 $m$ . . . . .	♁ 0 0	1 30	4-5
515	19. Australior lateris sequentis. . . . .	68 $i$ . . . . .	♁ 28 0	— 3 0	5
516	20. Quæ in genu sinistro. . . . .	86. . . . .	♁ 1 40	1 30	5

Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Zodiacal Constellations—continued.</i>					
VIRGO—continued.					
			° /	° /	
517	21. Quæ in dextro crure posteriore.....	90 ρ.....	♄ 28 0	+ 8 30	5
518	22. Media de tribus quæ sunt in syrmate.....	99 ι.....	≈ *6 40	7 30	4
519	23. Australis ipsarum.....	98 κ.....	7 20	2 40	4
520	24. Borealis ipsarum.....	105 φ.....	8 20	11 40	4
521	25. Quæ in extremitate sinistri pedis atque australis....	100 λ.....	10 0	0 30	4
522	26. Quæ in extremitate dextri pedis atque borealis.....	107 μ.....	12 40	+ 9 50	3
INFORMATÆ.					
523	1. Præcedens de tribus quæ ad rectam lineam sub sinistro cubito sunt.....	26 χ.....	♄ 14 40	- 3 30	5
524	2. Media ipsarum.....	40 ψ.....	19 0	3 30	5
525	3. Sequens ipsarum.....	49.....	22 15	3 20	5
526	4. Præcedens de tribus quæ quasi ad rectam lineam sub Spica sunt.....	53.....	27 10	*7 20	6
527	5. Media ipsarum et duplex.....	{ 61..... 63..... }	28 10	8 20	5
528	6. Sequens trium.....	89.....	≈ *5 0	- 7 50	6
LIBRA.					
529	1. Fulgens earum quæ sunt in extremitate australis forcis.....	9 α.....	≈ 18 0	+ 0 40	2
530	2. Borealiior ipsa et minus splendida.....	7 μ.....	17 0	2 30	5
531	3. Fulgens earum quæ sunt in extremitate borealis forcis.....	27 β.....	22 10	8 50	2
532	4. Præcedens ipsas et obscura.....	19 δ.....	*17 40	8 30	5
533	5. Quæ est in medio australis forcis.....	24 ι.....	24 0	- 1 40	4
534	6. Quæ istam præcedit in eadem forcice.....	21 ν.....	21 20	+ 1 15	4
535	7. Quæ est in medio borealis forcis.....	38 γ.....	27 50	4 45	4
536	8. Quæ istam in eadem forcice sequitur.....	46 θ.....	♄ 3 0	+ 3 30	4-5
INFORMATÆ.					
537	1. Antecedens de tribus borealibus quæ sunt in forcice boreali.....	37.....	≈ 26 10	+ 9 0	5
538	2. Australis sequentium duarum.....	48 ψ.....	♄ 3 40	6 40	4-5
539	3. Borealis ipsarum.....	51 = ξ Scorp.....	4 20	9 15	4-5
540	4. Sequens de tribus intermediis.....	45 λ.....	3 30	0 30	6
541	5. Borealis reliquarum duarum præcedentium.....	43 κ.....	0 20	0 20	5
542	6. Australis ipsarum.....	0 <sup>b</sup> Arg. 14782.....	1 10	- 1 30	4
543	7. Præcedens de tribus australioribus, quæ sunt in forcice australi.....	20 = γ Scorp.....	≈ 23 0	7 30	3
544	8. Borealiior duarum reliquarum sequentium.....	39.....	♄ 1 10	*8 10	4
545	9. Australior ipsarum.....	40 τ.....	*2 0	- 9 40	4
SCORPIUS.					
546	1. Borealis de tribus splendidis, quæ sunt in fronte.....	8 β.....	♄ 6 20	+ 1 20	3
547	2. Media ipsarum.....	7 δ.....	5 40	- 1 40	3
548	3. Australior de tribus.....	6 π.....	5 40	5 0	3
549	4. Australior adhuc ista in altero pedum.....	5 ρ.....	6 0	- 7 50	3
550	5. Borealiior duarum, quæ borealissimæ splendidarum adhæret.....	14 ν.....	7 0	+ 1 40	4
551	6. Australis ipsarum.....	{ 9 ω <sup>1</sup> ..... 10 ω <sup>2</sup> ..... }	6 20	0 30	4
552	7. Præcedens de tribus splendidis, quæ sunt in corpore.....	20 σ.....	10 40	- 3 45	3
553	8. Media ipsarum et subrufa quæ vocatur Antares....	21 α.....	12 40	4 0	2
554	9. Sequens de tribus.....	23 τ.....	14 30	- 5 30	3

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Zodiacal Constellations—continued.</i>					
SCORPIUS—continued.					
			° /	° /	
555	10. Præcedens duarum quæ sub ipsis in extremo pede sunt.	13 $\epsilon^2$ .....	$\mathfrak{M}$ 9 20	-*6 10	5
556	11. Sequens ipsarum.....	XVI 31 $d$ ....	10 40	6 40	5
557	12. Quæ in primo spondilo a corpore.....	26 $\epsilon$ .....	18 30	11 0	3
558	13. Quæ post hanc in secundo spondilo.....	{ XVI 189 $\mu^1$ .. XVI 193 $\mu^2$ .. }	18 50	15 0	3
559	14. Borealis de binis quæ in tertio spondilo sunt.....	XVI 198 $\zeta^1$ ..	20 0	18 40	4
560	15. Australior de binis.....	XVI 206 $\zeta^2$ ..	20 10	*19 0	4
561	16. Quæ deinceps in quarto spondilo est.....	XVI 302 $\eta$ ..	23 10	19 30	3
562	17. Quæ post ipsam in quinto spondilo est.....	XVII 138 $\theta$ ..	28 10	18 50	3
563	18. Quæ deinceps in sexto spondilo.....	XVII 210 $\iota^1$ ..	$\nearrow$ 0 30	16 40	3
564	19. Quæ in septimo spondilo juxta aculeum.....	XVII 174 $\kappa$ ..	$\mathfrak{M}$ 29 0	15 10	3
565	20. Sequens de duabus quæ in aculeo sunt.....	35 $\lambda$ .....	27 30	13 20	3
566	21. Præcedens ipsarum.....	34 $\nu$ .....	27 0	-13 30	4
INFORMATÆ.					
567	1. Quæ aculeum sequitur et est nebulosa.....	{ $\gamma$ Telescopii XVII 229 ... }	$\nearrow$ 1 10	-13 15	Neb.
568	2. Præcedens duarum, quæ a septentrione aculei sunt..	45 $d$ . Oph ...	$\mathfrak{M}$ 25 30	6 10	5-4
569	3. Sequens ipsarum.....	3 Sagittarii.	*29 30	-*4 10	5
SAGITTARIUS.					
570	1. Quæ in ferro sagittæ.....	10 $\gamma$ .....	$\nearrow$ 4 30	- 6 20	3
571	2. Quæ in capulo sinistræ manus est.....	19 $\delta$ .....	7 40	6 30	3
572	3. Quæ in australi parte Sagittarii est.....	20 $\epsilon$ .....	8 0	10 50	3
573	4. Australior earum quæ sunt in boreali parte Sagittarii.	22 $\lambda$ .....	9 0	1 30	3
574	5. Borealiior ipsarum et in extremitate arcus.....	{ 13 $\mu^1$ ..... 15 $\mu^2$ ..... }	6 40	+ 2 50	4
575	6. Quæ in humero sinistro.....	34 $\sigma$ .....	15 20	- 3 10	3
576	7. Quæ hanc præcedit et est in sagitta.....	27 $\varphi$ .....	13 0	*3 50	4-3
577	8. Quæ in oculo est nebulosa et bina.....	{ 32 $\nu^1$ ..... 35 $\nu^2$ ..... }	15 10	+ 0 45	Neb.
578	9. Præcedens de tribus quæ sunt in capite.....	37 $\xi^2$ .....	15 40	2 10	4
579	10. Media ipsarum.....	39 $\omicron$ .....	17 40	1 30	4
580	11. Sequens de tribus.....	41 $\pi$ .....	19 10	2 0	4
581	12. Australior de tribus, quæ in boreali interscapilio sunt.	43 $d$ .....	21 20	2 50	5
582	13. Media ipsarum.....	44 $\rho$ .....	22 20	4 30	4
583	14. Borealis ipsarum.....	46 $\nu$ .....	22 50	6 30	4
584	15. Obscura quæ tres istas sequitur.....	{ 54 $\epsilon^1$ ..... 55 $\epsilon^2$ ..... }	*25 40	5 30	6
585	16. Borealiior de duabus quæ in australi interscapilio sunt.	61 $g$ .....	29 30	5 50	5
586	17. Australior ipsarum.....	56 $f$ .....	27 40	2 0	6
587	18. Quæ in humero dextro.....	{ 47 $\chi^1$ ..... 49 $\chi^3$ ..... }	*22 20	- 1 50	5
588	19. Quæ in cubito dextro.....	{ 51 $h^1$ ..... 52 $h^2$ ..... }	24 50	2 50	4
589	20. De tribus quæ sunt in scapula, quæ prope occiput est.	42 $\psi$ .....	20 0	2 30	5
590	21. Media ipsarum et in ipsa latitudine scapulæ.....	40 $\tau$ .....	17 40	4 30	4-3
591	22. Reliqua et quasi sub axilla.....	38 $\zeta$ .....	16 20	6 45	3
592	23. Quæ in anteriori sinistro talo.....	{ XIX 54 $\beta^1$ .. XIX 62 $\beta^2$ .. }	17 40	23 0	2
593	24. Quæ in genu ejusdem pedis.....	XIX 68 $a$ ...	17 0	18 0	2-3
594	25. Quæ in anteriori dextro talo.....	XVIII 17 $\eta$ ..	6 40	13 0	3
595	26. Quæ in crure sinistro.....	{ XIX 330 $\kappa^1$ .. XIX 333 $\kappa^2$ .. }	27 20	13 30	3
596	27. Quæ in posteriore dextro cubito.....	XIX 297 $\iota$ ...	*26 50	-20 10	3

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Zodiacal Constellations—continued.</i>					
SAGGITARIUS—continued.					
			° /	° /	
597	28. Præcedens borealis lateris de quatuor quæ sunt in radice caudæ.....	58 $\omega$ .....	$\nearrow$ *27 40	- 4 50	5
598	29. Sequens borealis lateris.....	60 A.....	28 50	4 50	5
599	30. Antecedens australis lateris.....	59 $b$ .....	28 50	5 50	5
600	31. Sequens australis lateris.....	62 $c$ .....	29 40	- 6 30	5
CAPRICORNUS.					
601	1. Borealis de tribus quæ sunt in sequenti cornu.....	{ 5 $a^1$ ..... 6 $a^2$ ..... }	$\bar{\theta}$ 7 20	+ 7 20	3
602	2. Media ipsarum.....	8 $v$ .....	7 40	6 40	6
603	3. Australis de tribus.....	9 $\beta$ .....	7 20	5 0	3
604	4. Quæ in extremitate antecedentis cornu est.....	{ 1 $\xi^1$ ..... 2 $\xi^2$ ..... }	*6 0	8 0	6
605	5. Australis de tribus quæ sunt in rictu.....	12 $o$ .....	9 0	0 45	6
606	6. Præcedens reliquarum duarum.....	10 $\pi$ .....	8 40	1 45	6
607	7. Sequens ipsarum.....	11 $\rho$ .....	8 50	1 30	6
608	8. Præcedens de tribus quæ sunt sub oculo dextro.....	7 $\sigma$ .....	6 10	0 40	5
609	9. Borealiior duarum quæ sunt in collo.....	{ 13 $\tau^1$ ..... 14 $\tau^2$ ..... }	11 40	3 50	6
610	10. Australior earum.....	15 $v$ .....	11 50	*0 50	5
611	11. Quæ sub genu dextro.....	16 $\psi$ .....	10 50	- 6 30	4
612	12. Quæ est in genu sinistro atque flexo.....	18 $\omega$ .....	11 40	8 40	4
613	13. Quæ in humero sinistro.....	24 A.....	16 40	7 40	4
614	14. Præcedens duarum contiguarum quæ sunt sub ventre.....	34 $\zeta$ .....	20 10	6 50	4
615	15. Sequens ipsarum.....	36 $b$ .....	20 20	6 0	5
616	16. Sequens de tribus quæ sunt in medio corpore.....	28 $\varphi$ .....	18 40	4 15	5
617	17. Australior reliquarum duarum antecedentium.....	25 $\chi$ .....	16 40	4 0	5
618	18. Borealiior ipsarum.....	22 $\eta$ .....	16 40	2 50	5
619	19. Antecedens duarum, quæ sunt in scapula.....	23 $\theta$ .....	16 40	0 0	4
620	20. Sequens ipsarum.....	32 $\iota$ .....	21 0	0 50	4
621	21. Antecedens duarum, quæ sunt in spina australi.....	39 $\epsilon$ .....	23 20	4 45	4
622	22. Sequens ipsarum.....	43 $\kappa$ .....	25 0	4 30	4
623	23. Antecedens duarum, quæ sunt apud caudam.....	40 $\gamma$ .....	24 50	2 10	3
624	24. Sequens ipsarum.....	49 $\delta$ .....	26 20	2 0	3
625	25. Antecedens de quatuor, quæ sunt in boreali caudæ parte.....	42 $d$ .....	26 50	+ 0 20	4
626	26. Australis reliquarum trium.....	51 $\mu$ .....	28 40	0 0	5
627	27. Media ipsarum.....	48 $\lambda$ .....	27 40	2 50	5
628	28. Borealis ipsarum.....	46 $c^1$ .....	28 40	+ 4 20	5
AQUARIUS.					
629	1. Quæ est in capite Aquarii.....	25 $d$ .....	$\equiv$ 0 20	+15 45	5
630	2. Fulgentior duarum, quæ sunt in humero dextro.....	34 $a$ .....	6 20	11 0	3
631	3. Quæ sub ipsa obscurior.....	31 $o$ .....	5 10	9 40	5
632	4. Quæ in humero sinistro.....	22 $\beta$ .....	$\bar{\theta}$ 26 30	8 50	3
633	5. Quæ sub ipsa in scapula et quasi sub axilla.....	23 $\xi$ .....	27 20	6 15	5
634	6. Sequens de tribus, quæ sunt in vestimento manus sinistrae.....	13 $\nu$ .....	17 40	5 30	3
635	7. Media ipsarum.....	6 $\mu$ .....	16 10	8 0	4
636	8. Antecedens de tribus.....	2 $\epsilon$ .....	14 40	8 40	3
637	9. Quæ in cubito dextro.....	48 $\gamma$ .....	$\equiv$ 9 30	8 45	3
638	10. Borealis de tribus, quæ sunt in extremitate manus dextrae.....	52 $\pi$ .....	11 40	10 45	3
639	11. Antecedens duarum reliquarum et borealium.....	55 $\zeta$ dup..	12 0	9 0	3
640	12. Sequens ipsarum.....	62 $\eta$ .....	13 20	+ 8 30	3

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Zodiacal Constellations—continued.</i>					
AQUARIUS—continued.					
			° /	° /	
641	13. Præcedens duarum contiguarum, quæ sunt in dextro vertebro.....	43 $\theta$ .....	$\approx$ 6 10	+ 3 0	4
642	14. Sequens ipsarum.....	46 $\rho$ .....	7 0	*3 10	5
643	15. Quæ in dextro clune.....	57 $\sigma$ .....	8 40	- 0 50	4
644	16. Australis duarum quæ sunt in sinistro clune.....	33 $\iota$ .....	1 40	1 40	4
645	17. Borealiior ipsarum.....	38 $e$ .....	3 10	+ 0 15	6
646	18. Australior duarum quæ sunt in tibia dextra.....	76 $\delta$ .....	11 40	- 7 30	3
647	19. Borealiior ipsarum et est sub poplite.....	71 $\tau$ .....	11 20	5 0	4
648	20. Quæ in posteriori sinistri cruris parte.....	53 $f$ .....	4 40	- 5 40	5
649	21. Australior duarum quæ sunt in tibia sinistra.....	68 $g^2$ .....	8 20	10 0	5
650	22. Borealiior ipsarum et est sub genu.....	66 $g^1$ .....	7 50	9 0	5
651	23. Antecedens duarum quæ sunt in ipso aquæ fluxu à manu.....	63 $\kappa^?$ .....	15 0	+ 2 0	4
652	24. Quæ istam ex austro sequitur.....	73 $\lambda$ .....	14 50	0 10	4
653	25. Adhuc quæ istam sequitur et est post flexum.....	83 $h$ .....	17 40	- 1 10	4
654	26. Quæ istam adhuc sequitur.....	90 $\varphi$ .....	20 0	0 30	4
655	27. Quæ est in flexu à meridie istius.....	92 $\chi$ .....	20 30	1 40	4
656	28. Borealiior duarum quæ adhuc à meridie istius sunt.....	91 $\psi^1$ .....	19 0	3 30	4
657	29. Australior ipsarum.....	{ 93 $\psi^2$ ..... 95 $\psi^3$ ..... }	19 50	4 10	4
658	30. Solitaria ad meridiem istarum.....	94.....	*17 50	8 15	5
659	31. Antecedens duarum contiguarum post ipsam.....	102 $\omega^1$ .....	*22 40	11 0	5
660	32. Sequens ipsarum.....	105 $\omega^2$ .....	23 10	10 50	5
661	33. Borealis de tribus quæ sunt in convoluzione sequenti.....	{ 103 $\Lambda^1$ ..... 104 $\Lambda^2$ ..... }	21 40	14 0	5
662	34. Media de tribus.....	106 $i^1$ .....	22 10	14 45	5
663	35. Sequens ipsarum.....	108 $i^3$ .....	23 10	15 40	5
664	36. Borealis de tribus quæ deinceps similiter sunt.....	98 $b^1$ .....	17 0	14 10	4
665	37. Media ipsarum.....	99 $b^2$ .....	17 30	15 0	4
666	38. Australior ipsis de tribus.....	101 $b^3$ .....	18 20	15 45	4
667	39. Præcedens de tribus, quæ sunt in reliqua convoluzione.....	86 $c^1$ .....	11 50	*16 15	4
668	40. Australior reliquarum duarum.....	89 $c^3$ .....	*12 40	15 20	4
669	41. Borealiior ipsarum.....	88 $c^2$ .....	13 10	14 0	4
670	42. Aquæ ipsius ultima et est in ore Piscis Austrinus.....	79= $a$ Pis. Aust.	7 0	-20 20	1
INFORMATÆ.					
671	1. Præcedens de tribus, quæ flexum id est curvaturam aquæ sequuntur.....	2 Ceti..	$\approx$ 26 40	-15 30	4-3
672	2. Borealiior reliquarum duarum.....	6 Ceti..	29 40	14 40	4-3
673	3. Australior ipsarum.....	7 Ceti..	29 0	-18 15	4-3
PISCES.					
674	1. Quæ in antecedentis Piscis ore.....	4 $\beta$ .....	$\approx$ 21 40	+ 9 15	4-3
675	2. Australior duarum quæ sunt in cranio ejus.....	6 $\gamma$ .....	24 10	7 30	4
676	3. Borealiior ipsarum.....	7 $b$ .....	26 0	9 20	4
677	4. Antecedens duarum quæ sunt in dorso.....	10 $\theta$ .....	28 10	9 30	4
678	5. Sequens ipsarum.....	17 $\iota$ .....	) 0 40	7 30	4
679	6. Antecedens duarum quæ sunt in ventre.....	8 $\kappa$ .....	$\approx$ 26 0	4 30	4
680	7. Sequens ipsarum.....	18 $\lambda$ .....	29 40	3 30	4
681	8. Quæ est in cauda Piscis ejusdem.....	28 $\omega$ .....	) 6 0	6 20	4
682	9. Prima post caudam in lino.....	41 $d$ .....	11 0	5 45	6
683	10. Sequens ipsarum.....	51 dup..	13 0	3 45	6
684	11. Antecedens de tribus splendidis, quæ deinceps sunt.....	63 $\delta$ .....	17 10	2 15	4
685	12. Media ipsarum.....	71 $\epsilon$ .....	*20 30	1 10	4
686	13. Sequens de tribus.....	86 $\zeta$ dup..	23 0	- 0 10	4



## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Southern Constellations—continued.</i>					
CETUS—continued.					
			° /	° /	
729	18. Australis sequentis lateris . . . . .	O. 198 . . . . .	♃ 10 40	−14 40	5
730	19. Borealis præcedentis lateris . . . . .	17 $\varphi^1$ . . . . .	9 20	13 0	5-4
731	20. Australis præcedentis lateris . . . . .	O. 161 . . . . .	9 0	14 0	5-4
732	21. De duabus quæ sunt in extremis caudæ, quæ in boreali est . . . . .	8 $\iota$ . . . . .	4 40	9 40	3-4
733	22. Quæ in extremitate australi caudæ . . . . .	16 $\beta$ . . . . .	5 40	−20 20	3
ORION.					
734	1. Nebulosa quæ in capite Orionis est . . . . .	39 $\lambda$ dup. . . . .	♃ 27 0	−*13 50	Neb.
735	2. Splendida quæ in humero dextro et est subrufa . . . . .	58 $a$ . . . . .	♃ 2 0	17 0	1-2
736	3. Quæ in humero sinistro . . . . .	24 $\gamma$ . . . . .	♃ 24 0	17 30	2-1
737	4. Quæ sub ista sequitur . . . . .	32 $\Lambda$ . . . . .	25 0	18 0	4-5
738	5. Quæ est in cubito dextro . . . . .	61 $\mu$ . . . . .	♃ 4 20	14 30	4
739	6. Quæ in brachio dextro . . . . .	74 $k$ . . . . .	6 20	11 50	6
740	7. Sequens et bina australis lateris figuræ quadrilateræ quæ est in extremitate manus dextræ . . . . .	70 $\xi$ . . . . .	6 30	10 0	4
741	8. Antecedens australis lateris . . . . .	67 $\nu$ . . . . .	6 0	9 45	4
742	9. Sequens borealis lateris . . . . .	72 $f^2$ . . . . .	7 20	8 15	6
743	10. Præcedens borealis lateris . . . . .	69 $f^1$ . . . . .	6 40	8 15	6
744	11. Præcedens de duabus quæ sunt in collaro . . . . .	54 $\chi^1$ . . . . .	1 40	3 45	5
745	12. Sequens ipsarum . . . . .	62 $\chi^2$ . . . . .	*4 20	4 15	5
746	13. Sequens de quatuor quæ sunt in scapula quasi ad rectam lineam . . . . .	47 $\omega$ . . . . .	♃ 27 50	19 40	4
747	14. Præcedens istam . . . . .	38 $n^2$ . . . . .	26 20	20 0	6
748	15. Quæ adhuc hanc præcedit . . . . .	33 $n^1$ . . . . .	25 20	*20 20	6
749	16. Reliqua et antecedens de quatuor . . . . .	30 $\psi^2$ . . . . .	24 10	20 40	5
750	17. Borealissima earum quæ sunt in pelle manus sinistrae . . . . .	15 $y^2$ . . . . .	20 30	8 0	4
751	18. Secunda a borealissima . . . . .	11 $y^1$ . . . . .	19 20	8 10	4
752	19. Tertia a borealissima . . . . .	9 $o^2$ . . . . .	18 0	10 15	4
753	20. Quarta a borealissima . . . . .	7 $\pi^1$ . . . . .	16 20	12 50	4
754	21. Quinta a borealissima . . . . .	2 $\pi^2$ . . . . .	15 10	14 15	4
755	22. Sexta a borealissima . . . . .	1 $\pi^3$ . . . . .	14 50	15 50	3
756	23. Septima a borealissima . . . . .	3 $\pi^4$ . . . . .	14 50	17 10	3
757	24. Octava a borealissima . . . . .	8 $\pi^5$ . . . . .	15 20	20 20	3
758	25. Reliqua et australissima earum quæ sunt in pelle . . . . .	10 $\pi^6$ . . . . .	16 20	21 30	3
759	26. Antecedens de tribus quæ sunt in cingulo . . . . .	34 $\delta$ . . . . .	25 20	24 10	2
760	27. Media ipsarum . . . . .	46 $\epsilon$ . . . . .	27 20	24 50	2
761	28. Sequens de tribus . . . . .	50 $\zeta$ dup. . . . .	28 10	25 40	2
762	29. Quæ in ensis capulo . . . . .	28 $\eta$ . . . . .	23 50	25 50	3
763	30. Borealis de tribus conjunctis quæ sunt in ensis extremitate . . . . .	{42 } $c$ . . . . .	26 30	*28 40	4
		{45 }			
764	31. Media ipsarum . . . . .	{41 $\theta^1$ . . . . .	} 26 40	29 10	3-4
		{43 $\theta^2$ . . . . .			
765	32. Australis de tribus . . . . .	44 $\iota$ . . . . .	27 0	29 50	3
766	33. Sequens de duabus quæ sunt sub ensis extremitate . . . . .	49 $d$ . . . . .	27 40	30 40	4
767	34. Præcedens ipsarum . . . . .	36 $v$ . . . . .	*26 10	30 50	4
768	35. Splendida quæ est in extremitate pedis sinistri communis cum aqua . . . . .	19 $\beta$ . . . . .	19 50	31 30	1
769	36. Borealis ipsarum supra talum in tibia . . . . .	20 $\tau$ . . . . .	21 0	30 15	4-3
770	37. Exterior sub sinistro calcaneo . . . . .	29 $e$ . . . . .	23 20	31 10	4
771	38. Quæ sub dextro et sequenti genu . . . . .	53 $\kappa$ . . . . .	♃ 0 10	−33 30	3-2
ERIDANUS.					
772	1. Quæ post illam quæ est in extremo pede Orionis in principio fluvii . . . . .	69 $\lambda$ . . . . .	♃ 18 20	−31 50	4-3
773	2. Borealis hac in flexu juxta suram Orionis . . . . .	67 $\beta$ . . . . .	18 50	−28 15	4

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Southern Constellations—continued.</i>					
ERIDANUS—continued.					
			° /	° /	
774	3. Sequens de duabus quæ post istam deinceps sunt . . . . .	65 $\psi$ . . . . .	$\gamma$ 18 0	-29 50	4
775	4. Præcedens ipsarum . . . . .	61 $\omega$ . . . . .	14 40	28 15	4
776	5. Sequens duarum quæ rursus deinceps sunt . . . . .	57 $\mu$ . . . . .	13 10	25 50	4
777	6. Præcedens ipsarum . . . . .	48 $\nu$ . . . . .	*10 10	25 20	4
778	7. Sequens de tribus quæ post ipsam sunt . . . . .	42 $\xi$ . . . . .	6 20	26 0	5
779	8. Media ipsarum . . . . .	40 $\rho^2$ . . . . .	*5 30	*27 0	4
780	9. Præcedens de tribus . . . . .	38 $\sigma^1$ . . . . .	2 50	27 50	4
781	10. Sequens de quatuor quæ parum deinceps distant . . . . .	34 $\gamma$ . . . . .	$\Upsilon$ 27 0	32 50	3
782	11. Præcedens istam . . . . .	26 $\pi$ . . . . .	24 20	31 0	4
783	12. Præcedens adhuc istam . . . . .	23 $\delta$ . . . . .	24 10	28 50	3
784	13. Præcedens de quatuor . . . . .	18 $\epsilon$ . . . . .	22 0	28 0	3
785	14. Sequens de quatuor quæ parum deinceps distantia distant . . . . .	13 $\zeta$ . . . . .	17 10	25 30	3
786	15. Præcedens istam . . . . .	{ 9 $\rho^2$ . . . . . 10 $\rho^3$ . . . . . }	14 50	23 50	4
787	16. Præcedens adhuc istam . . . . .	3 $\eta$ . . . . .	12 10	*23 50	3
788	17. Præcedens de quatuor . . . . .	? . . . . .	10 30	23 15	4
789	18. Quæ in flexu fluvii est, primumque tangit pectus Ceti	1 $\tau^1$ . . . . .	5 10	32 10	4
790	19. Sequens istam . . . . .	2 $\tau^2$ . . . . .	5 50	34 50	4
791	20. Præcedens de tribus quæ deinceps sunt . . . . .	11 $\tau^3$ . . . . .	8 50	38 30	4
792	21. Media ipsarum . . . . .	16 $\tau^4$ . . . . .	13 50	38 10	4
793	22. Sequens de tribus . . . . .	19 $\tau^5$ . . . . .	17 30	39 0	4
794	23. Borealis antecedentis lateris de quatuor quæ deinceps quasi quadrangulum faciunt . . . . .	27 $\tau^6$ . . . . .	21 20	41 20	4
795	24. Australior antecedentis lateris . . . . .	28 $\tau^7$ . . . . .	21 30	42 30	5
796	25. Antecedens sequentis lateris . . . . .	33 $\tau^8$ . . . . .	22 10	43 15	4
797	26. Sequens hujus lateris et reliqua de quatuor . . . . .	36 $\tau^9$ . . . . .	24 40	43 20	4
798	27. Boreali sede duabus contiguus quæ ab istis ad ortum distant . . . . .	50 $v^6$ . . . . .	$\gamma$ 4 10	50 20	4
799	28. Australior ipsarum . . . . .	52 $v^7$ . . . . .	5 0	51 45	4
800	29. Sequens duarum quæ deinceps post flexum sunt . . . . .	43 $v^8$ . . . . .	$\Upsilon$ 28 10	53 50	4
801	30. Præcedens ipsarum . . . . .	41 $v^4$ . . . . .	25 50	53 10	4
802	31. Sequens de tribus quæ deinceps in nonnulla distantia sunt . . . . .	III 202 $v^3$ . . . . .	17 50	53 0	4
803	32. Media ipsarum . . . . .	III 189 $v^2$ . . . . .	14 50	53 30	4
804	33. Præcedens de tribus . . . . .	III 149 $v^1$ . . . . .	11 50	52 0	4
805	34. Ultima fluvii et est splendida . . . . .	{ II 238 } dup II 239 } $\theta$ Eridani . . . . .	0 10	-53 30	1
LEPUS.					
806	1. Borealis antecedentis lateris quadrangulæ figuræ quæ in auribus . . . . .	3 $\iota$ . . . . .	$\gamma$ *19 40	-35 0	5
807	2. Australis antecedentis lateris . . . . .	4 $\kappa$ . . . . .	19 50	36 30	5
808	3. Borealis sequentis lateris . . . . .	7 $\nu$ . . . . .	21 20	35 40	5
809	4. Australis sequentis lateris . . . . .	6 $\lambda$ . . . . .	21 20	36 40	5
810	5. Quæ in mento est . . . . .	5 $\mu$ . . . . .	19 10	39 15	4-3
811	6. Quæ in extremitate anterioris sinistri pedis . . . . .	2 $\epsilon$ . . . . .	16 10	45 15	4-3
812	7. Quæ in medio corpore . . . . .	11 $\alpha$ . . . . .	25 50	41 30	3
813	8. Quæ sub ventre . . . . .	9 $\beta$ . . . . .	*24 20	44 20	3
814	9. Borealiior duarum, quæ sunt in posterioribus pedibus . . . . .	15 $\delta$ . . . . .	$\Upsilon$ 1 0	44 0	4-3
815	10. Australior ipsarum . . . . .	13 $\gamma$ . . . . .	$\gamma$ 29 0	45 50	4-3
816	11. Quæ in lumbis . . . . .	14 $\zeta$ . . . . .	$\Upsilon$ 0 0	38 20	4-3
817	12. Quæ in extremitate caudæ . . . . .	16 $\eta$ . . . . .	2 40	-38 10	4-3

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Southern Constellations—continued.</i>					
CANIS MAJOR.					
			° ' ° '		
818	1. Quæ in ore fulgentissima est, et vocatur Sirius, et est subrufa . . . . .	9 $\alpha$ . . . . .	$\Upsilon$ 17 40	-39 10	1
819	2. Quæ in auribus . . . . .	14 $\theta$ . . . . .	19 40	35 0	4
820	3. Quæ in capite . . . . .	18 $\mu$ . . . . .	21 20	36 30	5
821	4. Borealis duarum quæ sunt in collo . . . . .	23 $\gamma$ . . . . .	23 20	37 45	4
822	5. Australis ipsarum . . . . .	20 $\iota$ . . . . .	20 20	40 0	4
823	6. Quæ in pectore . . . . .	15 $\pi^1$ . . . . .	20 30	42 40	5
824	7. Borealis duarum quæ sunt in genu dextro . . . . .	8 $\nu^3$ . . . . .	16 10	41 15	5
825	8. Australior ipsarum . . . . .	7 $\nu^2$ . . . . .	16 0	42 30	5
826	9. Quæ in extremitate anterioris pedis . . . . .	2 $\beta$ . . . . .	11 0	41 20	3
827	10. Antecedens duarum quæ sunt in genu sinistro . . . . .	4 $\xi^1$ . . . . .	14 40	46 30	5
828	11. Sequens ipsarum . . . . .	5 $\xi^2$ . . . . .	16 10	45 50	5
829	12. Sequens duarum quæ sunt in humero sinistro . . . . .	24 $\sigma^2$ . . . . .	24 40	46 10	4
830	13. Præcedens ipsarum . . . . .	16 $\sigma^1$ . . . . .	21 40	47 0	5
831	14. Quæ est in cruris sinistri radice . . . . .	25 $\delta$ . . . . .	26 40	48 45	3-4
832	15. Quæ sub ventre inter crura . . . . .	21 $\epsilon$ . . . . .	23 40	51 30	3
833	16. Quæ in poplite pedis dextri . . . . .	13 $\kappa$ . . . . .	*21 0	55 10	4
834	17. Quæ in extremitate pedis dextri . . . . .	1 $\zeta$ . . . . .	9 40	53 45	3
835	18. Quæ in cauda . . . . .	31 $\eta$ . . . . .	$\ominus$ 2 10	-50 40	3-4
INFORMATÆ.					
836	1. Quæ a septentrione capite canis . . . . .	22 Monoc . . . . .	$\Upsilon$ 19 30	-25 15	4
837	2. Australissima de quatuor quæ sunt sub posterioribus pedibus quasi ad rectam lineam . . . . .	$\theta$ Columbæ . . . . .	*7 0	61 30	4
838	3. Borealiior hac . . . . .	$\kappa$ Col. . . . .	11 20	58 45	4
839	4. Borealiior adhuc ista . . . . .	{ $\delta$ Col. . . . . = 3 Can. Maj.}	13 0	57 0	4
840	5. Reliqua et borealiior de quatuor . . . . .	$\lambda$ . . . . .	14 10	56 0	4
841	6. Præcedens de tribus quæ sunt ad occasum rerum istarum quatuor quasi ad rectam lineam . . . . .	$\mu$ Col. . . . .	$\Upsilon$ 28 0	55 30	4
842	7. Media ipsarum . . . . .	$\lambda$ Col. . . . .	$\Upsilon$ 0 20	57 40	4
843	8. Sequens de tribus . . . . .	$\gamma$ Col. . . . .	2 20	*59 30	4
844	9. Sequens de duabus splendidis quæ sunt sub istis . . . . .	$\beta$ Col. . . . .	$\Upsilon$ 29 0	59 40	2
845	10. Præcedens ipsarum . . . . .	$\alpha$ Col. . . . .	26 0	57 40	2
846	11. Reliqua et australior supradictis . . . . .	$\epsilon$ Col. . . . .	22 10	-59 30	4
CANIS MINOR.					
847	1. Quæ in collo . . . . .	3 $\beta$ . . . . .	$\Upsilon$ 25 0	-14 0	4
848	2. Fulgens quæ est in posterioribus et vocatur Procyon . . . . .	10 $\alpha$ . . . . .	*29 10	16 10	1
ARGO NAVIS.					
849	1. Præcedens duarum quæ sunt in extremitate navis . . . . .	11 $e$ . . . . .	$\ominus$ 10 20	-42 30	5
850	2. Sequens earum . . . . .	15 $\rho$ Pup . . . . .	14 20	43 20	3
851	3. Borealiior duarum contiguarum quæ sunt supra scutulum in puppi . . . . .	7 $\xi$ Pup . . . . .	8 50	45 0	4
852	4. Australior ipsarum . . . . .	VII 220 . . . . .	8 40	46 0	4
853	5. Præcedens istarum . . . . .	VII 173 . . . . .	5 20	45 30	4
854	6. Splendida quæ est in medio scutulo . . . . .	VII 175 dup . . . . .	6 20	47 15	3
855	7. Præcedens de tribus quæ sunt sub scutulo . . . . .	VII 163 . . . . .	5 20	*49 30	4
856	8. Sequens ipsarum . . . . .	3 Pup . . . . .	9 20	*49 30	4
857	9. Media de tribus . . . . .	VII 200 I Pup . . . . .	8 30	49 15	4
858	10. Quæ in $\chi\eta\nu\lambda\sigma\kappa\omicron\upsilon$ sive anserculo est . . . . .	VII 277 . . . . .	14 0	49 50	4
859	11. Borealiior duarum quæ sunt in carina puppis . . . . .	{VII 99 } group {VII 108 }	4 0	53 0	4
860	12. Australior ipsarum . . . . .	VII 68 $\pi$ Pup . . . . .	4 0	-58 40	3

Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Southern Constellations—continued.</i>					
ARGO NAVIS—continued.					
861	13. Borealiior earum quæ sunt in foris puppis . . . . .	VII 172 <i>f</i> Pup.	⊙ 10 10	— 55 30	5
862	14. Præcedens de tribus quæ deinceps sunt . . . . .	VII 186 { <sup><i>d</i>1</sup> . . . . . <sup><i>d</i>2</sup> Pup . . . . . <sup><i>d</i>3</sup> . . . . . }	12 10	58 40	5
863	15. Media ipsarum . . . . .	VII 214 <i>c</i> Pup.	13 40	57 15	4
864	16. Sequens de tribus . . . . .	VII 254 <i>b</i> Pup.	16 30	57 45	4
865	17. Splendida quæ istas in foris sequitur . . . . .	VII 306 <i>g</i> Pup.	21 10	*58 20	2
866	18. Præcedens de duabus obscuris, quæ sunt sub splendida	VII 253 <i>a</i> Pup.	18 10	60 0	5
867	19. Sequens ipsarum . . . . .	Lac. 3128 . . . . .	21 0	59 20	5
868	20. Præcedens de duabus quæ sunt supra splendidam dictam . . . . .	VIII 21 <i>h</i> 1 Pup.	*23 0	56 40	5
869	21. Sequens ipsarum . . . . .	VIII 35 <i>h</i> 2 Pup.	24 20	57 40	5
870	22. Borealis de tribus quæ sunt in scutulis et est quasi in malo . . . . .	Lac. 3580 . . . . .	Ω 5 40	51 30	4-3
871	23. Media ipsarum . . . . .	VIII 168 <i>d</i> Vel.	6 10	55 40	4-3
872	24. Australis de tribus . . . . .	VIII 139 <i>e</i> Vel.	4 0	57 10	4-3
873	25. Borealiior de duabus contiguis quæ sunt sub istis . . . . .	VIII 176 <i>a</i> Vel.	9 10	60 0	4-3
874	26. Australior ipsarum . . . . .	VIII 155 <i>b</i> Vel.	9 0	61 15	4-3
875	27. Australis de duabus, quæ sunt in medio malo . . . . .	VIII 145 <i>β</i> Pyx	0 10	*51 30	3
876	28. Borealiior ipsarum . . . . .	VIII 162 <i>a</i> Pyx	⊙ 29 20	49 0	3
877	29. Præcedens de duabus quæ sunt in extremitate mali . . . . .	VIII 193 <i>γ</i> Pyx	28 0	43 20	4
878	30. Sequens ipsarum . . . . .	VIII 220 <i>δ</i> Pyx	29 0	43 30	4
879	31. Quæ est sub tertia in sequento scutulo . . . . .	IX 1 <i>λ</i> Vel. . . . .	Ω*14 10	54 30	2
880	32. Quæ in abscissione fororum est . . . . .	IX 116 <i>ψ</i> Vel. . . . .	17 30	51 15	2-3
881	33. Quæ inter gubernacula in carina . . . . .	VII 135 <i>σ</i> Pup.	⊙ 11 10	63 0	4
882	34. Sequens istam obscura . . . . .	VII 235 <i>P</i> .Pup.	19 0	64 30	6
883	35. Splendida sequens istam sub foris . . . . .	<i>γ</i> Vel . . . . .	Ω 0 0	63 50	2
884	36. Splendida quæ ad meridiem istius est in inferiore carina	<i>χ</i> Car . . . . .	8 30	69 40	2
885	37. Antecedens de tribus, quæ istam sequuntur . . . . .	<i>o</i> Pup . . . . .	15 10	65 40	3
886	38. Media ipsarum . . . . .	<i>δ</i> Vel . . . . .	21 20	65 50	3
887	39. Sequens de tribus . . . . .	<i>f</i> Car . . . . .	26 0	67 20	2
888	40. Præcedens de duabus sequentibus has juxta abscissionem . . . . .	<i>κ</i> Vel . . . . .	Π 1 0	62 50	3
889	41. Sequens ipsarum . . . . .	N. Vel . . . . .	8 0	*62 15	3
890	42. Antecedens de duabus quæ sunt in boreali et præcedenti gubernaculo . . . . .	V 315 = <i>η</i> Col.	⊕ 4 0	65 50	4-3
891	43. Sequens ipsarum . . . . .	VI 205 <i>ν</i> Pup. . . . .	20 10	65 40	3-2
892	44. Præcedens duarum reliquarum in gubernaculo et vocatur Canopus . . . . .	<i>a</i> Argus . . . . .	17 10	75 0	1
893	45. Reliqua et sequens ipsarum . . . . .	<i>τ</i> Pup . . . . .	29 0	— 71 45	3-2
HYDRA.					
894	1. Australis duarum præcedentium de quinque quæ sunt in capite et est in naribus . . . . .	5 <i>σ</i> . . . . .	⊙ 14 0	— 15 0	4
895	2. Borealiior ipsarum et est supra oculum . . . . .	4 <i>δ</i> . . . . .	13 20	*13 10	4
896	3. Borealis de duabus sequentibus et est quasi in cranio . . . . .	11 <i>ε</i> . . . . .	15 20	11 30	4
897	4. Australior ipsarum et est in oris hiatu . . . . .	7 <i>η</i> . . . . .	15 30	*14 45	4
898	5. Quæ omnes istas sequitur et est quasi in mento . . . . .	16 <i>ζ</i> . . . . .	17 50	*12 0	4
899	6. Præcedens duarum quæ sunt in radice colli . . . . .	18 <i>ω</i> . . . . .	20 20	11 50	5
900	7. Sequens ipsarum . . . . .	22 <i>θ</i> . . . . .	23 20	13 40	4
901	8. Media de tribus quæ deinceps in flexu colli sunt . . . . .	32 <i>τ</i> 2 . . . . .	28 50	15 20	4
902	9. Sequens de tribus . . . . .	35 <i>ι</i> . . . . .	Ω 0 40	14 50	4
903	10. Australissima ipsarum . . . . .	31 <i>τ</i> 1 . . . . .	⊙ 28 30	17 10	4
904	11. Borealis et obscura de duabus contiguis quæ sunt ab austro . . . . .	{ LL. 18657 . . . . . W. 9 <sup>h</sup> 439 . . . . . }	29 10	— 19 45	6



Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Longitude.	Lat.	Mag.
<i>Southern Constellations—continued.</i>					
CENTAURUS—continued.					
			° /	° /	
949	15. Quæ est in dextro brachio . . . . .	XIII 288 χ . . .	≈ 16 20	-26 30	4-3
950	16. Quæ in dextro cubito . . . . .	XIV 109 η . . .	22 50	25 15	3
951	17. Quæ in extremitate manus dextræ . . . . .	XIV 216 κ . . .	27 30	24 0	4
952	18. Splendida quæ est in conjunctione humani corporis . . . . .	XIII 231 ζ . . .	18 0	33 30	3-2
953	19. Sequens de duabus obscuris, quæ sunt borealiores hac . . . . .	XIII 267 υ <sup>2</sup> . . .	17 40	31 0	5
954	20. Præcedens ipsarum . . . . .	XIII 249 υ <sup>1</sup> . . .	16 50	30 20	5
955	21. Quæ est in principio scapulæ . . . . .	ω cum . . . . .	12 10	34 50	5
956	22. Antecedens hanc in dorso equi . . . . .	f . . . . .	9 0	37 40	5
957	23. Sequens de tribus quæ sunt in lumbis . . . . .	γ . . . . .	5 50	40 0	3
958	24. Media ipsarum . . . . .	τ . . . . .	5 0	40 20	4
959	25. Antecedens de tribus . . . . .	σ . . . . .	2 40	41 0	5
960	26. Præcedens de duabus contiguis quæ sunt in crure dextro . . . . .	δ . . . . .	2 40	46 10	3
961	27. Sequens ipsarum . . . . .	ρ . . . . .	3 30	46 45	4
962	28. Quæ in pectore sub axilla equi . . . . .	M . . . . .	18 20	40 45	4
963	29. Præcedens de duabus quæ sunt sub ventre . . . . .	ε . . . . .	16 20	43 0	2
964	30. Sequens ipsarum . . . . .	Q . . . . .	17 40	43 45	3
965	31. Quæ est in poplite pedis dextri . . . . .	γ Crucis . . . . .	10 0	51 10	2
966	32. Quæ est in talo ejusdem pedis . . . . .	β Crucis . . . . .	15 20	51 40	2
967	33. Quæ sub poplite sinistri pedis . . . . .	δ Crucis . . . . .	6 20	55 10	4
968	34. Quæ in sura ejusdem pedis . . . . .	α Crucis . . . . .	11 10	55 20	2
969	35. Quæ in extremo anterioris dextri pedis . . . . .	α Centauri . . . . .	m 8 20	*44 10	1
970	36. Quæ in genu sinistri pedis . . . . .	β Centauri . . . . .	≈ 24 10	45 20	2
971	37. Quæ est extra sub dextro posteriore pede . . . . .	μ Crucis . . . . .	14 40	-49 10	4
LUPUS.					
972	1. Quæ in extremo posteriore pede apud manum Centauri . . . . .	XIV 211 β . . .	≈ 28 0	-24 50	3
973	2. Quæ in poplite ejusdem pedis . . . . .	α . . . . .	25 50	29 10	3
974	3. Præcedens de duabus quæ sunt in scapula . . . . .	XV 31 δ . . . . .	m 1 0	21 15	4
975	4. Sequens earum . . . . .	XV 98 γ . . . . .	4 10	21 0	4
976	5. Quæ in medio feræ corpore . . . . .	XV 35 ε . . . . .	3 0	25 10	4
977	6. Quæ in ventre sub latere . . . . .	λ . . . . .	0 10	27 0	5
978	7. Quæ in crure . . . . .	XV 242 π . . .	0 40	29 0	5
979	8. Borealiior de duabus quæ sunt juxta radicem cruris . . . . .	μ . . . . .	4 40	28 30	5
980	9. Australior ipsarum . . . . .	κ . . . . .	3 40	30 10	5
981	10. Quæ in extremis lumbis . . . . .	ζ . . . . .	5 40	33 10	5
982	11. Australis de tribus quæ sunt in extrema cauda . . . . .	ρ? . . . . .	≈ { 20 20 *26 0 22 0	} 31 20	5
983	12. Media de tribus . . . . .	ι . . . . .	*21 50	30 30	4
984	13. Borealiior ipsarum . . . . .	{ XIV 66 τ <sup>1</sup> . . . XIV 67 τ <sup>2</sup> . . . }	23 0	29 20	4-3
985	14. Australior de duabus quæ sunt in collo . . . . .	XV 217 η . . . . .	m 8 50	17 0	4
986	15. Borealiior ipsarum . . . . .	XV 248 θ . . . . .	9 20	15 20	4-3
987	16. Præcedens de duabus quæ sunt in rictu . . . . .	XV 174 Fl. 5χ . . .	5 40	13 20	4
988	17. Sequens ipsarum . . . . .	XV 204 ξ . . . . .	6 40	11 50	4
989	18. Australior de duabus quæ sunt in anteriore pede . . . . .	XV 10 Fl. 1 i . . .	≈ *27 20	*11 30	4-3
990	19. Borealiior ipsarum . . . . .	XV 22 Fl. 2 f . . .	*27 30?	-10 0	4-3
ARA.					
991	1. Borealiior de duabus quæ sunt in basi . . . . .	σ . . . . .	m 27 40	-22 40	5
992	2. Australior ipsarum . . . . .	θ . . . . .	* 3 0	25 45	4
993	3. Quæ est in media aræ . . . . .	α . . . . .	m *26 10	26 30	4-3
994	4. Borealis de tribus quæ sunt in foco . . . . .	ε <sup>1</sup> . . . . .	20 40	-30 20	5

## Catalogue I—continued.

No. in Baily.	Ptolemy.	Modern name.	Long.	Lat.	Mag.
<i>Southern Constellations—continued.</i>					
ARA—continued.					
			° /	° /	
995	5. Australior reliquarum et contiguarum duarum...	γ .....	♁ 25 10	— 34 10	4-3
996	6. Borealior ipsarum.....	β .....	25 0	33 20	4
997	7. Quæ est in extremitate.....	ζ .....	20 50	— *34 0	4
CORONA AUSTRALIS.					
998	1. Antecedens extra australem arcum.....	{ XVIII 73 δ <sup>1</sup> } Tel. { XVIII 76 δ <sup>2</sup> }	♃ 9 10	— 21 30	4
999	2. Quæ ipsam sequitur et est in corona.....	{ XVIII 166 η <sup>1</sup> } { XVIII 169 η <sup>2</sup> }	11 40	21 0	5
1000	3. Quæ istam sequitur.....	Lac. 7909.....	13 10	20 20	5
1001	4. Sequens adhuc istam.....	XVIII 250 ζ.....	14 50	20 0	4
1002	5. Quæ post istam est ante Sagittarii genu.....	XVIII 291 δ.....	16 10	18 30	5
1003	6. Quæ post istam est borealior quam fulgens quæ est in genu.....	XVIII 305 β.....	17 0	17 10	4
1004	7. Borealior hac.....	XVIII 300 α.....	*16 50	16 0	4
1005	8. Adhuc borealior ista.....	XVIII 280 γ.....	16 30	15 10	4
1006	9. Sequens de duabus præcedentibus istam in boreali arcu.....	XVIII 230 ε.....	15 10	15 20	6
1007	10. Præcedens de duabus obscuris.....	XVIII 222 ν.....	14 40	14 50	6
1008	11. Hanc etiam satis præcedens.....	XVIII 142 λ.....	11 50	*14 40	5
1009	12. Adhuc istam præcedens.....	Lac. 774 <sup>8</sup> .....	9 40	15 50	5
1010	13. Reliqua et australior quam supradicta.....	XVIII 85 θ.....	9 10	— 18 30	5
PISCIS AUSTRINUS.					
1011	1. Quæ est in ore, est eadem cum principio aquæ.....	24 α.....	≈ 7 0	— *20 20	1
1012	2. Præcedens de tribus quæ sunt in australi capitis circumferentia.....	17 β.....	0 40	20 20	4
1013	3. Media ipsarum.....	22 γ.....	4 10	22 15	4
1014	4. Sequens de tribus.....	23 δ.....	5 20	22 30	4
1015	5. Quæ est ad branchias.....	18 ε.....	4 20	16 15	4-3
1016	6. Quæ est in dorsali australique spina.....	14 μ.....	♄ 25 10	19 30	5
1017	7. Sequens de duabus quæ sunt in ventre.....	ζ.....	≈ 1 10	15 10	5
1018	8. Antecedens ipsarum.....	16 λ.....	♄ 28 50	14 40	4
1019	9. Sequens de tribus quæ sunt in boreali spina.....	12 η.....	25 10	15 0	4
1020	10. Media ipsarum.....	10 θ.....	21 50	16 30	4
1021	11. Præcedens de tribus.....	9 ι.....	21 0	18 10	4
1022	12. Quæ in extrema cauda.....	γ Gruis.....	20 10	— 22 15	4
INFORMATÆ.					
1023	1. Præcedens de tribus splendidis antecedentibus Piscem.....	α Micros.....	♄ 8 0	— 22 20	3-4
1024	2. Media ipsarum.....	γ Micros.....	11 10	22 10	3-4
1025	3. Sequens de tribus.....	ε Micros.....	14 0	21 10	3-4
1026	4. Præcedens hanc et est obscura.....	XX 445.....	12 0	20 50	5
1027	5. Australior de duabus reliquis quæ sunt in septentrione.....	XXI 12.....	13 50	17 0	4
1028	6. Borealis ipsarum.....	24 A Capric.....	13 50	— 14 50	4

## CATALOGUE II.

*Ptolemy's Catalogue Compared with Modern Observations Reduced to Epoch A. D. 100.*

The first column gives the number of the star in Baily's edition; the second, Ptolemy's number; the third, Ptolemy's longitude in degrees and minutes with some alternative readings; the fourth, Ptolemy's latitude with some alternative readings; the fifth column gives Ptolemy's magnitude; the sixth column gives the modern name; the seventh and eighth columns give the longitude and latitude of the identified stars for the epoch A. D. 100, reduced from Piazzì's Catalogue, with the exception of the stars in Danckwortt's Catalogue (*Vierteljahrsschrift der Astronomische Gesellschaft, 1881*); and those in the catalogue of Neugebauer (*Stern tafeln von 4000 vor Chr. bis zur Gegenwart nebst Hilfsmitteln zur berechnung von Sternpositionen zwischen 4000 vor Chr. und 3000 nach Chr., 1912*) which have been reduced from those catalogues respectively. The ninth column gives the magnitudes in the Harvard Revised Photometry, the combined magnitude being given for double stars; and the tenth and eleventh columns give the differences of the computed positions of longitude and latitude.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A.D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
<b>URSA MINOR.</b>										
		° ' /	° ' /			° ' /	° ' /		' /	' /
1	1	60 10	+66 0	3	1 α...	62 8	+65 52	2.1	+118	— 8
2	2	62 30	70 0	4	23 δ...	64 42	69 46	4.4	+132	— 14
3	3	70 10	74 20	4	22 ε...	72 36	73 39	4.4	+146	— 41
4	4	89 40	75 40	4	16 ζ...	90 32	74 53	4.3	+ 52	— 47
5	5	93 40	77 40	4	21 η...	93 39	77 43	5.0	— 1	+ 3
6	6	107 10	72 50	2	7 β...	106 21	72 49	2.2	— 49	— 1
7	7	116 10	74 50	2	13 γ...	114 25	75 5	3.1	—105	+ 15
8	Inf. 1	103 0	+71 10	4	5 Λ...	101 27	+71 14	4.4	— 93	+ 4
<b>URSA MAJOR.</b>										
9	1	85 20	+39 50	4	1 α...	86 33	+40 7	3.5	+ 73	+ 17
10	2	85 50	43 0	5	2 Λ...	85 7	44 23	5.4	— 43	+ 83
11	3	86 20	43 0	5	4 π²...	86 17	43 46	4.8	— 3	+ 46
12	4	86 10	47 10	5	8 ρ...	87 26	47 43	5.0	+ 76	+ 33
13	5	87 40	47 0	5	13 σ²...	88 45	47 39	4.9	+ 65	+ 39
14	6	88 10	50 30	5	24 δ...	89 47	51 1	4.6	+ 97	+ 31
15	7	90 30	43 50	4	14 τ...	90 58	44 23	4.7	+ 28	+ 33
16	8	92 30	44 20	4	23 h...	94 20	44 55	3.7	+110	+ 35
17	9	99 0	42 0	4	29 υ...	99 51	42 38	3.9	+ 51	+ 38
18	10	101 0	37 15?	4-5	30 φ...	102 48	38 4	4.5	+108	+ 49
19	11	100 40	35 0	3	25 θ...	101 10	35 9	3.3	+ 30	+ 9
20	12	95 30	29 20	3	9 ι...	96 32	29 35	3.1	+ 62	+ 15
21	13	96 20	28 20	3	12 κ...	97 27	28 50	3.7	+ 67	+ 30
22	14	95 40	36 0	4	18 ε...	96 47	35 53	4.9	+ 67	— 7
23	15	95 50	33 0	4	15 f...	96 41	33 17	4.5	+ 51	+ 17
24	16	107 40	49 0	2	50 α...	108 36	49 34	1.9	+ 56	+ 34
25	17	112 10	44 30	2	48 β...	112 47	44 55	2.4	+ 37	+ 25
26	18	123 10	51 0	3	69 δ...	124 17	51 29	3.4	+ 67	+ 29
27	19	123 0	+46 30	2	64 γ...	123 44	+46 59	2.5	+ 44	+ 29

## Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magni- tude in Harvard Revised Photom- etry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
URSA MAJOR—continued.										
28	20	112 40	+29 20	3	33 λ.....	112 56	+29 51	3.5	+ 16	+ 31
29	21	114 10	28 15	3	34 μ.....	114 42	28 52	3.2	+ 32	+ 37
30	22	121 40	35 15	4-3	52 ψ.....	122 15	35 28	3.1	+ 35	+ 13
31	23	129 50	25 50	3	54 ν.....	130 7	26 3	3.7	+ 17	+ 13
32	24	130 20	25 0	3	53 ξ.....	130 55	25 3	4.6	+ 35	+ 3
33	25	132 10	53 30	2	77 ε.....	132 5	54 11	1.7	- 5	+ 41
34	26	138 0	55 40	2	79 ζ.....	138 47	56 17	2.4	+ 47	+ 37
35	27	149 50	54 0	2	85 η.....	150 13	54 25	1.9	+ 23	+ 25
36	Inf. 1	147 50	39 45	3	12 Can.Ven..	148 6	40 9	3.0	+ 16	+ 24
37	2	140 10	41 20	5	8 Can.Ven..	141 36	40 33	4.3	+ 86	- 47
38	3	105 0	17 15	4	40 Lyncis....	105 30	17 49	3.3	+ 30	+ 34
39	4	103 20	19 10	4	38 Lyncis....	104 4	19 59	3.8	+ 44	+ 49
40	5	106 10	20 0	āμ..	10 Leo. min..	107 19	20 33	4.6	+ 69	+ 33
41	6	105 10	22 { 45 50	āμ..	IX 115.....	106 17	23 38	5.0	+ 67	+ 53
42	7	101 10	{ 23 0 20 20	....	36 Lyncis....	100 48	25 39	5.2	- 22	+ 159
43	8	90 0	+22 15	āμ..	VIII 245....	101 6	20 42	4.7	- 4	+ 22
				āμ..	31 Lyncis....	91 4	+22 57	4.4	+ 64	+ 42
DRACO.										
44	1	206 40	+76 30	4	21 μ.....	208 0	+76 27	5.8	+ 80	- 3
45	2	221 50	78 30	4-3	{24 25} ν.....	223 9	78 21	4.2	+ 79	- 9
46	3	223 10	75 40	3	23 β.....	225 16	75 31	3.0	+ 126	- 9
47	4	237 20	80 20	4	32 ξ.....	237 47	80 30	3.9	+ 27	+ 10
48	5	239 40	75 30	3	33 γ.....	241 32	75 12	2.4	+ 112	- 18
49	6	264 40	82 20	4	39 b.....	266 34	82 0	4.8	+ 114	- 20
50	7	272 20	78 15	4	46 c.....	274 7	78 6	5.1	+ 107	- 9
51	8	268 50	80 20	4	45 d.....	269 53	80 1	4.9	+ 63	- 19
52	9	289 30	81 10	4	47 o.....	289 26	81 0	4.8	- 4	- 10
53	10	338 0	81 40	4	58 π.....	338 44	81 48	4.6	+ 44	+ 8
54	11	350 30	83 0	4	57 δ.....	352 26	82 51	3.2	+ 116	- 9
55	12	7 40	78 50	4	63 ε.....	7 22	79 23	4.0	- 18	+ 33
56	13	352 50	77 50	4	67 ρ.....	355 12	78 5	4.7	+ 142	+ 15
57	14	10 40	80 30	5	61 σ.....	11 36	80 51	4.8	+ 56	+ 21
58	15	21 40	81 40	5	52 ν.....	25 18	83 3	4.9	+ 218	+ 83
59	16	26 10	80 15	5	60 τ.....	28 59	80 27	4.6	+ 169	+ 12
60	17	73 20	84 30	4	31 ψ.....	76 27	83 48	4.9	+ 187	- 42
61	18	50 20	83 30	4	44 χ.....	52 46	83 13	3.7	+ 146	- 17
62	19	41 50	84 50	4	43 φ.....	45 33	84 38	4.2	+ 223	- 12
63	20	118 40	87 30	6	27 f.....	116 58	86 47	5.2	- 102	- 43
64	21	111 40	86 50	6	28 ω.....	104 45	86 49	4.9	- 415	- 1
65	22	159 0	81 15	5	18 g.....	156 3	81 39	5.0	- 177	+ 24
66	23	159 20	83 0	5	19 h.....	156 2	83 12	4.8	- 198	+ 12
67	24	158 20	84 50	3	22 ζ.....	154 9	84 47	3.2	- 251	- 3
68	25	160 0	78 0	3	14 η.....	167 1	78 30	2.9	+ 421	+ 30
69	26	163 0	74 40	4-3	13 θ.....	170 12	74 31	4.1	+ 432	- 9
70	27	162 40	70 0	3	12 ι.....	157 48	71 7	3.5	- 292	+ 67
71	28	127 20	64 40	4	10 i.....	127 58	65 16	4.8	+ 38	+ 36
72	29	131 10	65 30	3	11 α.....	130 32	66 17	3.6	- 38	+ 47
73	30	109 10	61 15	3	5 κ.....	109 31	61 37	3.9	+ 21	+ 22
74	31	103 10	+56 15	3	1 λ.....	103 39	+57 4	4.1	+ 29	+ 49

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
CEPHEUS.										
75	1	35 0	+75 40	4	1 κ.....	37 5	+75 15	4.4	+125	- 25
76	2	33 0	64 15	4	35 γ.....	33 56	64 17	3.4	+ 56	+ 2
77	3	7 20	71 10	4	8 β.....	9 47	71 0	3.3	+147	- 10
78	4	346 40	69 0	3	5 α.....	346 50	68 54	2.6	+ 10	- 6
79	5	339 20	72 0	4	3 η.....	337 52	71 33	3.6	- 88	- 27
80	6	340 0	74 0	4	2 θ.....	339 23	73 56	4.3	- 37	- 4
81	7	358 30	65 30	5	17 ξ.....	358 11	65 45	4.4	- 19	+ 15
82	8	7 30	62 30	4-3	32 ι.....	7 26	62 28	3.7	- 4	- 2
83	9	346 20	60 15	5	23 ε.....	346 43	60 3	4.2	+ 23	- 12
84	10	347 20	61 15	4	21 ζ.....	348 2	61 5	3.6	+ 42	- 10
85	11	349 0	61 20	5	22 λ.....	350 7	61 49	5.2	+ 67	+ 29
86	Inf. 1	343 40	64 0	5	13 μ.....	343 50	64 9	4.5v	+ 10	+ 9
87	2	351 20	+59 30	4	27 δ.....	351 37	+59 28	3.7-4.6v	+ 17	- 2
BOOTES.										
88	1	152 20	+58 40	5	17 κ.....	152 57	+58 51	4.6	+ 37	+ 11
89	2	154 10	58 20	5	21 ι.....	154 27	58 52	4.8	+ 17	+ 32
90	3	155 40	60 10	5	23 θ.....	155 37	60 24	4.1	- 3	+ 14
91	4	159 40	54 40	5	19 λ.....	160 24	54 40	4.3	+ 44	0
92	5	169 40	49 0	3	27 γ.....	171 4	49 35	3.0	+ 84	+ 35
93	6	176 40	53 50	4-3	42 β.....	177 30	54 15	3.6	+ 50	+ 25
94	7	185 40	48 40	4-3	49 δ.....	186 58	49 7	3.5	+ 78	+ 27
95	8	185 40	53 15	4	51 μ.....	186 26	53 29	4.5	+ 46	+ 14
96	9	185 0	57 30	4	{ 52 ν <sup>1</sup> ..... } { 53 ν <sup>2</sup> ..... }	185 53	57 17	4.3	+ 53	- 13
97	10	187 40	46 { <sup>30</sup> <sub>10</sub> }	4-3	2 η Coronæ.	190 20	47 1	5.6	+160	+ 31
98	11	188 30	45 30	5	1 ο Coronæ.	190 3	46 7	5.6	+ 93	+ 37
99	12	188 { <sup>30</sup> <sub>10</sub> }	41 { <sup>20</sup> <sub>40</sub> }	5	45 ε.....	188 33	40 39	5.0	+ 23	- 61
100	13	186 40	41 40	5	43 ψ.....	186 59	42 30	4.7	+ 19	+ 50
101	14	187 0	42 30	5	46 b.....	188 19	42 1	5.7	+ 79	- 29
102	15	187 40	40 20	5	41 ω.....	187 10	40 21	4.9	- 30	+ 1
103	16	180 0	40 15	3	36 ε.....	181 31	40 48	2.7	+ 91	+ 33
104	17	175 40	41 40	4	28 σ.....	177 9	42 6	4.5	+ 89	+ 26
105	18	175 0	42 10	4-3	25 ρ.....	176 15	42 29	3.8	+ 75	+ 19
106	19	185 20	28 0	3	30 ζ.....	186 30	28 1	4.4	+ 70	+ 1
107	20	171 20	28 0	3	8 η.....	172 43	28 22	2.8	+ 83	+ 22
108	21	170 30	26 30	4	4 τ.....	171 41	26 40	4.5	+ 71	+ 10
109	22	171 20	25 0	4	5 υ.....	172 40	25 17	4.3	+ 80	+ 17
110	Inf. 1	177 0	+31 30	1	16 α.....	177 48	+32 3	0.2	+ 48	+ 33
CORONA BOREALIS.										
111	1	194 40	+44 30	2-1	5 α.....	195 35	+44 32	2.3	+ 55	+ 2
112	2	191 40	46 10	4-3	3 β.....	192 37	46 11	3.7	+ 57	+ 1
113	3	191 50	48 0	5	4 θ.....	192 50	48 45	4.2	+ 60	+ 45
114	4	193 40	50 30	6	9 π.....	195 26	50 38	5.6	+106	+ 8
115	5	197 10	44 45	4	8 γ.....	198 16	44 40	3.9	+ 66	- 5
116	6	199 10	44 50	4	10 δ.....	200 25	44 57	4.7	+ 75	+ 7
117	7	201 20	46 10	4	13 ε.....	202 31	46 16	4.2	+ 71	+ 6
118	8	201 40	+49 20	4	14 ι.....	202 23	+49 21	4.9	+ 43	+ 1

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
<b>HERCULES.</b>										
		° /	° /			° /	° /		'	'
119	1	227 40	+37 30	3	64 α.....	229 41	+37 31	3.5	+121	+ 1
120	2	213 40	43 0	3	27 β.....	214 37	42 57	2.8	+ 57	- 3
121	3	211 40	40 10	3	20 γ.....	212 40	40 12	3.8	+ 60	+ 2
122	4	208 0	37 10	4	7 κ.....	209 11	37 26	5.3	+ 71	+ 16
123	5	226 40	48 0	3	65 δ.....	228 15	48 1	3.2	+ 95	+ 1
124	6	232 0	49 30	4-3	76 λ.....	233 24	49 32	4.5	+ 84	+ 2
125	7	237 40	52 0	4-3	86 μ.....	239 2	51 49	3.5	+ 82	- 11
126	8	245 30	52 50	4-3	103 ο.....	246 16	52 29	3.8	+ 46	- 21
127	9	241 40	54 0	4-3	94 ν.....	243 1	53 53	4.5	+ 81	- 7
128	10	241 30	53 0	4-3	92 ξ.....	242 45	52 57	3.8	+ 75	- 3
129	11	213 50	53 10	3	40 ζ.....	215 22	53 9	3.0	+ 92	- 1
130	12	220 10	53 30	4-3	58 ε.....	221 46	53 28	3.9	+ 96	- 2
131	13	220 0	56 10	5	59 d.....	221 25	56 8	5.3	+ 85	- 2
132	14	221 10	58 30	5	61 c.....	223 2	58 42	5.4	+112	+ 12
133	15	224 0	59 50	4	67 π.....	225 30	59 47	3.4	+ 90	- 3
134	16	225 20	60 20	4	69 ρ.....	226 23	60 21	4.8	+ 63	+ 1
135	17	226 20	61 15	4-3	75 σ.....	228 55	60 13	4.5	+155	- 62
136	18	240 50	61 0	4	91 θ.....	242 1	60 57	4.0	+ 71	- 3
137	19	232 10	69 20	4	85 ι.....	233 7	69 31	3.8	+ 57	+ 11
138	20	225 20	70 15	6	74.....	224 2	69 16	5.8	- 78	- 59
139	21	226 50	71 15	6	77 x.....	225 59	71 28	5.8	- 51	+ 13
140	22	229 40	72 0	6	82 y.....	230 56	72 1	5.5	+ 76	+ 1
141	23	210 40	60 15	4-3	44 η.....	212 1	60 32	3.6	+ 81	+ 17
142	24	205 20	63 0	4	35 σ.....	206 30	63 21	4.2	+ 70	+ 21
143	25	195 40	65 30	4-3	22 τ.....	197 33	66 0	3.9	+113	+ 30
144	26	193 40	63 40	4	11 φ.....	194 57	63 56	4.3	+ 77	+ 16
145	27	190 10	64 15	4	6 υ.....	191 24	64 30	4.6	+ 74	+ 15
146	28	191 10	60 0	4	1 χ.....	191 21	60 0	4.6	+ 11	0
147	29	185 0	57 30	4	{ 52 υ <sup>1</sup> 53 υ <sup>2</sup> } Bootis.	185 53	57 17	4.3	+ 53	- 13
148	Inf. 1	212 40	+38 10	5	24 ω.....	215 4	+35 23	4.5	+144	-167
<b>LYRA.</b>										
149	1	257 20	+62 0	1	3 α.....	258 45	+61 51	0.14	+ 85	- 9
150	2	260 20	62 40	4-3	{ 4 ε <sup>1</sup> 5 ε <sup>2</sup> ..... }	262 20	62 33	4.7	+120	- 7
151	3	260 20	61 0	4-3	{ 6 ζ <sup>1</sup> 7 ζ <sup>2</sup> ..... }	261 47	60 35	4.1	+ 87	- 25
152	4	263 40	60 0	4	12 δ <sup>2</sup> .....	265 23	59 33	4.5	+103	- 27
153	5	272 0	61 20	4	20 η.....	273 50	60 54	4.5	+110	- 26
154	6	272 40	60 20	4-5	21 θ.....	274 18	59 47	4.5	+ 98	- 33
155	7	261 0	56 10	3	10 β.....	262 34	56 14	3.4-4.IV	+ 94	+ 4
156	8	260 50	55 0	4-5	9 υ <sup>2</sup> .....	262 16	55 26	5.1	+ 76	+ 26
157	9	264 10	55 20	3	14 γ.....	265 37	55 15	3.3	+ 87	- 5
158	10	264 0	+54 45	4-5	15 λ.....	265 50	+54 41	5.1	+110	- 4
<b>CYGNUS.</b>										
159	1	274 30	+49 20	3	6 β.....	274 58	+49 11	3.2	+ 28	- 9
160	2	279 0	50 30	5	12 φ.....	278 43	50 49	4.8	- 17	+ 19
161	3	286 20	54 30	4-3	21 η.....	286 44	54 27	4.0	+ 24	- 3
162	4	298 30	57 20	3	37 γ.....	298 44	57 17	2.3	+ 14	- 3
163	5	309 10	+60 0	2	50 α.....	309 18	+60 1	1.3	+ 8	+ 1

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
CYGNUS—continued.										
164	6	289 40	+64 40	3	18 δ.....	290 9	+64 36	3.0	+ 29	- 4
165	7	292 30	69 40	4	13 θ.....	292 32	69 39	4.6	+ 2	- 1
166	8	291 10	71 30	4-3	10 ι.....	291 58	71 34	3.9	+ 48	+ 4
167	9	286 40	74 0	4-3	1 κ.....	289 1	73 57	4.0	+141	- 3
168	10	300 50	49 30	3	53 ε.....	301 11	49 29	2.6	+ 21	- 1
169	11	303 50	52 10	4-3	54 λ.....	303 37	51 45	4.5	- 13	- 25
170	12	306 40	44 0	3	64 ζ.....	306 49	43 49	3.4	+ 9	- 11
171	13	310 0	55 10	4-3	58 ν.....	309 57	55 1	4.0	- 3	- 9
172	14	314 30	57 0	4-3	62 ξ.....	314 44	56 40	3.9	+ 14	- 20
173	15	301 10	64 0	4	{30 ο <sup>1</sup> .....	}302 3	63 48	3.6	+ 53	- 12
					{31 .....					
174	16	302 40	64 30	4	32 ο <sup>2</sup> .....	303 49	64 25	4.2	+ 69	- 5
175	17	312 10	63 45	5	{45 ω <sup>1</sup> .....	}310 3	64 10	4.4	- 103	+ 29
					{46 ω <sup>2</sup> .....					
176	Inf. 1	310 40	49 40	4-3	{65 τ.....	}312 10	50 30	3.8	+ 90	+ 50
177	2	313 50	+51 40	4-3	{66 ν.....					
					67 σ.....	314 13	+51 35	4.3	+ 23	- 5
CASSIOPEIA.										
178	1	7 50	+45 20	4-3	17 ζ.....	8 51	+44 35	3.7	+ 61	- 45
179	2	10 50	46 45	3	18 α.....	11 34	46 29	2.5	+ 44	- 16
180	3	13 0	47 50	4	24 η.....	13 34	47 23	3.6	+ 34	- 27
181	4	16 40	49 0	3-2	27 γ.....	17 42	48 39	2.2	+ 62	- 21
182	5	20 40	45 30	3	37 δ.....	21 32	46 21	2.8	+ 52	+ 51
183	6	27 0	47 45	4	45 ε.....	28 30	47 21	3.4	+ 90	- 24
184	7	31 40	47 20	4	(35 Hev.) ι.....	35 58	48 44	4.6	+258	+ 84
185	8	14 40	44 20	4	33 φ.....	15 31	42 59	4.5	+ 51	- 91
186	9	17 40	45 0	5	34 θ.....	19 16	44 56	5.2	+ 96	- 4
187	10	2 20	50 0	6	8 σ.....	3 58	49 18	4.9	+ 98	- 42
188	11	15 0	52 40	4-5	15 κ.....	16 25	52 7	4.2	+ 85	- 33
189	12	7 50	51 40	3	11 β.....	8 41	51 19	2.4	+ 51	- 21
190	13	3 {40 20}	+51 40	6	7 ρ.....	4 53	+51 2	4.8	+ 73	- 38
PERSEUS.										
191	1	26 40	+40 30	Neb.	7 χ (cum.)....	27 58	+40 33	...	+ 78	+ 3
192	2	31 10	37 30	4	15 η.....	32 23	37 16	3.9	+ 73	- 14
193	3	32 40	34 30	3-4	23 γ.....	33 41	34 19	3.1	+ 61	- 11
194	4	27 30	32 20	4	13 θ.....	28 8	31 33	4.2	+ 38	- 47
195	5	30 40	34 30	4	18 τ.....	31 35	34 10	4.1	+ 55	- 20
196	6	31 30	31 10	4	18 (Hev.) ι.....	32 11	30 40	4.2	+ 41	- 30
197	7	34 50	30 0	2	33 α.....	35 43	29 55	1.9	+ 53	- 5
198	8	35 20	27 50	4	35 σ.....	36 15	27 49	4.5	+ 55	- 1
199	9	37 0	27 40	4	37 ψ.....	37 23	27 45	4.3	+ 23	+ 5
200	10	37 40	27 20	3	39 δ.....	38 26	27 5	3.1	+ 46	- 15
201	11	30 30	27 0	4	27 κ.....	31 16	26 0	4.0	+ 46	- 60
202	12	29 40	23 0	2	26 β.....	29 47	22 13	2.1 v	+ 7	- 47
203	13	29 10	21 0	4	28 ω.....	30 0	20 46	4.8	+ 50	- 14
204	14	27 40	21 0	4	25 ρ.....	28 29	20 27	3.4 v	+ 49	- 33
205	15	26 50	22 15	4	22 π.....	27 32	21 32	4.6	+ 42	- 43
206	16	44 50	28 15	4	(72) b (21 Hev.)	45 26	28 13	4.6	+ 36	- 2
207	17	43 0	+28 10	4	47 λ.....	43 23	+28 39	4.3	+ 23	+ 29

## Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
PERSEUS—continued.										
208	18	42 20	+25 0	4	48 <i>c</i> .....	43 6	+26 1	4.0	+ 46	+ 61
209	19	44 0	26 15	4	51 <i>μ</i> .....	44 25	26 28	4.3	+ 25	+ 13
210	20	44 10	24 30	5	53 <i>d</i> .....	45 14	24 23	4.9	+ 64	- 7
211	21	46 20	18 45	5-4	58 <i>e</i> .....	47 11	18 46	4.5	+ 51	+ 1
212	22	36 50	21 50	4-3	41 <i>v</i> .....	37 27	21 56	3.9	+ 37	+ 6
213	23	38 40	19 15	3	45 <i>ε</i> .....	39 17	18 54	3.0	+ 37	- 21
214	24	38 20	14 45	4	46 <i>ξ</i> .....	38 35	14 43	4.0	+ 15	- 2
215	25	34 10	12 0	3-4	38 <i>ο</i> .....	34 44	11 58	3.9	+ 34	- 2
216	26	36 20	11 0	3-2	44 <i>ζ</i> .....	36 43	11 7	2.9	+ 23	+ 7
217	Inf. 1	41 50	18 0	5	52 <i>f</i> .....	42 45	18 42	4.9	+ 55	+ 42
218	2	45 0	31 0	5	14 (Hev.) Camel....	45 56	31 30	5.1	+ 56	+ 30
219	3	24 40	+20 40	<i>αμ</i>	16 <i>ρ</i> <sup>1</sup> .....	25 20	+20 50	4.3	+ 40	+ 10
AURIGA.										
220	1	62 30	+30 0	4	33 <i>δ</i> .....	63 28	+30 41	3.9	+ 58	+ 41
221	2	62 20	31 50	4	30 <i>ξ</i> .....	62 43	32 1	4.9	+ 23	+ 11
222	3	55 0	22 30	1	13 <i>α</i> .....	55 25	22 50	0.2	+ 25	+ 20
223	4	62 50	20 0	2	34 <i>β</i> .....	63 31	21 15	2.1	+ 41	+ 75
224	5	61 10	15 15	4	32 <i>v</i> .....	61 52	15 28	4.2	+ 42	+ 13
225	6	62 50	13 20	4-3	37 <i>θ</i> .....	63 29	13 34	2.7	+ 39	+ 14
226	7	52 0	20 40	4-3	7 <i>ε</i> .....	52 26	20 42	3.2 <i>v</i>	+ 26	+ 2
227	8	52 10	18 0	4-3	10 <i>η</i> .....	53 1	18 4	3.3	+ 51	+ 4
228	9	52 0	18 0	4	8 <i>ζ</i> .....	52 13	17 59	3.9	+ 13	- 1
229	10	49 50	10 10	3-4	3 <i>ι</i> .....	50 13	10 14	2.9	+ 23	+ 4
230	11	55 40	5 0	3-2	23 <i>γ</i> (= 112 <i>β</i> Taur.)	56 9	5 13	1.8	+ 29	+ 13
231	12	56 0	8 30	5	25 <i>x</i> .....	57 43	8 37	4.9	+ 103	+ 7
232	13	56 20	12 10	5	24 <i>φ</i> .....	56 47	10 59	5.3	+ 27	- 71
233	14	53 0	+10 20	6	14.....	54 5	+ 9 22	5.1	+ 65	- 58
OPHIUCHUS.										
234	1	234 50	+36 0	3-2	55 <i>α</i> .....	235 55	+36 12	2.1	+ 65	+ 12
235	2	238 0	27 15	4-3	60 <i>β</i> .....	238 52	28 16	2.9	+ 52	+ 61
236	3	239 0	26 { <sup>30</sup> 45}	4	62 <i>γ</i> .....	240 10	26 25	3.7	+ 70	- 5
237	4	223 20	33 0	4	25 <i>ι</i> .....	224 10	32 45	4.3	+ 50	- 15
238	5	224 40	31 50	4	27 <i>κ</i> .....	225 34	32 6	3.4	+ 54	+ 16
239	6	218 20	23 45	4	10 <i>λ</i> .....	219 7	23 47	3.8	+ 47	+ 2
240	7	215 0	17 0	3	1 <i>δ</i> .....	215 51	17 33	3.0	+ 51	+ 33
241	8	216 0	16 30	3	2 <i>ε</i> .....	217 1	16 39	3.3	+ 61	+ 9
242	9	236 40	15 0	4	57 <i>μ</i> .....	237 53	15 28	4.6	+ 73	+ 28
243	10	242 20	13 40	4-5	64 <i>ν</i> .....	243 20	13 59	3.5	+ 60	+ 19
244	11	243 20	14 20	4	69 <i>τ</i> .....	244 20	15 32	5.3	+ 60	+ 72
245	12	231 10	7 30	3	35 <i>η</i> .....	231 32	7 24	2.6	+ 22	- 6
246	13	233 40	+ 2 15	4-3	40 <i>ξ</i> .....	234 18	+ 2 23	4.5	+ 38	+ 8
247	14	233 0	- 2 15	4	36 <i>θ</i> .....	233 49	- 2 35	5.3	+ 49	- 20
248	15	234 20	- 1 30	4-3	42 <i>θ</i> .....	234 58	- 1 35	3.4	+ 38	- 5
249	16	235 0	- 0 20	4	44 <i>b</i> .....	235 53	- 0 38	4.3	+ 53	- 18
250	17	235 50	- 0 15	5	51 <i>c</i> .....	237 3	- 0 26	4.9	+ 73	- 11
251	18	237 10	+ 1 0	5	{ 52..... 2 Sagitarii.....	237 50	+ 1 34	6.6	+ 40	+ 34
252	19	222 10	11 50	3	13 <i>ζ</i> .....	238 39	1 41	6.0	+ 89	+ 41
253	20	221 40	5 20	5-4	8 <i>φ</i> .....	222 48	11 37	2.7	+ 38	- 13
254	21	220 40	+ 3 10	5	7 <i>x</i> .....	222 14	5 26	4.4	+ 34	+ 6
						221 33	+ 3 27	4.8	+ 53	+ 17

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		ΔLong.	ΔLat.
OPHIUCHUS—continued.										
255	22	219 50	+ 1 40	5-4	4 ψ.....	221 7	+ 1 47	4.6	+ 77	+ 7
256	23	222 20	+ 0 40	5	9 ω.....	223 12	+ 0 40	4.6	+ 52	0
257	24	220 40	- 0 45	4	5 ρ.....	222 1	- 1 30	5.2	+ 81	- 45
258	Inf. 1	242 0	+28 10	4	66 η.....	243 38	+28 4	4.8	+ 98	- 6
259	2	242 40	26 20	4	67.....	243 45	26 38	3.9	+ 65	+ 18
260	3	243 0	25 0	4	68.....	244 3	25 0	4.4	+ 63	0
261	4	243 40	27 0	4	70.....	244 56	26 51	4.1	+ 76	- 9
262	5	244 40	+33 0	4	72.....	245 44	+33 15	3.7	+ 64	+ 15
SERPENS.										
263	1	198 50	+38 0	4	21 ι.....	200 37	+38 17	4.5	+107	+ 17
264	2	201 40	40 0	4	38 ρ.....	202 57	40 11	4.9	+ 77	+ 11
265	3	204 20	36 0	3	41 γ.....	205 49	36 1	3.9	+ 89	+ 1
266	4	202 0	34 15	3	28 β.....	203 20	34 32	3.7	+ 80	+ 17
267	5	201 20	37 15	4	35 κ.....	203 13	37 18	4.3	+113	+ 3
268	6	203 10	42 30	4	44 π.....	205 32	42 39	4.8	+142	+ 9
269	7	201 40	29 15	3	13 δ.....	201 51	29 5	4.2	+ 11	- 10
270	8	204 50	26 30	4	27 λ.....	206 1	26 46	4.4	+ 71	+ 16
271	9	204 20	25 20	3	24 α.....	205 30	25 41	2.7	+ 70	+ 21
272	10	206 20	24 0	3	37 ε.....	207 45	24 8	3.7	+ 85	+ 8
273	11	208 50	16 30	4	32 μ.....	209 31	16 28	3.6	+ 41	- 2
274	12	218 10	13 15?	5	3 ν Ophiuchi.	220 6	13 26	4.7	+116	+ 11
275	13	233 40	10 30	4	53 ν.....	233 51	10 30	4.3	+ 11	0
276	14	237 0	8 30	4-3	55 ξ.....	238 9	8 13	3.6	+ 69	- 17
277	15	237 50	10 50	4	56 ο.....	238 58	10 45	4.4	+ 68	- 5
278	16	243 40	20 0	4	57 ζ.....	243 40	20 3	4.6	0	+ 3
279	17	248 40	21 10	4-3	58 η.....	249 38	21 7	3.4	+ 58	- 3
280	18	258 20	+27 0	4	63 θ.....	259 21	+27 7	4.5	+ 61	+ 7
SAGITTA.										
281	1	280 10	+39 20	4	12 γ.....	280 44	+39 24	3.7	+ 34	+ 4
282	2	276 40	39 10	6	8 ζ.....	277 45	39 38	4.9	+ 65	+ 28
283	3	275 50	39 50	5	7 δ.....	277 0	39 8	3.8	+ 70	- 42
284	4	274 40	39 0	5	5 α.....	274 45	39 1	4.4	+ 5	+ 1
285	5	273 20	+38 40	5	6 β.....	274 53	+38 26	4.4	+ 93	- 14
AQUILA.										
286	1	277 10	+26 50	4	63 τ.....	278 41	+27 14	5.6	+ 91	+ 24
287	2	274 50	27 10	3	60 β.....	276 6	27 7	3.9	+ 76	- 3
288	3	273 50	29 10	2-1	53 α.....	275 2	29 23	0.9	+ 72	+ 13
289	4	274 40	30 0	3-4	59 ξ.....	276 10	29 0	4.9	+ 90	- 60
290	5	273 10	31 30	3	50 γ.....	274 35	31 28	2.8	+ 85	- 2
291	6	276 0	31 30	5	61 φ.....	277 36	31 43	5.3	+ 96	+ 13
292	7	269 40	28 40	5	38 μ.....	270 18	29 0	4.6	+ 38	+ 20
293	8	271 10	26 <sup>{</sup> 20 40 <sup>}</sup>	5-4	44 σ.....	271 26	26 42	5.2	+ 16	+ 2
294	9	262 10	36 20	3	17 ζ.....	263 26	36 29	3.0	+ 76	+ 9
295	Inf. 1	273 40	21 40	3	55 η.....	274 3	21 45	3.7 v	+ 23	+ 5
296	2	278 50	19 10	3	65 θ.....	278 30	18 56	3.4	- 20	- 14
297	3	266 0	25 0	4-3	30 δ.....	267 4	25 1	3.4	+ 64	+ 1
298	4	268 10	20 0	3	41 ι.....	269 27	20 15	4.3	+ 77	+ 15
299	5	269 40	15 30	5	39 κ.....	268 27	14 36	5.0	- 73	- 54
300	6	260 10	+18 10	3	16 λ.....	260 57	+17 52	3.5	+ 47	- 18

## Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		ΔLong.	ΔLat.
DELPHINUS.										
301	1	287 40	+29 10	3-4	2 ε.....	287 44	+29 16	4.0	+ 4	+ 6
302	2	288 40	29 0	4-5	5 ι.....	288 59	29 0	5.4	+ 19	0
303	3	288 40	27 45	4	7 κ.....	288 42	27 43	5.2	+ 2	- 2
304	4	288 30	32 0	3-4	6 β.....	290 0	32 8	3.7	+ 90	+ 8
305	5	290 10	33 20	3-4	9 α.....	291 0	33 13	3.9	+ 50	- 7
306	6	291 20	32 0	3-4	11 δ.....	291 48	32 8	4.5	+ 28	+ 8
307	7	293 10	33 10	3-4	12 γ.....	293 8	32 58	4.5	- 2	- 12
308	8	287 30	30 15	6	3 η.....	288 28	30 51	5.2	+ 58	+ 36
309	9	287 <sup>20</sup> <sub>30</sub>	31 50	6	4 ζ.....	289 26	32 20	4.7	+ 116	+ 30
310	10	289 0	+31 30	6	8 θ.....	289 55	+30 47	6.1	+ 55	- 43
EQUULEUS.										
311	1	296 20	+20 30	άμ	8 α.....	296 45	+20 20	4.1	+ 25	- 10
312	2	298 0	20 40	άμ	10 β.....	299 4	21 11	5.1	+ 64	+ 31
313	3	296 20	25 30	άμ	5 γ.....	297 5	25 29	4.8	+ 45	- 1
314	4	297 40	+25 0	άμ	7 δ.....	298 8	+25 5	4.6	+ 28	+ 5
PEGASUS.										
315	1	347 50	+26 0	2-3	(δ=)21 α Andromedæ	347 59	+25 44	2.1	+ 9	- 16
316	2	342 10	12 30	2-3	88 γ.....	342 47	12 34	2.9	+ 37	+ 4
317	3	332 10	31 0	2-3	53 β.....	332 57	31 6	2.6	+ 47	+ 6
318	4	326 40	19 40	2-3	54 α.....	327 8	19 28	2.6	+ 28	- 12
319	5	334 30	25 30	4	62 τ.....	334 45	25 34	4.6	+ 15	+ 4
320	6	335 0	25 0	4	68 υ.....	335 32	24 50	4.6	+ 32	- 10
321	7	329 0	35 0	3	44 η.....	329 26	35 8	3.1	+ 26	+ 8
322	8	328 30	34 30	5	43 ο.....	328 39	34 27	4.8	+ 9	- 3
323	9	326 10	29 0	4	47 λ.....	326 46	28 50	4.1	+ 36	- 10
324	10	327 0	29 30	4	48 μ.....	328 1	29 30	3.7	+ 61	0
325	11	318 50	18 0	3	42 ξ.....	319 46	17 46	3.6	+ 56	- 14
326	12	320 30	19 0	4	46 ξ.....	321 37	18 48	4.3	+ 67	- 12
327	13	321 20	15 0	5	50 ρ.....	322 9	14 33	4.9	+ 49	- 27
328	14	320 30	16 0	5	49 σ.....	321 38	15 51	5.3	+ 68	- 9
329	15	309 20	16 50	3	26 θ.....	310 19	16 30	3.7	+ 59	- 20
330	16	308 0	16 0	4	22 υ.....	308 51	15 46	4.9	+ 51	- 14
331	17	305 20	22 30	3-2	8 ε.....	305 32	22 12	2.5	+ 12	- 18
332	18	323 40	41 10	4-3	29 π.....	323 20	41 2	4.4	- 20	- 8
333	19	317 40	34 15	4-3	24 ι.....	317 56	34 23	4.0	+ 16	+ 8
334	20	312 20	+36 50	4-3	10 κ.....	312 41	+36 44	4.3	+ 21	- 6
ANDROMEDA.										
335	1	355 20	+24 30	3	31 δ.....	355 26	+24 20	3.5	+ 6	- 10
336	2	356 20	27 0	4	29 π.....	356 22	27 4	4.4	+ 2	+ 4
337	3	354 20	23 0	4	30 ε.....	354 47	23 1	4.5	+ 27	+ 1
338	4	353 40	32 0	4	25 σ.....	354 8	31 31	4.5	+ 28	- 29
339	5	354 40	33 30	4	24 θ.....	354 56	33 18	4.4	+ 16	- 12
340	6	355 0	32 20	5	27 ρ.....	355 21	32 18	5.2	+ 21	- 2
341	7	349 40	41 0	4	17 ι.....	349 52	40 58	4.3	+ 12	- 2
342	8	350 40	42 0	4	19 κ.....	351 5	41 39	4.3	+ 25	- 21
343	9	352 10	44 0	4	16 λ.....	352 11	44 0	4.0	+ 1	0
344	10	354 10	17 30	4	34 ζ.....	354 18	17 33	4.3	+ 8	+ 3
345	11	355 40	15 50	4	38 η.....	356 3	15 51	4.6	+ 23	+ 1
346	12	3 50	+26 20	3	43 β.....	4 1	+25 54	2.4	+ 11	- 26

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
ANDROMEDA—continued.										
		° ' "	° ' "			° ' "	° ' "		' "	' "
347	13	1 50	+30 0	4	37 μ.....	2 47	+29 34	3.9	+ 57	- 26
348	14	2 0	32 30	4	35 ν.....	2 52	32 28	4.4	+ 52	- 2
349	15	16 50	28 0	3	57 γ.....	17 53	27 40	2.3	+ 63	- 20
350	16	17 10	37 20	4-3	54 (=φ Persei)	18 18	36 41	4.2	+ 68	- 39
351	17	15 10	35 <sup>20</sup> <sub>40</sub>	4-3	51 (=ν Persei)	16 9	35 19	3.8	+ 59	- 21
352	18	12 20	29 0	4-3	50 υ.....	12 27	29 0	4.2	+ 7	0
353	19	12 0	28 0	4	53 τ.....	12 35	27 47	4.9	+ 35	- 13
354	20	10 10	35 30	5	42 φ.....	10 11	36 12	4.3	+ 1	+ 42
355	21	12 40	34 30	5	49 λ.....	13 49	34 24	5.3	+ 69	- 6
356	22	14 10	32 30	5	52 χ.....	14 12	31 19	5.2	+ 2	- 71
357	23	341 40	+44 0	3	1 ο.....	341 36	+43 44	3.6	- 4	- 16
TRIANGULUM.										
358	1	11 0	+16 30	3	2 α.....	10 32	+16 46	3.6	- 28	+ 16
359	2	16 0	20 40	3	4 β.....	15 56	20 28	3.1	- 4	- 12
360	3	16 20	19 40	4	8 δ.....	16 41	19 28	5.1	+ 21	- 12
361	4	16 50	+19 0	3	9 γ.....	17 10	+18 46	4.1	+ 20	- 14
ARIES.										
362	1	6 40	+ 7 20	3-4	5 γ.....	6 46	+ 7 6	4.7	+ 6	- 14
363	2	7 40	8 20	3	6 β.....	7 34	8 25	2.7	- 6	+ 5
364	3	11 0	7 40	5	17 η.....	11 38	7 17	5.3	+ 38	- 23
365	4	11 30	6 0	5	22 θ <sup>1</sup> .....	12 28	5 36	5.7	+ 58	- 24
366	5	6 30	5 30	5	8 ι.....	7 7	5 20	5.2	+ 37	- 10
367	6	17 40	6 0	6	32 ν.....	17 44	6 0	5.4	+ 4	0
368	7	21 20	4 50	5	48 ε.....	22 6	3 58	5.2	+ 46	- 52
369	8	23 50	1 40	4	57 δ.....	24 19	1 39	4.5	+ 29	- 1
370	9	25 20	2 30	4	58 ζ.....	25 31	2 41	4.9	+ 11	+ 11
371	10	27 0	1 50	4	63 τ <sup>2</sup> .....	27 13	1 55	5.2	+ 13	+ 5
372	11	19 40	+ 1 10	5	{ 45 ρ <sup>2</sup> .....	20 27	1 20	5.0	+ 44	+ 10
					{ 46 ρ <sup>3</sup> .....	20 22	+ 1 9			
373	12	18 0	- 1 30	5	43 σ.....	18 30	- 1 28	5.5	+ 30	+ 2
374	13	15 0	- 5 15	4-3	87 μ Ceti.....	15 21	- 5 40	4.4	+ 21	- 25
375	Inf. 1	10 40	+10 0	3-2	13 α.....	11 12	+ 9 55	2.2	+ 32	- 5
376	2	21 40	10 10	4	41 ε.....	21 47	10 20	3.7	+ 7	+ 10
377	3	21 20	12 40	5	39.....	21 56	12 23	4.6	+ 36	- 17
378	4	19 40	11 10	5	35.....	20 33	11 8	4.6	+ 53	- 2
379	5	19 10	+10 40	5	33.....	19 43	+10 44	5.4	+ 33	+ 4
TAURUS.										
380	1	26 20	- 6 0	4	5 f.....	27 9	- 6 7	4.3	+ 49	- 7
381	2	26 0	7 15	4	4 s.....	26 39	7 38	5.1	+ 39	- 23
382	3	24 40	8 30	4	2 ξ.....	25 26	8 59	3.7	+ 48	- 29
383	4	24 20	9 15	4	1 ο.....	24 45	9 31	3.8	+ 25	- 16
384	5	29 40	9 30	5	30 ε.....	30 54	8 51	5.0	+ 74	+ 21
385	6	33 40	8 0	3	35 λ.....	34 12	8 11	3.3-4.2 v	+ 32	- 11
386	7	36 40	12 40	4	49 μ.....	37 8	12 24	4.3	+ 28	+ 16
387	8	33 0	14 50	4	38 ν.....	33 27	14 39	3.9	+ 27	+ 11
388	9	42 10	10 0	4	90 c <sup>1</sup> .....	43 16	9 44	4.3	+ 66	+ 16
389	10	43 0	13 0	4	88 d.....	42 21	11 59	4.4	- 39	- 61
390	11	39 0	5 45	3-4	54 γ.....	39 19	5 56	3.9	+ 19	- 11
391	12	40 20	- 4 15	3-4	61 δ <sup>1</sup> .....	40 23	- 4 11	3.9	+ 3	+ 4

## Catalogue II—continued.

No. in Bailey.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magni- tude in Harvard Revised Photom- etry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
TAURUS—continued.										
392	13	40 50	— 5 50	3-4	{ 77 θ <sup>1</sup> .....	41 30	— 5 58	3.1	+ 39	— 11
393	14	42 40	5 10	1	78 θ <sup>2</sup> .....	41 29	6 4			
394	15	41 50	3 0	3-4	87 α.....	43 20	5 37	1.1	+ 40	— 27
395	16	47 10	4 0	4	74 ε.....	41 59	2 47	3.6	+ 9	+ 13
396	17	50 20	5 0	5	97 ζ.....	47 19	3 52	5.1	+ 9	+ 8
397	18	50 0	3 30	5	104 m.....	50 46	4 27	5.0	+ 26	+ 33
398	19	57 40	2 30	3	106 l <sup>1</sup> .....	51 21	2 43	5.3	+ 81	+ 47
399	20	45 40	— 0 15	4	123 ζ.....	58 22	— 2 26	3.0	+ 42	+ 4
400	21	55 40	+ 5 0	3	94 τ.....	45 44	+ 0 28	4.3	+ 4	+ 43
401	22	42 0	0 30	5	112 β.....	56 9	5 14	1.8	+ 29	+ 14
402	23	41 40	0 15	5	69 υ <sup>1</sup> .....	41 59	0 54	4.4	— 1	+ 24
403	24	37 0	+ 0 40	5	65 κ.....	41 46	0 24	4.4	+ 6	+ 9
404	25	39 0	— 1 0	6	37 Λ <sup>1</sup> .....	36 59	+ 1 5	4.5	— 1	+ 25
405	26	38 0	+ 5 0	5	50 ω <sup>2</sup> .....	39 38	— 0 58	4.8	+ 38	+ 2
406	27	38 30	7 10	5	44 ρ.....	39 15	+ 5 5	5.5	+ 75	+ 5
407	28	42 0	3 0	5	42 ψ.....	38 55	7 42	5.3	+ 25	+ 32
408	29	41 40	5 0	5	59 χ.....	41 44	3 50	5.4	— 16	+ 50
409	30	32 10	4 30	5	52 φ.....	41 30	5 37	5.1	— 10	+ 37
410	31	32 30	3 40	5	19 (Taygeta) ε.	33 8	4 19	4.4	+ 58	— 11
411	32	33 40	3 40	5	23 (Merope) δ.	33 16	3 45	4.2	+ 46	+ 5
412	33	33 40	+ 5 0	4	{ 25 (Alycyone) η.	33 34	3 52	3.0	— 6	+ 12
413	Inf. 1	25 0	— 17 30	4	27 (Atlas) f.....	33 56	3 43	3.8	+ 16	+ 3
414	2	50 0	2 0	5	III 170.....	34 31	+ 5 9	5.4	+ 51	+ 9
415	3	54 0	1 45	5	10.....	25 41	— 18 25	4.4	+ 41	— 55
416	4	56 0	2 0	5	102 ι.....	50 21	1 26	4.7	+ 21	+ 34
417	5	59 0	6 20	5	109 ν.....	54 5	1 15	5.1	+ 5	+ 30
418	6	59 0	— 7 40	5	114 ο.....	56 4	1 32	4.8	+ 4	+ 28
419	7	57 0	+ 0 40	5	126.....	59 3	7 5	4.9	+ 3	— 45
420	8	59 0	1 0	5	129.....	60 21	— 7 50	5.9	+ 81	— 10
421	9	61 0	1 20	5	121.....	57 58	+ 0 29	5.3	+ 58	— 11
422	10	62 20	3 20	5	125.....	59 1	2 18	5.0	+ 1	+ 78
423	11	63 20	+ 1 15	5	132.....	61 5	0 54	5.0	+ 5	— 26
					136.....	62 6	3 55	4.5	— 14	+ 35
					139.....	63 7	+ 2 15	4.9	— 13	+ 60
GEMINI.										
424	1	83 20	+ 9 40	2	66 α.....	83 52	+ 9 55	2.0	+ 32	+ 15
425	2	86 40	6 15	2	78 β.....	87 5	6 31	1.2	+ 25	+ 16
426	3	76 40	10 0	4	34 θ.....	74 41	10 47	3.6	— 119	+ 47
427	4	78 40	7 20	4	46 τ.....	79 1	7 31	4.5	+ 21	+ 11
428	5	82 0	5 30	4	60 υ.....	82 35	5 34	3.9	+ 35	+ 4
429	6	84 0	4 50	4	69 ν.....	84 53	5 2	4.2	+ 53	+ 12
430	7	86 40	2 40	4	77 κ.....	87 14	2 52	3.7	+ 34	+ 12
431	8	81 40	2 40	5	57 Λ.....	82 26	2 44	5.1	+ 46	+ 4
432	9	83 10	0 20	5	58.....	82 43	0 49	6.0	— 27	+ 29
433	10	73 0	+ 1 30	3	27 ε.....	73 31	+ 1 49	3.2	+ 31	+ 19
434	11	78 10	— 2 30	3	43 ζ.....	78 34	— 2 17	3.7-4.3 v	+ 24	+ 13
435	12	81 40	0 30	3	55 δ.....	82 6	0 26	3.5	+ 26	+ 4
436	13	81 40	6 0	3	54 λ.....	82 23	5 52	3.6	+ 43	+ 8
437	14	66 30	1 30	4-3	7 η.....	67 2	1 8	3.5 v	+ 32	+ 22
438	15	68 { <sup>30</sup> <sub>10</sub> }	1 15	4-3	13 μ.....	68 50	1 2	3.2	+ 40	+ 13
439	16	70 10	— 3 30	4-3	18 ν.....	70 23	— 3 17	4.1	+ 13	+ 13

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		ΔLong.	ΔLati.
GEMINI—continued.										
		° /	° /			° /	° /		/	/
440	17	72 0	- 7 30	3	24 γ.....	72 39	- 6 59	1.9	+ 39	+ 31
441	18	74 40	10 30	4	31 ξ.....	74 50	10 15	3.4	+ 10	+ 15
442	Inf. 1	64 10	- 0 40	4	1 η.....	64 31	- 0 22	4.3	+ 21	+ 18
443	2	66 30	+ 5 50	4-3	44 κ Aurigæ..	66 56	+ 6 0	4.4	+ 26	+ 10
444	3	75 10	- 2 15	5	36 δ.....	75 32	- 1 23	5.2	+ 22	+ 52
445	4	88 20	1 20	5	85.....	90 39	1 6	5.4	+139	+ 14
446	5	86 20	3 20	5	81 g.....	88 43	2 51	5.0	+143	+ 29
447	6	86 0	4 30	5	74 f.....	87 11	3 59	5.2	+ 71	+ 31
448	7	95 40	- 2 40	4	16 ζ Cancrī..	94 52	- 2 27	6.3	- 48	+ 13
CANCER.										
449	1	100 20	+ 0 40	Neb.	41 ε.....	100 58	+ 0 58	Cum.	+ 38	+ 18
450	2	97 40	+ 1 15	4-5	33 η.....	98 59	+ 1 23	5.5	+ 79	+ 8
451	3	98 0	- 1 10	4-5	31 θ.....	99 19	- 0 56	5.6	+ 79	+ 14
452	4	100 20	+ 2 40	4-3	43 γ.....	101 8	+ 3 1	4.7	+ 48	+ 21
453	5	101 20	- 0 10	4-3	47 δ.....	102 16	- 0 1	4.2	+ 56	+ 11
454	6	106 30	- 5 30	4	65 α.....	107 14	- 5 16	4.3	+ 44	+ 14
455	7	98 20	+11 50	4	48 ι.....	99 54	+10 15	4.2	+ 94	- 95
456	8	92 40	+ 1 0	5	10 μ.....	93 3	+ 1 8	5.4	+ 23	+ 8
457	9	97 10	-10 30	4-3	17 β.....	97 53	-10 28	3.8	+ 43	+ 2
458	Inf. 1	105 40	2 20	4-5	{62 ο <sup>1</sup> .....	105 57	2 1	} 4.6	+ 18	+ 29
					{63 ο <sup>2</sup> .....	105 58	1 41			
459	2	111 10	- 5 40	4-5	76 κ.....	109 46	- 5 45	5.1	- 74	- 5
460	3	104 0	+ 7 15	5	69 ν.....	104 36	+ 7 5	5.4	+ 36	- 10
461	4	107 0	+ 4 50	5	77 ξ.....	106 46	+ 5 14	5.2	- 14	+ 24
LEO.										
462	1	108 20	+10 0	4	1 κ.....	108 50	+10 15	4.6	+ 30	+ 15
463	2	111 10	7 30	4	4 λ.....	111 25	7 45	4.5	+ 15	+ 15
464	3	114 20	12 0	3	24 μ.....	115 3	12 15	4.1	+ 43	+ 15
465	4	114 10	9 30	3-2	17 ε.....	114 16	9 35	3.1	+ 6	+ 5
466	5	120 10	11 0	3	36 ζ.....	121 5	11 43	3.6	+ 55	+ 43
467	6	122 10	8 30	2	41 γ.....	122 59	8 42	2.6	+ 49	+ 12
468	7	120 40	4 30	3	30 η.....	121 28	4 44	3.6	+ 48	+ 14
469	8	122 30	+ 0 10	1	32 α.....	123 31	+ 0 24	1.3	+ 61	+ 14
470	9	123 30	- 1 50	4	31 Λ.....	124 2	- 1 36	4.6	+ 32	+ 14
471	10	120 0	0 15	5	27 ν.....	120 55	- 0 6	5.2	+ 55	+ 9
472	11	117 20	0 0	5	16 ψ.....	117 4	+ 0 13	5.6	- 16	+ 13
473	12	114 10	3 40	6	5 ξ.....	115 15	- 3 19	5.1	+ 65	+ 21
474	13	117 20	4 10	4	14 ο.....	117 54	3 52	3.8	+ 34	+ 18
475	14	122 30	4 15	4	29 π.....	122 54	- 4 3	4.9	+ 24	+ 12
476	15	129 10	- 0 10	4	47 ρ.....	129 58	+ 0 2	3.8	+ 48	+ 12
477	16	127 0	+ 4 0	6	46 ι.....	128 1	4 28	5.7	+ 61	+ 28
478	17	130 20	5 20	6	52 k.....	131 16	5 54	5.6	+ 56	+ 34
479	18	132 20	2 20	6	53 l.....	133 14	2 44	5.3	+ 54	+ 24
480	19	131 20	12 15	5	60 b.....	132 22	12 49	4.4	+ 62	+ 34
481	20	134 10	13 40	2-3	68 δ.....	134 43	14 17	2.6	+ 33	+ 37
482	21	134 20	11 {20 10}	5	?					
483	22	136 20	9 40	3	70 θ.....	136 58	9 40	3.4	+ 38	0
484	23	140 20	5 50	3	78 ι.....	141 0	6 2	4.0	+ 40	+ 12
485	24	141 40	+ 1 15	4	77 σ.....	142 17	+ 1 39	4.1	+ 37	+ 24
486	25	144 40	- 0 50	4	84 τ.....	145 5	- 0 36	5.2	+ 25	+ 14

## Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		ΔLong.	ΔLat.
LEO—continued.										
		° /	° /			° /	° /		'	'
487	26	147 30	— 3 0	5	91 <i>v</i> .....	148 38	— 3 5	4.5	+ 68	— 5
488	27	144 30	+11 50	1-2	94 <i>β</i> .....	145 22	+12 23	2.2	+ 52	+ 33
489	Inf. 1	126 0	13 20	5	41 Leo. min ...	127 4	13 52	5.0	+ 64	+ 32
490	2	128 10	15 30	5	54.....	129 0	16 23	4.5	+ 50	+ 53
491	3	137 30	+ 1 10	4-5	63 <i>χ</i> .....	137 57	+ 1 23	4.7	+ 27	+ 13
492	4	137 10	— 0 30	5	59 <i>c</i> .....	137 27	— 0 19	5.1	+ 17	+ 11
493	5	138 0	— 2 40	5	58 <i>d</i> .....	138 31	— 2 35	5.0	+ 31	+ 5
494	6	144 50	+30 0	<i>αμ</i> .	15 <i>c</i> Comæ Ber.	147 19	+28 25	4.6	+2°29	-1°35
495	7	144 20	25 0	<i>αμ</i> .	7 <i>h</i> Comæ Ber.	147 5	23 26	5.1	+2 45	-1 34
496	8	148 30	+25 30	<i>αμ</i> .	23 <i>k</i> Comæ Ber.	151 55	+24 6	4.8	+3 25	-1 24
VIRGO.										
497	1	147 0	+ 4 15	5	3 <i>v</i> .....	147 39	+ 4 39	4.2	+ 39	+ 24
498	2	146 20	5 40	5	2 <i>ξ</i> .....	146 53	6 5	5.1	+ 33	+ 25
499	3	150 40	8 0	5	9 <i>ο</i> .....	151 21	8 32	4.2	+ 41	+ 32
500	4	150 10	5 30	5	8 <i>π</i> .....	151 7	6 8	4.6	+ 57	+ 38
501	5	149 0	0 10	3	5 <i>β</i> .....	150 19	0 39	3.8	+ 79	+ 29
502	6	158 15	1 10	3	15 <i>η</i> .....	158 25	1 24	4.0	+ 10	+ 14
503	7	163 10	2 50	3	29 <i>γ</i> .....	163 59	2 58	3.6	+ 49	+ 8
504	8	167 10	2 50	5	46.....	168 50	2 55	6.1	+100	+ 5
505	9	171 0	1 40	4	51 <i>θ</i> .....	171 49	1 49	4.4	+ 49	+ 9
506	10	164 20	8 30	3	43 <i>δ</i> .....	165 13	8 48	3.7	+ 53	+ 18
507	11	158 10	13 50	5	30 <i>ρ</i> .....	158 57	13 37	4.9	+ 47	- 13
508	12	160 10	11 40	6	32 <i>d</i> <sup>2</sup> .....	161 0	11 38	5.2	+ 50	- 2
509	13	162 10	+16 0?	3-2	47 <i>ε</i> .....	163 34	+16 18	2.9	+ 84	+ 18
510	14	176 40	— 2 0	1	67 <i>α</i> .....	177 26	— 1 56	1.2	+ 46	+ 4
511	15	174 50	+ 8 40	3	79 <i>ζ</i> .....	175 49	+ 8 46	3.4	+ 59	+ 6
512	16	176 20	3 20	5	74 <i>l</i> .....	177 9	+ 3 13	4.8	+ 49	- 7
513	17	177 15	0 10	6	76 <i>h</i> .....	178 50	— 0 19	5.4	+ 95	- 29
514	18	180 0	+ 1 30	4-5	82 <i>m</i> .....	180 20	+ 1 51	5.2	+ 20	+ 21
515	19	178 0	— 3 0	5	68 <i>i</i> .....	178 24	— 3 12	5.6	+ 24	- 12
516	20	181 40	— 1 30	5	86.....	182 36	— 1 16	5.8	+ 56	+ 14
517	21	178 0	+ 8 30	5	90 <i>p</i> .....	180 44	+ 9 44	5.3	+164	+ 74
518	22	186 <sup>20</sup> / <sub>40</sub>	7 30	4	99 <i>ι</i> .....	187 17	7 33	4.2	+ 37	+ 3
519	23	187 20	2 40	4	98 <i>κ</i> .....	188 5	3 0	4.3	+ 45	+ 20
520	24	188 20	11 40	4	105 <i>φ</i> .....	189 0	11 55	5.0	+ 40	+ 15
521	25	190 0	0 30	4	100 <i>λ</i> .....	190 32	0 39	4.6	+ 32	+ 9
522	26	192 40	+ 9 50	3	107 <i>μ</i> .....	193 34	+ 9 59	3.9	+ 54	+ 9
523	Inf. 1	164 40	— 3 30	5	26 <i>χ</i> .....	165 45	— 3 24	4.8	+ 65	+ 6
524	2	169 0	3 30	5	40 <i>ψ</i> .....	169 48	3 21	4.9	+ 48	+ 9
525	3	172 15	3 20	5	49.....	173 20	3 11	5.3	+ 65	+ 9
526	4	177 10	7 20	6	53.....	176 15	7 41	5.1	- 55	- 21
527	5	178 10	8 20	5	{ 61.....	178 55	8 28	4.3	{ + 45	- 8
					{ 63.....	179 26	8 13		{ + 76	+ 7
528	6	185 0	— 7 50	6	89.....	185 37	— 6 12	5.1	+ 37	+ 98
LIBRA.										
529	1	198 0	+ 0 40	2	9 <i>α</i> .....	198 41	+ 0 35	2.8	+ 41	- 5
530	2	197 0	2 30	5	7 <i>μ</i> .....	197 45	2 12	5.4	+ 45	- 18
531	3	202 10	8 50	2	27 <i>β</i> .....	202 58	8 43	2.7	+ 48	- 7
532	4	197 40	+ 8 30	5	19 <i>δ</i> .....	198 50	+ 8 25	4.8	+ 70	- 5
533	5	204 0	— 1 40	4	24 <i>ι</i> .....	204 35	— 1 39	4.7	+ 35	+ 1

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
LIBRA—continued.										
534	6	201 20	+ 1 15	4	21 ν.....	202 21	+ 1 23	5.3	+ 61	+ 8
535	7	207 50	4 45	4	38 γ.....	208 42	4 35	4.0	+ 52	- 10
536	8	213 0	3 30	4-5	46 θ.....	213 24	3 35	4.3	+ 24	+ 5
537	Inf. 1	206 10	9 0	5	37.....	207 1	9 11	4.8	+ 51	+ 11
538	2	213 40	6 40	4-5	48 ψ.....	213 57	6 18	4.7	+ 17	- 22
539	3	214 20	9 15	4-5	51 (=ξ Scorp.)...	214 52	9 28	4.8	+ 32	+ 13
540	4	213 30	0 30	6	45 λ.....	214 3	0 18	5.1	+ 33	- 12
541	5	210 20	+ 0 20	5	43 κ.....	211 19	+ 0 16	5.0	+ 59	- 4
542	6	211 10	- 1 30	4	0 <sup>b</sup> Arg. 14782....	211 42	- 1 12	var.	+ 32	+ 18
543	7	203 0	7 30	3	20 (=γ Scorp.)...	204 19	7 24	3.4	+ 79	+ 6
544	8	211 10	8 10	4	39.....	212 13	8 17	3.8	+ 63	- 7
545	9	212 0	- 9 40	4	40 τ.....	212 57	- 9 47	3.8	+ 57	- 7
SCORPIUS.										
546	1	216 20	+ 1 20	3	8 β.....	216 46	+ 1 15	2.9	+ 26	- 5
547	2	215 40	- 1 40	3	7 δ.....	216 10	- 1 44	2.5	+ 30	- 4
548	3	215 40	5 0	3	6 π.....	216 31	5 14	3.0	+ 51	- 14
549	4	216 0	- 7 50	3	5 ρ.....	216 44	- 8 21	4.0	+ 44	- 31
550	5	217 0	+ 1 40	4	14 ν.....	218 13	+ 1 53	4.3	+ 73	+ 13
551	6	216 20	+ 0 30	4	{ 9 ω <sup>1</sup> ..... } 10 ω <sup>2</sup> ..... }	217 14	+ 0 27	3.6	+ 54	- 3
552	7	220 40	- 3 45	3	20 σ.....	221 23	- 3 47	3.1	+ 43	- 2
553	8	222 40	4 0	2	21 α.....	223 20	4 20	1.2	+ 40	- 20
554	9	224 30	5 30	3	23 τ.....	225 2	5 52	2.9	+ 32	- 22
555	10	219 20	6 10	5	13 ε <sup>2</sup> .....	219 50	6 27	4.7	+ 30	- 17
556	11	220 40	6 40	5	XVI 31 d.....	221 16	6 53	4.9	+ 36	- 13
557	12	228 30	11 0	3	26 ε.....	229 14	11 19	2.4	+ 44	- 19
558	13	228 50	15 0	3	{ XVI 189 μ <sup>1</sup> ..... } XVI 193 μ <sup>2</sup> ..... }	229 47	15 10	2.6	+ 57	- 10
559	14	230 0	18 40	4	XVI 198 ζ <sup>1</sup> .....	230 43	19 25	4.9	+ 43	- 45
560	15	230 10	19 0	4	XVI 206 ζ <sup>2</sup> .....	230 54	19 16	3.7	+ 44	- 16
561	16	233 10	19 30	3	XVI 302 η.....	234 19	19 47	3.4	+ 69	- 17
562	17	238 10	18 50	3	XVII 138 θ.....	239 10	19 22	2.0	+ 60	- 32
563	18	240 30	16 40	3	XVII 210 ι <sup>1</sup> .....	241 6	16 27	3.1	+ 36	+ 13
564	19	239 0	15 10	3	XVII 174 κ.....	240 3	15 22	2.5	+ 63	- 12
565	20	237 30	13 20	3	35 λ.....	238 10	13 31	1.7	+ 40	- 11
566	21	237 0	13 30	4	34 ν.....	237 36	13 43	2.8	+ 36	- 13
567	Inf. 1	241 10	13 15	Neb.	γ Telescopii XVII 229.	241 27	13 23		+ 17	- 8
568	2	235 30	6 10	5-4	45 δ Ophiuchi....	236 29	6 19	4.4	+ 59	- 9
569	3	239 30	- 4 10	5	3 Sagittarii....	240 49	- 4 10	4.3	+ 79	0
SAGITTARIUS.										
570	1	244 30	- 6 20	3	10 γ.....	244 52	- 6 37	3.1	+ 22	- 17
571	2	247 40	6 30	3	19 δ.....	248 8	6 12	2.8	+ 28	+ 18
572	3	248 0	10 50	3	20 ε.....	248 40	10 43	1.9	+ 40	+ 7
573	4	249 0	- 1 30	3	22 λ.....	249 55	- 1 47	2.9	+ 55	- 17
574	5	246 40	+ 2 50	4	{ 13 μ <sup>1</sup> ..... } 15 μ <sup>2</sup> ..... }	246 48	+ 2 37	3.8	+ 8	- 13
575	6	255 20	- 3 10	3	34 σ.....	255 57	- 3 9	2.1	+ 37	+ 1
576	7	253 0	- 3 50	4-3	27 φ.....	253 43	- 3 42	3.3	+ 43	+ 8

## Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
SAGITTARIUS—continued.										
		° ' "	° ' "			° ' "	° ' "		' "	' "
577	8	255 10	+ 0 45	Neb.	{ 32 $\nu^1$ .....	256 3	+ 0 21	4.3	+ 57	- 22
					{ 35 $\nu^2$ .....	256 12	0 25			
578	9	255 40	2 10	4	37 $\xi^2$ .....	257 1	1 56	3.6	+ 81	- 14
579	10	257 40	1 30	4	39 $\sigma$ .....	258 33	1 9	3.9	+ 53	- 21
580	11	259 10	2 0	4	41 $\pi$ .....	259 50	1 43	3.0	+ 40	- 17
581	12	261 20	2 50	5	43 $d$ .....	261 55	3 30	5.0	+ 35	+ 40
582	13	262 20	4 30	4	44 $\rho$ .....	263 3	4 27	3.9	+ 43	- 3
583	14	262 50	6 30	4	46 $\nu$ .....	263 18	6 20	4.6	+ 28	- 10
584	15	265 40	5 30	6	{ 54 $e^1$ .....	267 47	5 20	4.5	{ + 127	- 10
					{ 55 $e^2$ .....	268 13	5 24			
585	16	269 30	5 50	5	61 $g$ .....	272 2	5 23	5.0	+ 153	- 6
586	17	267 40	+ 2 0	6	56 $f$ .....	268 35	+ 1 41	5.1	+ 152	- 27
587	18	262 20	- 1 50	5	{ 47 $\chi^1$ .....	262 55	- 2 15	4.5	{ + 35	- 25
					{ 49 $\chi^3$ .....	263 2	1 50			
588	19	264 50	2 50	4	{ 51 $h^1$ .....	265 25	3 1	4.3	{ + 35	- 11
					{ 52 $h^2$ .....	265 18	2 50			
589	20	260 0	2 30	5	42 $\psi$ .....	260 37	2 41	4.9	+ 28	0
590	21	257 40	4 30	4-3	40 $\tau$ .....	258 27	4 42	3.4	+ 37	- 11
591	22	256 20	6 45	3	38 $\zeta$ .....	257 14	6 56	2.7	+ 47	- 12
592	23	257 40	23 0	2	{ XIX 54 ( $\beta^1$ ).....	259 20	21 53	3.7	{ + 54	- 11
					{ XIX 62 ( $\beta^2$ ).....	259 22	22 11			
593	24	257 0	18 0	2-3	XIX 68 $\alpha$ .....	260 11	18 4	4.1	+ 100	+ 67
594	25	246 40	13 0	3	XVIII 17 $\eta$ .....	247 17	13 3	3.1	+ 102	+ 49
595	26	267 20	13 30	3	{ XIX 330 ( $\kappa^1$ ).....	268 25	14 9	4.9	{ + 191	- 4
					{ XIX 333 ( $\kappa^2$ ).....	268 34	13 35			
596	27	266 50	20 10	3	XIX 297 $\iota$ .....	266 6	20 26	4.2	+ 37	- 3
597	28	267 40	4 50	5	58 $\omega$ .....	269 18	5 7	4.8	+ 65	- 39
598	29	268 50	4 50	5	60 $\Lambda$ .....	270 8	5 14	4.9	+ 74	- 5
599	30	268 50	5 50	5	59 $b$ .....	269 29	6 5	4.6	- 44	- 16
600	31	269 40	- 6 30	5	62 $c$ .....	270 37	- 6 53	4.6	+ 98	- 17
									+ 78	- 24
									+ 39	- 15
									+ 57	- 23
CAPRICORNUS.										
601	1	277 20	+ 7 20	3	{ 5 $\alpha^1$ .....	277 21	+ 7 12	3.4	+ 3	- 10
					{ 6 $\alpha^2$ .....	277 25	7 8			
602	2	277 40	6 40	6	8 $\nu$ .....	278 2	6 48	4.8	+ 22	+ 8
603	3	277 20	5 0	3	9 $\beta$ .....	277 37	4 49	3.2	+ 17	- 11
604	4	276 0	8 0	6	{ 1 $\xi^1$ .....	276 1	7 37	5.4	0	- 25
					{ 2 $\xi^2$ .....	275 59	7 32			
605	5	279 0	0 45	6	12 $\sigma$ .....	278 48	0 36	6.1	- 12	- 9
606	6	278 40	1 45	6	10 $\pi$ .....	278 17	1 7	5.2	- 23	- 38
607	7	278 50	1 30	6	11 $\rho$ .....	278 44	1 25	5.0	- 6	- 5
608	8	276 10	0 40	5	7 $\sigma$ .....	276 15	0 41	5.5	+ 5	+ 1
609	9	281 40	3 50	6	{ 13 $\tau^1$ .....	281 22	3 29	...	- 18	- 21
					{ 14 $\tau^2$ .....	281 52	3 33			
610	10	281 50	+ 0 50	5	15 $\nu$ .....	281 14	+ 0 26	5.3	+ 12	- 17
611	11	280 50	- 6 30	4	16 $\psi$ .....	280 46	- 6 44	4.3	- 36	- 24
612	12	281 40	8 40	4	18 $\omega$ .....	281 31	8 46	4.2	- 4	- 14
613	13	286 40	7 40	4	24 $\Lambda$ .....	285 23	7 53	4.6	- 9	- 6
614	14	290 10	6 50	4	34 $\zeta$ .....	290 29	6 49	3.9	- 77	- 13
615	15	290 20	6 0	5	36 $b$ .....	291 2	6 21	4.6	+ 19	+ 1
616	16	288 40	- 4 15	5	28 $\varphi$ .....	288 35	- 4 21	5.3	+ 42	- 21
									- 5	- 6

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
CAPRICORNUS—continued.										
		° /	° /			° /	° /		'	'
617	17	286 40	— 4 0	5	25 χ.....	286 51	— 4 22	5.3	+ 11	— 22
618	18	286 40	2 50	5	22 η.....	286 19	2 48	4.9	— 21	+ 2
619	19	286 40	0 0	4	23 θ.....	287 22	0 21	4.2	+ 42	— 21
620	20	291 0	0 50	4	32 ι.....	291 15	1 11	4.3	+ 15	— 21
621	21	293 20	4 45	4	39 ε.....	293 45	4 49	4.7	+ 25	— 4
622	22	295 0	4 30	4	43 κ.....	295 8	4 39	4.8	+ 8	— 9
623	23	294 50	2 10	3	40 γ.....	295 16	2 21	3.8	+ 26	— 11
624	24	296 20	— 2 0	3	49 δ.....	297 1	— 2 15	3.0	+ 41	— 15
625	25	296 50	+ 0 20	4	42 d.....	296 40	+ 0 5	5.3	— 10	— 15
626	26	298 40	0 0	5	51 μ.....	299 12	— 0 30	5.2	+ 32	— 30
627	27	297 40	2 50	5	48 λ.....	298 36	+ 2 6	5.4	+ 56	— 44
628	28	298 40	+ 4 20	5	46 c <sup>1</sup> .....	298 58	+ 4 21	5.3	+ 18	+ 1
AQUARIUS.										
629	1	300 20	+15 45	5	25 d.....	301 35	+15 29	5.3	+ 75	— 16
630	2	306 20	11 0	3	34 a.....	306 58	10 47	3.2	+ 38	— 13
631	3	305 10	9 40	5	31 o.....	305 43	9 18	4.7	+ 33	— 22
632	4	296 30	8 50	3	22 β.....	297 0	8 46	3.1	+ 30	— 4
633	5	297 20	6 15	5	23 ξ.....	297 39	6 9	4.8	+ 19	— 6
634	6	287 40	5 30	3	13 ν.....	289 56	4 58	4.5	+136	— 32
635	7	286 10	8 0	4	6 μ.....	286 38	8 27	4.8	+ 28	+ 27
636	8	284 40	8 40	3	2 ε.....	285 19	8 18	3.8	+ 39	— 22
637	9	309 30	8 45	3	48 γ.....	310 16	8 22	4.0	+ 46	— 23
638	10	311 40	10 45	3	52 π.....	312 13	10 35	4.6	+ 33	— 10
639	11	312 0	9 0	3	55 ζ (dup.).....	312 24	8 58	3.7	+ 24	— 2
640	12	313 20	8 30	3	62 η.....	313 59	8 17	4.1	+ 39	— 13
641	13	306 10	3 0	4	43 θ.....	306 47	2 52	4.3	+ 37	— 8
642	14	307 0	+ 3 10	5	46 ρ.....	307 37	+ 2 29	5.4	+ 37	— 41
643	15	308 40	— 0 50	4	57 σ.....	308 58	— 1 7	4.9	+ 18	— 17
644	16	301 40	— 1 40	4	33 ι.....	302 17	1 56	4.3	+ 37	— 16
645	17	303 10	+ 0 15	6	38 e.....	304 4	0 9	5.4	+ 54	— 24
646	18	311 40	— 7 30	3	76 δ.....	312 26	8 5	3.5	+ 46	— 35
647	19	311 20	5 0	4	71 τ.....	312 9	5 34	4.2	+ 49	— 34
648	20	304 40	5 40	5	53 f.....	305 39	6 20	6.3	+ 59	— 40
649	21	308 20	10 0	5	68 g <sup>2</sup> .....	309 27	10 50	5.4	+ 67	— 50
650	22	307 50	— 9 0	5	66 g <sup>1</sup> .....	308 46	— 9 51	4.9	+ 56	— 51
651	23	315 0	+ 2 0	4	63 κ <sup>?</sup> .....	313 5	+ 4 16	5.3	—115	+136
652	24	314 50	+ 0 10	4	73 λ.....	315 8	— 0 19	3.8	+ 18	— 29
653	25	317 40	— 1 10	4	83 h.....	317 53	1 35	5.6	+ 13	— 25
654	26	320 0	0 30	4	90 φ.....	320 44	0 54	4.4	+ 44	— 24
655	27	320 30	1 40	4	92 χ.....	320 38	2 46	5.1	+ 8	— 66
656	28	319 0	3 30	4	91 ψ <sup>1</sup> .....	319 40	3 49	4.5	+ 40	— 19
657	29	319 50	4 10	4	{ 93 ψ <sup>2</sup> .....	320 17	4 13	4.1	{ + 27	— 3
					{ 95 ψ <sup>3</sup> .....	320 21	4 42			
658	30	317 50	8 15	5	94.....	318 42	8 6	5.3	+ 52	+ 9
659	31	322 40	11 0	5	102 ω <sup>1</sup> .....	323 11	10 59	5.2	+ 31	+ 1
660	32	323 10	10 50	5	105 ω <sup>2</sup> .....	323 41	11 31	4.6	+ 31	— 41
661	33	321 40	14 0	5	{ 103 Λ <sup>1</sup> .....	322 0	14 38	4.4	{ + 20	— 38
					{ 104 Λ <sup>2</sup> .....	322 7	14 28			
662	34	322 10	14 45	5	106 i <sup>1</sup> .....	322 28	15 7	5.3	+ 18	— 22
663	35	323 10	15 40	5	108 i <sup>3</sup> .....	323 48	16 24	5.3	+ 38	— 44
664	36	317 0	—14 10	4	98 b <sup>1</sup> .....	317 4	—14 41	4.2	+ 4	— 31

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
AQUARIUS—continued.										
		° /	° /			° /	° /		'	'
665	37	317 30	-15 0	4	99 <i>b</i> <sup>2</sup> .....	317 25	-15 30	4.5	- 5	- 30
666	38	318 20	15 45	4	101 <i>b</i> <sup>3</sup> .....	318 54	16 27	4.8	+ 34	- 42
667	39	311 50	16 15	4	86 <i>c</i> <sup>1</sup> .....	311 50	16 29	4.8	0	- 14
668	40	312 40	15 20	4	89 <i>c</i> <sup>3</sup> .....	313 6	15 37	4.9	+ 26	- 17
669	41	313 10	14 0	4	88 <i>c</i> <sup>2</sup> .....	313 29	14 25	3.8	+ 19	- 25
670	42	307 0	20 20	I	79 (= <i>a</i> Pis. Aus.)	307 14	20 53	1.3	+ 14	- 33
671	Inf. 1	326 40	15 30	4-3	2 Ceti.....	327 16	16 12	4.6	+ 36	- 42
672	2	329 40	14 40	4-3	6 Ceti.....	329 53	15 7	5.0	+ 13	- 27
673	3	329 0	-18 15	4-3	7 Ceti.....	329 2	-18 44	4.7	+ 2	- 29
PISCES.										
674	I	321 40	+ 9 15	4-3	4 <i>β</i> .....	322 12	+ 9 6	4.6	+ 32	- 9
675	2	324 10	7 30	4	6 <i>γ</i> .....	324 39	7 30	3.8	+ 29	0
676	3	326 0	9 20	4	7 <i>b</i> .....	326 38	8 55	5.2	+ 38	- 25
677	4	328 10	9 30	4	10 <i>θ</i> .....	328 52	9 4	4.4	+ 42	- 26
678	5	330 40	7 30	4	17 <i>ι</i> .....	331 8	7 31	4.3	+ 28	+ 1
679	6	326 0	4 30	4	8 <i>κ</i> .....	326 28	4 34	4.9	+ 28	+ 4
680	7	329 40	3 30	4	18 <i>λ</i> .....	330 18	3 30	4.6	+ 38	0
681	8	336 0	6 20	4	28 <i>ω</i> .....	336 8	6 27	4.0	+ 8	+ 7
682	9	341 0	5 45	6	41 <i>d</i> .....	341 34	5 27	5.6	+ 34	- 18
683	10	343 0	3 45	6	51 (dup.).....	343 46	3 8	5.7	+ 46	- 37
684	11	347 10	2 15	4	63 <i>δ</i> .....	347 44	2 7	4.5	+ 34	- 8
685	12	350 30	+ 1 10	4	71 <i>ε</i> .....	351 6	+ 1 1	4.4	+ 36	- 9
686	13	353 0	- 0 10	4	86 <i>ζ</i> (dup.).....	353 24	- 0 15	5.2	+ 24	- 5
687	14	352 20	2 0	6	80 <i>e</i> <sup>2</sup> .....	351 40	1 32	5.7	- 40	+ 28
688	15	353 0	5 0	6	89 <i>f</i> .....	352 53	4 40	5.3	- 7	+ 20
689	16	356 30	2 20	4	98 <i>μ</i> .....	356 34	3 5	5.1	+ 4	- 45
690	17	358 40	4 40	4	106 <i>v</i> .....	359 2	4 52	4.7	+ 22	- 12
691	18	0 40	7 45	4	111 <i>ξ</i> .....	1 3	8 2	4.8	+ 23	- 17
692	19	2 30	8 30	3	113 <i>α</i> (dup.).....	2 55	9 10	3.9	+ 25	- 40
693	20	0 30	- 1 40	4	110 <i>ο</i> .....	1 15	- 1 44	4.5	+ 45	- 4
694	21	0 10	+ 1 50	5	102 <i>π</i> .....	0 30	+ 1 47	5.6	+ 20	- 3
695	22	0 20	5 20	3	99 <i>η</i> .....	0 24	5 16	3.7	+ 4	- 4
696	23	0 30	9 0	4	{ 93 } <i>ρ</i> .....	{ 0 43	{ 9 15	4.7	{ + 13	{ + 15
					{ 94 }.....	{ 0 48	{ 9 21		{ + 18	{ + 21
697	24	2 0	21 45	5	82 <i>g</i> .....	2 27	21 54	5.0	+ 27	+ 9
698	25	1 40	21 40	5	83 <i>τ</i> .....	1 56	20 39	4.7	+ 16	- 61
699	26	358 40	20 0	6	68 <i>h</i> .....	358 34	20 52	5.6	- 6	+ 52
700	27	357 40	19 50	6	67 <i>k</i> .....	357 23	19 25	5.9	- 17	- 25
701	28	357 0	20 20	6	65 <i>i</i> (dup.).....	356 18	20 26	5.5	- 42	+ 6
702	29	355 40	14 20	4	74 <i>ψ</i> <sup>1</sup> (dup.).....	357 2	13 16	4.9	+ 82	- 64
703	30	356 { 20 } 40	13 { 0 } 15	4	79 <i>ψ</i> <sup>2</sup> .....	357 15	12 28	5.6	+ 35	- 32
704	31	357 40	12 0	4	81 <i>ψ</i> <sup>3</sup> .....	357 15	11 13	5.6	- 25	- 47
705	32	2 10	17 0	4	90 <i>v</i> .....	2 26	17 21	4.7	+ 16	+ 21
706	33	359 50	15 20	4	85 <i>φ</i> .....	0 6	15 25	4.6	+ 16	+ 5
707	34	0 0	+ 11 45	4	84 <i>χ</i> .....	358 8	+ 12 20	4.9	- 112	+ 35
708	Inf. 1	331 10	- 2 40	4	27.....	331 50	- 3 4	5.1	+ 40	- 24
709	2	332 15	2 30	4	29.....	332 46	2 57	5.1	+ 31	- 27
710	3	330 40	5 30	4	30.....	331 36	5 42	4.7	+ 56	- 12
711	4	332 20	- 5 30	4	33.....	332 29	- 5 45	4.7	+ 9	- 15

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
CETUS.										
712	1	17 40	- 7 45	4	91 λ.....	18 36	- 7 55	4.7	+ 56	- 10
713	2	17 40	12 20	3	92 α.....	17 53	12 44	2.8	+ 13	- 24
714	3	12 40	11 30	3	86 γ.....	13 4	12 7	3.6	+ 24	- 37
715	4	10 30	14 0	3	82 δ.....	11 5	14 37	4.0	+ 35	- 37
716	5	10 10	8 10	4						
717	6	12 40	6 20	4						
718	7	7 20	4 10	4	65 ξ <sup>1</sup> .....	7 36	4 24	4.5	+ 16	- 14
719	8	3 0	24 30	4	72 ρ.....	3 11	25 21	4.9	+ 11	- 51
720	9	3 20	28 0	4	76 σ.....	3 37	28 34	4.8	+ 17	- 34
721	10	6 40	25 10	4	83 ε.....	6 46	25 58	5.0	+ 6	- 48
722	11	7 0	27 30	3	89 π.....	7 13	28 23	4.4	+ 13	- 53
723	12	352 0	25 20	3	52 τ.....	352 1	25 41	3.6	+ 1	- 21
724	13	353 0	30 50	4	59 υ.....	352 47	31 4	4.2	- 13	- 14
725	14	355 0	20 0	3	55 ζ.....	355 25	20 25	3.9	+ 25	- 25
726	15	349 40	15 20	3	45 θ.....	349 49	15 46	3.8	+ 9	- 26
727	16	345 0	15 40	3	31 η.....	345 11	16 5	3.6	+ 11	- 25
728	17	341 0	13 40	5	19 φ <sup>2</sup> .....	341 0	14 41	5.2	0	- 61
729	18	340 40	14 40	5	O. 198.....	339 22	17 21	5.8	- 78	- 161
730	19	339 20	13 0	5-4	17 φ <sup>1</sup> .....	339 26	14 3	4.9	+ 6	- 63
731	20	339 0	14 0	5-4	O. 161.....	338 44	15 22	6.4	- 16	- 82
732	21	334 <sup>20</sup> / <sub>40</sub> }	9 40	3-4	8 ι.....	334 28	10 1	3.7	- 12	- 21
733	22	335 40	- 20 20	3	16 β.....	335 56	- 20 46	2.2	+ 16	- 26
ORION.										
734	1	57 0	- 13 50	Neb.	39 λ (dup.)	57 16	- 13 38	3.5	+ 16	+ 12
735	2	62 0	17 0	1-2	58 α.....	62 18	16 17	0.9	+ 18	+ 43
736	3	54 0	17 30	2-1	24 γ.....	54 31	17 4	1.7	+ 31	+ 26
737	4	55 0	18 0	4-5	32 Δ.....	55 57	17 33	4.3	+ 57	+ 27
738	5	64 20	14 30	4	61 μ.....	64 11	14 2	4.2	- 9	+ 28
739	6	66 20	11 50	6	74 κ.....	67 40	11 22	5.1	+ 80	+ 28
740	7	66 30	10 0	4	70 ε.....	66 30	9 27	4.3	0	+ 33
741	8	66 0	9 45	4	67 ν.....	65 26	8 55	4.4	- 34	+ 50
742	9	67 20	8 15	6	72 ζ <sup>2</sup> .....	67 18	7 30	5.3	- 2	+ 45
743	10	66 40	8 15	6	69 ζ <sup>1</sup> .....	66 30	7 32	4.9	- 10	+ 43
744	11	61 40	3 45	5	54 χ <sup>1</sup> .....	62 23	3 25	4.6	+ 43	+ 20
745	12	64 <sup>40</sup> / <sub>20</sub> }	4 15	5	62 χ <sup>2</sup> .....	64 30	3 33	4.7	+ 10	+ 42
746	13	57 <sup>30</sup> / <sub>50</sub> }	19 40	4	47 ω.....	58 4	19 28	4.5	+ 14	+ 12
747	14	56 20	20 0	6	38 η <sup>2</sup> .....	56 45	19 46	5.3	+ 25	+ 14
748	15	55 20	20 20	6	33 η <sup>1</sup> .....	55 55	20 12	5.5	+ 35	+ 8
749	16	54 10	20 40	5	30 ψ <sup>2</sup> .....	54 44	20 20	4.7	+ 34	+ 20
750	17	50 30	8 0	4	15 (γ <sup>2</sup> ).....	51 22	7 33	4.9	+ 52	+ 27
751	18	49 20	8 10	4	11 (γ <sup>1</sup> ).....	50 6	7 38	4.6	+ 46	+ 32
752	19	48 0	10 15	4	9 (σ <sup>2</sup> ).....	47 56	9 18	4.3	- 4	+ 57
753	20	46 20	12 50	4	7 π <sup>1</sup> .....	47 7	12 31	4.7	+ 47	+ 19
754	21	45 10	14 15	4	2 π <sup>2</sup> .....	45 51	13 42	4.3	+ 41	+ 33
755	22	44 50	15 50	3	1 π <sup>3</sup> .....	45 13	15 37	3.3	+ 23	+ 13
756	23	44 50	17 10	3	3 π <sup>4</sup> .....	45 40	17 1	3.8	+ 50	+ 9
757	24	45 20	20 20	3	8 π <sup>5</sup> .....	46 2	20 15	3.9	+ 42	+ 5
758	25	46 20	21 30	3	10 π <sup>6</sup> .....	47 5	21 6	4.7	+ 45	+ 24
759	26	55 20	- 24 10	2	34 δ.....	55 55	- 23 49	2.5	+ 35	+ 21

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
ORION—continued.										
		° /	° /			° /	° /		'	'
760	27	57 20	-24 50	2	46 ε.....	57 2	-24 46	1.7	- 18	+ 4
761	28	58 10	25 40	2	50 ζ (dup.)...	58 14	25 33	1.9	+ 4	+ 7
762	29	53 50	25 50	3	28 η.....	53 43	25 47	3.4	- 7	+ 3
763	30	56 30	28 40	4	{42} c.....	56 36	28 23	4.2	+ 6	+ 17
764	31	56 40	29 10	3-4	{41 θ <sup>1</sup> .....	56 33	28 56	4.5	- 7	+ 14
					{43 θ <sup>2</sup> .....					
765	32	57 0	29 50	3	44 ι.....	56 33	29 27	2.9	- 27	+ 23
766	33	57 40	30 40	4	49 δ.....	57 28	30 47	4.9	- 12	- 7
767	34	56 10	30 50	4	36 υ.....	55 27	30 47	4.6	- 43	+ 3
768	35	49 50	31 30	1	19 β.....	50 22	31 23	0.3	+ 32	+ 7
769	36	51 0	30 15	4-3	20 τ.....	51 23	30 5	3.7	+ 23	+ 10
770	37	53 20	31 10	4	29 ε.....	53 6	31 10	4.2	- 14	0
771	38	60 10	-33 30	3-2	53 κ.....	59 57	-33 19	2.2	- 13	+ 11
ERIDANUS.										
772	1	48 20	-31 50	4-3	69 λ.....	48 45	-31 47	4.3	+ 25	+ 3
773	2	48 50	28 15	4	67 β.....	48 53	28 5	2.9	+ 3	+ 10
774	3	48 0	29 50	4	65 ψ.....	46 45	30 0	4.8	- 75	- 10
775	4	44 40	28 15	4	61 ω.....	44 34	28 2	4.4	- 6	+ 13
776	5	43 10	25 50	4	57 μ.....	42 49	25 56	4.2	- 21	- 6
777	6	40 10	25 20	4	48 ν.....	40 20	25 21	4.1	+ 10	- 1
778	7	36 20	26 0	5	42 ξ.....	36 51	25 11	5.2	+ 31	+ 49
779	8	35 30	27 0	4	40 σ <sup>2</sup> .....	35 24	27 6	4.5	- 6	- 6
780	9	32 50	27 50	4	38 σ <sup>1</sup> .....	32 56	27 41	4.1	+ 6	+ 9
781	10	27 0	32 50	3	34 γ.....	27 24	33 22	3.2	+ 24	- 32
782	11	24 20	31 0	4	26 π.....	24 27	31 19	4.6	+ 7	- 19
783	12	24 10	28 50	3	23 δ.....	24 17	29 14	3.7	+ 7	- 24
784	13	22 0	28 0	3	18 ε.....	22 13	28 2	4.9	+ 13	- 2
785	14	17 10	25 30	3	13 ζ.....	17 19	26 7	3.8	+ 9	- 37
786	15	14 50	23 50	4	{9 ρ <sup>2</sup> .....	14 17	24 2	4.7	{- 33	- 12
					{10 ρ <sup>3</sup> .....	14 39	24 2			
787	16	12 10	23 50	3	3 η.....	12 14	24 34	4.0	+ 4	- 44
788	17	10 30	23 15	4	.....					
789	18	5 10	32 10	4	1 τ <sup>1</sup> .....	5 21	32 50	4.6	+ 11	- 40
790	19	5 50	34 50	4	2 τ <sup>2</sup> .....	6 7	35 38	4.8	+ 17	- 48
791	20	8 50	38 30	4	11 τ <sup>3</sup> .....	8 3	39 2	4.2	- 47	- 32
792	21	13 50	38 10	4	16 τ <sup>4</sup> .....	13 31	38 40	3.9	- 19	- 30
793	22	17 30	39 0	4	19 τ <sup>5</sup> .....	17 38	39 36	4.3	+ 8	- 36
794	23	21 20	41 20	4	27 τ <sup>6</sup> .....	21 0	41 50	4.3	- 20	- 30
795	24	21 30	42 30	5	28 τ <sup>7</sup> .....	20 46	42 44	5.0	- 44	- 14
796	25	22 10	43 15	4	33 τ <sup>8</sup> .....	22 10	43 49	4.8	0	- 34
797	26	24 40	43 20	4	36 τ <sup>9</sup> .....	24 24	43 40	4.7	- 16	- 20
798	27	34 10	50 20	4	50 υ <sup>1</sup> .....	33 4	51 2	4.6	- 66	- 42
799	28	35 0	51 45	4	52 υ <sup>7</sup> .....	33 19	52 2	3.9	- 101	- 17
800	29	28 10	53 50	4	43 υ <sup>5</sup> .....	27 51	54 45	4.1	- 19	- 55
801	30	25 50	53 10	4	41 υ <sup>1</sup> .....	25 51	54 11	3.6	+ 1	- 61
802	31	17 50	53 0	4	III 202 υ <sup>3</sup> .....	17 20	53 25	(5.3)	- 30	- 25
803	32	14 50	53 30	4	III 189 υ <sup>2</sup> .....	15 5	54 29	(4.1)	+ 15	- 59
804	33	11 50	52 0	4	III 149 υ <sup>1</sup> .....	12 13	54 59	(4.8)	+ 23	....
805	34	0 10	-53 30	1	{II 2381 (dup.)	356 34	-53 55	3.1	....	- 25
				{II 239}						
				θ Eridani.....						

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
LEPUS.										
806	I	49 40	-35 0	5	3 ι.....	49 17	-34 58	4.5	- 23	+ 2
807	2	49 50	36 30	5	4 κ.....	49 26	36 3	4.5	- 24	+ 27
808	3	51 20	35 40	5	7 ν.....	51 31	35 35	5.3	+ 11	+ 5
809	4	51 20	36 40	5	6 λ.....	51 18	36 26	4.3	- 2	+ 14
810	5	49 10	39 15	4-3	5 μ.....	48 55	39 17	3.3	- 15	- 2
811	6	46 10	45 15	4-3	2 ε.....	45 30	45 9	3.3	- 40	+ 6
812	7	55 50	41 30	3	11 α.....	54 55	41 20	2.7	- 55	+ 10
813	8	54 20	44 20	3	9 β.....	53 12	44 8	3.0	- 68	+ 12
814	9	61 0	44 0	4-3	15 δ.....	60 32	44 9	3.9	- 28	- 9
815	10	59 0	45 50	4-3	13 γ.....	58 31	45 51	3.8	- 29	- 1
816	11	60 0	38 20	4-3	14 ζ.....	59 32	38 28	3.7	- 28	- 8
817	12	62 40	-38 10	4-3	16 η.....	62 22	-37 56	3.8	- 18	+ 14
CANIS MAJOR.										
818	I	77 40	-39 10	I	9 α.....	78 0	-39 11	-1.6	+ 20	- 1
819	2	79 40	35 0	4	14 θ.....	79 52	34 57	4.2	+ 12	+ 3
820	3	81 20	36 30	5	18 μ.....	80 40	36 54	5.2	- 40	- 24
821	4	83 20	37 45	4	23 γ.....	83 14	38 14	4.1	- 6	- 29
822	5	80 20	40 0	4	20 ι.....	81 10	39 54	4.4	+ 50	+ 6
823	6	80 30	42 40	5	15 (π <sup>1</sup> ).....	80 53	43 6	4.7	+ 23	- 26
824	7	76 10	41 15	5	8 ν <sup>3</sup> .....	75 37	41 30	4.6	- 33	- 15
825	8	76 0	42 30	5	7 ν <sup>2</sup> .....	75 11	42 32	4.1	- 49	- 2
826	9	71 0	41 20	3	2 β.....	70 47	41 31	2.0	- 13	- 11
827	10	74 40	46 30	5	4 ξ <sup>1</sup> .....	74 16	46 49	4.3	- 24	- 19
828	11	76 10	45 50	5	5 ξ <sup>2</sup> .....	75 12	46 20	4.5	- 58	- 30
829	12	84 40	46 10	4	24 σ <sup>2</sup> .....	84 39	46 22	3.1	- 1	- 12
830	13	81 40	47 0	5	16 σ <sup>1</sup> .....	81 49	47 1	4.1	+ 9	- 1
831	14	86 40	48 45	3-4	25 δ.....	87 5	48 41	2.0	+ 25	+ 4
832	15	83 40	51 30	3	21 ε.....	84 27	51 37	1.6	+ 47	- 7
833	16	81 0	55 10	4	13 κ.....	82 14	55 23	3.8	+ 74	- 13
834	17	69 40	53 45	3	1 ζ.....	70 59	53 38	3.1	+ 79	+ 7
835	18	92 10	50 40	3-4	31 η.....	93 16	50 50	2.4	+ 66	- 10
836	Inf. I	79 30	25 15	4	22 Monocerotis...	83 9	22 58	4.1	.....	.....
837	2	67 0	61 30	4	VI 9 θ Columbæ..	66 38	60 56	5.1	- 22	+ 34
838	3	71 20	58 45	4	VI 65 κ Columbæ..	70 5	58 45	4.5	- 75	0
839	4	73 0	57 0	4	{VI 95 δ Columbæ = 3 Canis major}	71 57	56 58	4.0	- 63	+ 2
840	5	74 10	56 0	4	VI 136 λ.....	74 5	55 58	4.5	- 5	+ 2
841	6	58 0	55 30	4	V 238 μ Col.....	58 16	55 56	5.2	+ 16	- 26
842	7	60 20	57 40	4	V 276 λ Col.....	60 54	57 29	4.9	+ 34	+ 11
843	8	62 20	59 30	4	V 297 γ Col.....	62 34	58 59	4.4	+ 14	+ 31
844	9	59 0	59 40	2	V 267 β Col.....	59 56	59 27	3.2	+ 56	+ 13
845	10	56 0	57 40	2	V 196 α Col.....	55 41	57 37	2.7	- 19	+ 3
846	11	52 10	-59 30	4	V 140 ε Col.....	52 10	-58 52	3.9	0	+ 38
CANIS MINOR.										
847	I	85 0	-14 0	4	3 β.....	85 48	-13 42	3.1	+ 48	+ 18
848	2	89 10	-16 10	I	10 α.....	89 40	-15 39	0.5	+ 30	+ 31

## Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
ARGO NAVIS.										
		° /	° /			° /	° /		/	/
849	1	100 20	—42 30	5	11 <i>ε</i> .....	101 21	—42 47	4.3	+ 61	— 17
850	2	104 20	43 20	3	15 <i>ρ</i> Pup.....	105 12	43 29	2.9	+ 52	— 9
851	3	98 50	45 0	4	7 <i>ξ</i> Pup.....	99 45	45 9	3.5	+ 55	— 9
852	4	98 40	46 0	4	VII 220.....	99 47	46 15	4.6	+ 67	— 15
853	5	95 20	45 30	4	VII 173.....	96 29	46 16	4.6	+ 69	— 46
854	6	96 20	47 15	3	VII 175 dup.....	97 11	47 38	3.8	+ 51	— 23
855	7	95 20	49 30	4	VII 163.....	96 39	49 20	4.5	+ 79	+ 10
856	8	99 20	49 30	4	3 Pup.....	99 37	49 25	4.1	+ 17	+ 5
857	9	98 30	49 15	4	VII 200.1 Pup.....	99 18	48 55	4.8	+ 48	+ 20
858	10	104 0	49 50	4	VII 277.....	104 41	49 53	6.5	+ 41	— 3
859	11	94 0	53 0	4	{VII 99 group.....	93 53	53 26	5.0	{— 7	— 26
					{VII 108.....	94 26	53 14			
860	12	94 0	58 40	3	VII 68 <i>π</i> Pup.....	94 6	58 45	2.7	+ 6	— 5
861	13	100 10	55 30	5	VII 172 <i>f</i> Pup.....	100 15	55 34	4.6	+ 5	— 4
862	14	102 10	58 40	5	VII 186 { <i>d</i> <sup>1</sup> Pup....	102 52	58 27	4.2	+ 42	+ 13
					{ <i>d</i> <sup>2</sup> Pup....					
					{ <i>d</i> <sup>3</sup> Pup....					
863	15	103 40	57 15	4	VII 214 <i>c</i> Pup.....	104 43	57 56	3.7	+ 63	— 41
864	16	106 30	57 45	4	VII 254 <i>b</i> Pup.....	107 52	58 16	4.5	+ 82	— 31
865	17	111 10	58 20	2	VII 306 <i>ξ</i> Pup.....	112 29	58 31	2.3	+ 79	— 11
866	18	108 10	60 0	5	VII 253 <i>a</i> Pup.....	108 57	59 53	3.8	+ 47	+ 7
867	19	111 0	59 20	5	Lac. 3128.....	113 5	59 42	5.5	+125	— 22
868	20	113 0	56 40	5	VIII 21 <i>h</i> <sup>1</sup> Pup.....	114 45	57 34	4.4	+105	— 54
869	21	114 20	57 { <sup>0</sup> 40	5	VIII 35 <i>h</i> <sup>2</sup> Pup.....	116 5	58 1	4.4	+105	{— 61 — 21
870	22	125 40	51 30	4-3	Lac. 3580.....	126 48	53 17	5.8	+ 68	—107
871	23	126 10	55 40	4-3	VIII 168 <i>d</i> Vel.....	127 37	57 29	4.1	+ 87	—109
872	24	124 0	57 10	4-3	VIII 139 <i>e</i> Vel.....	125 54	58 23	4.1	+114	— 73
873	25	129 10	60 0	4-3	VIII 176 <i>a</i> Vel.....	131 28	60 15	4.1	+138	— 15
874	26	129 0	61 15	4-3	VIII 155 <i>b</i> Vel.....	130 32	61 15	4.1	+ 92	0
875	27	120 10	51 30	3	VIII 145 { <i>β</i> Pyx....	120 38	51 18	4.0	+ 28	+ 12
					{ <i>b</i> Mal.....					
876	28	119 20	49 0	3	VIII 162 { <i>a</i> Pyx....	120 19	49 4	3.7	+ 59	— 4
					{ <i>a</i> Mal.....					
877	29	118 0	43 20	4	VIII 193 { <i>γ</i> Pyx....	119 14	43 26	4.2	+ 74	— 6
					{ <i>c</i> Mal.....					
878	30	119 0	43 30	4	VIII 220 { <i>δ</i> Pyx....	120 36	43 0	4.9	+ 96	+ 30
					{ <i>d</i> Mal.....					
879	31	134 10	54 30	2	IX 1 <i>λ</i> Vel.....	135 9	55 58	2.2	+ 59	— 88
880	32	137 30	51 15	2-3	IX 116 <i>ψ</i> Vel.....	138 38	51 14	3.6	+ 68	+ 1
881	33	101 10	63 0	4	VII 135 <i>σ</i> Pup.....	102 43	64 4	3.3	+ 93	— 64
882	34	109 0	64 30	6	VII 235 <i>P</i> . Pup.....	112 39	65 45	4.2	+219	— 75
883	35	120 0	63 50	2	<i>γ</i> Vel.....	121 23	64 37	2.2	+ 83	— 47
884	36	128 30	69 40	2	<i>χ</i> Car.....	124 54	70 27	3.6	—216	— 47
885	37	135 10	65 40	3	<i>ο</i> Pup.....	138 50	66 21	4.6	+220	— 41
886	38	141 20	65 50	3	<i>δ</i> Vel.....	143 1	67 13	2.0	+101	— 83
887	39	146 0	67 20	2	<i>f</i> Car.....	147 21	68 26	4.6	+ 81	— 66
888	40	151 0	62 50	3	<i>κ</i> Vel.....	153 0	63 44	2.6	+120	— 54
889	41	158 0	62 15	3	<i>N</i> Vel.....	158 21	64 13	3.0	+ 21	—118
890	42	64 0	65 50	4-3	V 315 <i>η</i> Columbæ...	63 11	66 31	4.0	— 49	— 41
891	43	80 10	65 40	3-2	VI 205 <i>ν</i> Pup.....	80 52	66 19	3.2	+ 42	— 39
892	44	77 10	75 0	1	<i>a</i> Argus (Canopus)..	78 46	76 5	—0.8	+ 96	— 65
893	45	89 0	—71 45	3-2	<i>τ</i> Pup.....	91 34	—73 2	2.8	+154	— 77

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
HYDRA.										
894	1	104 0	-15 0	4	5 σ.....	104 50	-14 48	4.5	+ 50	+ 12
895	2	103 20	13 10	4	4 δ.....	103 58	12 35	4.2	+ 38	+ 35
896	3	105 20	11 30	4	11 ε.....	106 2	11 14	3.5	+ 42	+ 16
897	4	105 30	14 45	4	7 η.....	105 56	14 26	4.3	+ 26	+ 19
898	5	107 50	12 0	4	16 ζ.....	108 13	11 9	3.3	+ 23	+ 51
899	6	110 20	11 50	5	18 ω.....	111 1	11 12	5.4	+ 41	+ 38
900	7	113 20	13 40	4	22 θ.....	113 47	13 5	3.8	+ 27	+ 35
901	8	118 50	15 20	4	32 τ <sup>2</sup> .....	119 22	15 6	4.5	+ 32	+ 14
902	9	120 40	14 50	4	35 ι.....	121 8	14 23	4.1	+ 28	+ 27
903	10	118 30	17 10	4	31 τ <sup>1</sup> .....	119 7	16 52	4.8	+ 37	+ 18
904	11	119 10	19 45	6	LL 18657, W 9 <sup>h</sup> 439	120 3	20 4	5.4	+ 53	- 19
905	12	120 0	23 0	2	30 α.....	120 58	22 33	2.2	+ 58	+ 27
906	13	126 0	26 30	4	38 κ.....	126 22	26 42	5.0	+ 22	- 12
907	14	128 40	26 0	4	39 υ <sup>1</sup> .....	129 22	26 11	4.3	+ 42	- 11
908	15	131 10	23 15	4	40 υ <sup>2</sup> .....	132 0	23 17	4.7	+ 50	- 2
909	16	138 0	24 40	3	42 μ.....	138 47	24 41	4.1	+ 47	- 1
910	17	140 0	23 0	4	φ (2 Crat.).....	141 47	23 33	5.1	+ 107	- 33
911	18	143 0	22 10	3	ν (4 Crat.).....	144 3	21 58	3.3	+ 63	+ 12
912	19	151 30	25 45	4-3	(11 β Crat.).....	152 12	25 42	4.5	+ 42	+ 3
913	20	152 20	30 10	4	χ <sup>1</sup> (9 Crat.).....	153 8	30 14	5.1	+ 48	- 4
914	21	162 10	31 20	4	ξ (19 Crat.).....	161 47	31 31	3.7	- 23	- 11
915	22	164 30	33 10	4	ο (25 Crat.).....	164 55	33 24	4.9	+ 25	- 14
916	23	166 10	31 20	3	β (28 Crat.).....	167 10	31 25	4.4	+ 60	- 5
917	24	180 0	13 40	4-3	46 γ.....	180 36	13 37	3.3	+ 36	+ 3
918	25	193 30	17 <sup>20</sup> / <sub>40</sub>	4-3	49 π.....	192 12	12 49	3.5	- 78	.....
919	Inf. 1	102 30	23 15	3	30 Monocerotis....	103 39	22 39	3.9	+ 69	+ 36
920	2	131 0	-10 10	3	{ 24 Sextantis..... 15 α Sextantis.....	{ 131 37 127 44	{ 10 18 -11 14	{ (6.7) 4.5	{ + 37 -196	{ - 8 - 64
CRATER.										
921	1	146 20	-23 0	4	7 α.....	147 39	-22 42	4.2	+ 79	+ 18
922	2	152 30	19 30	4	15 γ.....	152 56	19 40	4.1	+ 26	- 10
923	3	150 0	18 0	4	12 δ.....	150 28	17 40	3.8	+ 28	+ 20
924	4	157 0	18 30	4-3	27 ζ.....	157 43	18 17	4.9	+ 43	+ 13
925	5	149 20	13 40	4	14 ε.....	149 53	13 30	5.1	+ 33	+ 10
926	6	159 10	16 10	4-5	30 η.....	159 45	16 4	5.2	+ 35	+ 6
927	7	151 40	-11 50	4	21 θ.....	152 13	-11 19	4.8	+ 33	+ 31
CORVUS.										
928	1	165 20	-21 40	3	1 α.....	165 52	-21 41	4.2	+ 32	- 1
929	2	164 20	19 40	3	2 ε.....	165 22	19 37	3.2	+ 62	+ 3
930	3	166 40	18 10	5	5 ζ.....	167 30	18 12	5.3	+ 50	- 2
931	4	163 30	14 50	3	4 γ.....	164 27	14 26	2.8	+ 57	+ 24
932	5	166 40	12 30	3	7 δ.....	167 9	12 2	3.1	+ 29	+ 28
933	6	167 0	11 45	4	8 η.....	167 38	11 31	4.4	+ 38	+ 14
934	7	170 30	-18 10	3	9 β.....	171 1	-17 56	2.8	+ 31	+ 14
CENTAURUS.										
935	1	190 30	-21 40	5-4	2 g.....	191 39	-21 23	4.4	+ 69	+ 17
936	2	190 0	18 50	5-4	4 h.....	191 27	18 48	4.8	+ 87	+ 2
937	3	189 10	20 30	4-3	1 i.....	190 33	20 15	4.4	+ 83	+ 15
938	4	190 0	-20 0	5-4	3 k.....	191 36	-19 51	4.7	+ 96	+ 9

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magnitude in Harvard Revised Photometry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
CENTAURUS—continued.										
939	5	186 10	−25 40	3	XIII 53 <i>ι</i> ...	186 58	−25 46	2.9	+ 48	− 6
940	6	195 40	22 30	3	5 <i>θ</i> .....	196 8	21 33	2.3	+ 28	+ 57
941	7	189 10	27 30	4	XIII 99 <i>d</i> ..	190 10	27 28	4.0	+ 60	+ 2
942	8	198 10	22 20	4	XIV 40 <i>ψ</i> ...	199 20	22 20	4.2	+ 70	0
943	9	199 10	23 45	4	XIV 55 <i>a</i> ...	200 27	23 40	4.5	+ 77	+ 5
944	10	202 0	18 15	4	XIV 150 <i>c</i> <sup>1</sup> ..	203 2	18 5	4.1	+ 62	+ 10
945	11	202 30	20 50	4	XIV 141 <i>b</i> ..	203 34	20 48	4.1	+ 64	+ 2
946	12	193 20	28 20	4-3	XIII 197 <i>v</i> ..	194 50	28 7	3.5	+ 90	+ 13
947	13	194 0	29 20	4-3	XIII 198 <i>μ</i> ..	195 13	28 49	3.3	+ 73	+ 31
948	14	195 10	28 0	4-3	XIII 246 <i>φ</i> ..	196 43	27 50	4.0	+ 93	+ 10
949	15	196 20	26 30	4-3	XIII 288 <i>χ</i> ..	197 49	26 29	4.5	+ 89	+ 1
950	16	202 50	25 15	3	XIV 109 <i>η</i> ..	203 55	25 17	2.6	+ 65	− 2
951	17	207 30	24 0	4	XIV 216 <i>κ</i> ..	208 27	23 49	3.3	+ 57	+ 11
952	18	198 0	33 30	3-2	XIII 231 <i>ξ</i> ..	198 39	32 43	3.1	+ 39	+ 47
953	19	197 40	31 0	5	XIII 267 <i>v</i> <sup>2</sup> ..	198 58	30 48	4.4	+ 78	+ 12
954	20	196 50	30 20	5	XIII 249 <i>v</i> <sup>1</sup> ..	198 2	30 17	4.2	+ 72	+ 3
955	21	192 10	34 50	5	Cum. <i>ω</i> ....	193 30	35 4		+ 80	− 14
956	22	189 0	37 40	5	<i>f</i> .....	190 17	37 34	5.0	+ 77	+ 6
957	23	185 50	40 0	3	<i>γ</i> .....	186 11	39 58	2.4	+ 21	+ 2
958	24	185 0	40 20	4	<i>τ</i> .....	185 13	39 55	4.0	+ 13	+ 25
959	25	182 40	41 0	5	<i>σ</i> .....	184 34	42 12	4.2	+ 114	− 72
960	26	182 40	46 10	3	<i>δ</i> .....	181 18	44 22	2.9	− 82	+ 1° 48
961	27	183 30	46 45	4	<i>ρ</i> .....	183 13	45 28	4.2	− 17	+ 1 17
962	28	198 20	40 45	4	<i>M</i> .....	199 15	37 8	4.7	+ 55	+ 3 37
963	29	196 20	43 0	2	<i>ε</i> .....	199 17	39 23	2.6	+ 2° 57	+ 3 37
964	30	197 40	43 45	3	<i>Q</i> .....	200 16	40 15	5.4	+ 2 36	+ 3 30
965	31	190 0	51 10	2	<i>γ</i> Crucis....	190 25	47 34	1.6	+ 25	+ 3 36
966	32	195 20	51 40	2	<i>β</i> Crucis....	195 27	48 27	1.5	+ 7	+ 3 13
967	33	186 20	55 10	4	<i>δ</i> Crucis....	189 29	50 17	3.1	+ 3 9	+ 4 53
968	34	191 10	55 20	2	<i>α</i> Crucis....	195 43	52 41	1.6	+ 4 33	+ 2 39
969	35	{ 218 20 213 ?	{ 44 10 41 10	} 1	<i>α</i> Centauri..	215 42	41 53	0.3	− 2 38	+ 2 17
970	36	204 10	45 20	2	<i>β</i> Centauri..	207 31	43 55	0.9	+ 3 21	+ 1 25
971	37	194 40	−49 10	4	<i>μ</i> Crucis....	194 23	−45 55	4.3	− 17	+ 3 15
LUPUS.										
972	1	208 0	−24 50	3	XIV 211 <i>β</i> ..	208 41	−24 48	2.8	+ 41	+ 2
973	2	205 50	29 10	3	<i>a</i> .....	207 10	29 48	2.9	+ 80	− 38
974	3	211 0	21 15	4	XV 31 <i>δ</i> ....	212 17	21 13	3.4	+ 77	+ 2
975	4	214 10	21 0	4	XV 98 <i>γ</i> ....	215 8	21 0	2.9	+ 58	0
976	5	213 0	25 10	4	XV 35 <i>ε</i> ....	213 45	25 2	3.7	+ 45	+ 8
977	6	210 10	27 0	5	<i>λ</i> .....	211 21	26 19	4.4	+ 71	+ 41
978	7	210 40	29 0	5	XV 242 <i>π</i> ..	211 17	28 12	4.7	+ 37	+ 48
979	8	214 40	28 30	5	<i>μ</i> .....	214 1	28 17	4.4	− 39	+ 13
980	9	213 40	30 10	5	<i>κ</i> .....	213 7	29 26	4.1	− 33	+ 44
981	10	215 40	33 10	5	<i>ξ</i> .....	214 25	32 37	3.5	− 75	+ 33
982	11	{ 206 0? 202 0	{ 31 20	{ 5	<i>ρ</i> <sup>?</sup> .....	207 19	31 55	4.1	.....	− 35
983	12	201 50	30 30	4	<i>ι</i> .....	202 28	30 0	4.1	+ 38	+ 30
984	13	203 0	−29 20	4-3	{ XIV 66 <i>τ</i> <sup>1</sup> .. XIV 67 <i>τ</i> <sup>2</sup> ..	{ 203 23	{ −28 52	{ 3.8	{ + 23	{ + 28

Catalogue II—continued.

No. in Baily.	Ptolemy's Catalogue.				Modern name.	Computed for A. D. 100.		Magni- tude in Harvard Revised Photom- etry.	C—Pt.	
	No.	Long.	Lat.	Mag.		Long.	Lat.		Δ Long.	Δ Lat.
LUPUS—continued.										
		° /	° /			° /	° /		' /	' /
985	14	218 50	-17 0	4	XV 217 η.....	219 23	-17 11	3.6	+ 33	- 11
986	15	219 20	15 20	4-3	XV 248 θ.....	220 21	15 24	4.3	+ 61	- 4
987	16	215 40	13 20	4	XV 174 Fl. 5 χ....	216 27	12 57	4.4	+ 47	+ 23
988	17	216 40	11 50	4	XV 204 ξ.....	217 45	13 1	5.4	+ 65	- 71
989	18	207 20	11 30	4-3	XV 10 Fl. 1 ι.....	208 18	12 48	4.9	+ 58	- 78
990	19	207 30?	-10 0	4-3	XV 22 Fl. 2 f.....	208 37	-11 18	4.4	+ 67	- 78
ARA.										
991	1	237 40	-22 40	5	σ.....	239 2	-22 55	4.6	+1° 22	- 15
992	2	243 0	25 45	4	θ.....	244 45	26 24	3.9	+1 45	- 39
993	3	236 10	26 30	4-3	α.....	238 32	26 15	3.0	+2 22	+ 15
994	4	230 40	30 20	5	ε <sup>1</sup> .....	233 11	30 1	4.1	+2 31	+ 19
995	5	235 10	34 10	4-3	γ.....	237 53	32 52	3.5	+2 43	+ 78
996	6	235 0	33 20	4	β.....	237 48	31 59	2.8	+2 48	+ 81
997	7	230 50	-34 0	4	ζ.....	233 27	-32 49	3.1	+2 37	+ 71
CORONA AUSTRALIS.										
998	1	249 10	-21 30	4	{ XVIII 73 δ <sup>1</sup> Teles .	249 34	-22 20	4.4	+ 28	- 46
					{ XVIII 76 δ <sup>2</sup> Teles .	249 42	22 12			
999	2	251 40	21 0	5	{ XVIII 166 η <sup>1</sup> .....	252 58	20 23	4.9	{ + 78	+ 37
					{ XVIII 169 η <sup>2</sup> .....	253 8	20 9			
1000	3	253 10	20 20	5	Lac. 7909.....	254 30	19 33	5.4	+ 80	+ 47
1001	4	254 50	20 0	4	XVIII 250 ζ.....	255 54	19 5	4.8	+ 64	+ 55
1002	5	256 10	18 30	5	XVIII 291 δ.....	257 8	17 37	4.7	+ 58	+ 53
1003	6	257 0	17 10	4	XVIII 305 β.....	257 37	16 30	4.2	+ 37	+ 40
1004	7	256 50	16 0	4	XVIII 300 α.....	257 41	15 4	4.1	+ 51	+ 56
1005	8	256 30	15 10	4	XVIII 280 γ.....	257 10	14 8	5.0	+ 40	+ 62
1006	9	255 10	15 20	6	XVIII 230 ε.....	255 36	14 1	4.9	+ 26	+ 79
1007	10	254 40	14 50	6	XVIII 222 ν.....	255 9	14 13	5.4	+ 29	+ 37
1008	11	251 50	14 40	5	XVIII 142 λ.....	252 27	14 58	5.1	+ 37	- 18
1009	12	249 40	15 50	5	Lac. 7748 (ξ Bode).	250 3	16 11	5.2	+ 23	- 21
1010	13	249 10	-18 30	5	XVIII 85 θ.....	250 6	-18 48	4.7	+ 56	- 18
PISCIS AUSTRINUS.										
1011	1	307 0	-20 20	1	24 α.....	307 14	-20 53	1.3	+ 14	- 33
1012	2	300 40	20 20	4	17 β.....	300 41	21 13	4.4	+ 1	- 53
1013	3	304 10	22 15	4	22 γ.....	304 49	23 31	4.5	+ 39	- 76
1014	4	305 20	22 30	4	23 δ.....	305 40	23 31	4.3	+ 20	- 61
1015	5	304 20	16 15	4-3	18 ε.....	304 51	17 5	4.2	+ 31	- 50
1016	6	295 10	19 30	5	14 μ.....	295 32	19 52	4.6	+ 22	- 22
1017	7	301 10	15 10	5	ζ.....	303 8	15 24	6.5	+ 118	- 14
1018	8	298 50	14 40	4	16 λ.....	298 55	15 34	5.4	+ 5	- 54
1019	9	295 10	15 0	4	12 η.....	295 47	15 6	5.4	+ 37	- 6
1020	10	291 50	16 30	4	10 θ.....	292 8	16 23	5.1	+ 18	+ 7
1021	11	291 0	18 10	4	9 ι.....	290 43	18 6	4.3	- 17	+ 4
1022	12	290 10	22 15	4	XXI 308 (γ Gruis).	290 55	22 52	3.2	+ 45	- 37
1023	Inf. 1	278 0	22 20	3-4	XX 307 (α Micr.)..	279 10	15 14	5.0	+1° 10	+7° 6
1024	2	281 10	22 10	3-4	XX 403 (γ Micr.)..	281 58	14 28	4.7	+ 48	+7 42
1025	3	284 0	21 10	3-4	XXI 46 (ε Micr.)..	285 27	15 27	4.8	+1 27	+5 43
1026	4	282 0	20 50	5	XX 445.....	283 0	14 52	5.3	+1 0	+5 58
1027	5	283 50	17 0	4	XXI 12.....	285 56	10 49	5.5	+2 6	+6 11
1028	6	283 50	-14 50	4	24 Λ Capric.....	285 23	- 7 53	4.6	+1 33	+6 57

CATALOGUE III.

*Ptolemy's Catalogue, showing the Longitudes reduced by 2° 40' and the Latitudes unaltered, compared with Computed Positions for the Epoch of Hipparchus, B. C. 130, derived from the same Modern Catalogues as used for Catalogue II.*

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
		URSA MINOR.	° /	° /	° /	° /	'	'
1	1	1 α.....	57 30	+66 0	58 58	+65 50	+ 88	- 10
2	2	23 δ.....	59 50	70 0	61 32	69 44	+102	- 16
3	3	22 ε.....	67 30	74 20	69 25	73 37	+115	- 43
4	4	16 ζ.....	87 0	75 40	87 19	74 51	+ 19	- 49
5	5	21 η.....	91 0	77 40	90 25	77 41	- 35	+ 1
6	6	7 β.....	104 30	72 50	103 7	72 48	- 83	- 2
7	7	13 γ.....	113 30	74 50	111 10	75 4	-140	+ 14
8	Inf. 1	5 A.....	100 20	+71 10	98 14	+71 13	-126	+ 3
		URSA MAJOR.						
9	1	1 α.....	82 40	+39 50	83 22	+40 5	+ 42	+ 15
10	2	2 A.....	83 10	43 0	81 56	44 21	- 74	+ 81
11	3	4 π².....	83 40	43 0	83 6	43 44	- 34	+ 44
12	4	8 ρ.....	83 30	47 10	84 15	47 41	+ 45	+ 31
13	5	13 σ².....	85 0	47 0	85 34	47 37	+ 34	+ 37
14	6	24 δ.....	85 30	50 30	86 36	50 59	+ 66	+ 29
15	7	14 τ.....	87 50	43 50	87 47	44 21	- 3	+ 31
16	8	23 h.....	89 50	44 20	91 9	44 54	+ 79	+ 34
17	9	29 υ.....	96 20	42 0	96 40	42 37	+ 20	+ 37
18	10	30 φ.....	98 20	37 15?	99 37	38 3	+ 77	+ 48
19	11	25 θ.....	98 0	35 0	97 59	35 8	- 1	+ 8
20	12	9 ι.....	92 50	29 20	93 21	29 34	+ 31	+ 14
21	13	12 κ.....	93 40	28 20	94 16	28 49	+ 36	+ 29
22	14	18 ε.....	93 0	36 0	93 36	35 52	+ 36	- 8
23	15	15 f.....	93 10	33 0	93 30	33 16	+ 20	+ 16
24	16	50 α.....	105 0	49 0	105 25	49 33	+ 25	+ 33
25	17	48 β.....	109 30	44 30	109 36	44 54	+ 6	+ 24
26	18	69 δ.....	120 30	51 0	121 5	51 28	+ 35	+ 28
27	19	64 γ.....	120 20	46 30	120 32	46 58	+ 12	+ 28
28	20	33 λ.....	110 0	29 20	109 45	29 50	- 15	+ 30
29	21	34 μ.....	111 30	28 15	111 31	28 51	+ 1	+ 36
30	22	52 ψ.....	119 0	35 15	119 4	35 27	+ 4	+ 12
31	23	54 υ.....	127 10	25 50	126 56	26 2	- 14	+ 12
32	24	53 ξ.....	127 40	25 0	127 44	25 2	+ 4	+ 2
33	25	77 ε.....	129 30	53 30	128 53	54 10	- 37	+ 40
34	26	79 ζ.....	135 20	55 40	135 34	56 17	+ 14	+ 37
35	27	85 η.....	147 10	54 0	147 0	54 25	- 10	+ 25
36	Inf. 1	12 Can. Ven.....	145 10	39 45	144 55	40 9	- 15	+ 24
37	2	8 Can. Ven.....	137 30	41 20	138 24	40 33	+ 54	- 47
38	3	40 Lyncis.....	102 20	17 15	102 20	17 48	0	+ 33
39	4	38 Lyncis.....	100 40	19 10	100 54	19 58	+ 14	+ 48
40	5	10 Leo. Min.....	103 30	20 0	104 9	20 32	+ 39	+ 32
41	6	IX 115.....	102 30	22 45	103 6	23 37	+ 36	+ 52
42	7	VIII 245.....	98 30	20 20	97 56	20 41	- 34	+ 21
43	8	31 Lyncis.....	87 20	+22 15	87 54	+22 55	+ 34	+ 45

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
DRACO.								
44	1	21 μ.....	204 0	+76 30	204 46	+76 28	+ 46	- 2
45	2	25 ν.....	219 10	78 30	219 57	78 23	+ 47	- 7
46	3	23 β.....	220 30	75 40	222 4	75 33	+ 94	- 7
47	4	32 ξ.....	234 40	80 20	234 36	80 32	- 4	+ 12
48	5	33 γ.....	237 0	75 30	238 22	75 14	+ 82	- 16
49	6	39 b.....	262 0	82 20	263 29	82 1	+ 29	- 19
50	7	46 c.....	269 40	78 15	271 1	78 7	+ 81	- 8
51	8	45 d.....	266 10	80 20	266 47	80 2	+ 37	- 18
52	9	47 o.....	286 50	81 10	286 24	81 1	- 26	- 9
53	10	58 π.....	335 20	81 40	335 46	81 48	+ 26	+ 8
54	11	57 δ.....	347 50	83 0	349 29	82 50	+ 99	- 10
55	12	63 ε.....	5 0	78 50	4 19	79 22	- 41	+ 32
56	13	67 ρ.....	350 10	77 50	352 9	78 4	+119	+ 14
57	14	61 σ.....	8 0	80 30	8 34	80 50	+ 34	+ 20
58	15	52 υ.....	19 0	81 40	22 16	83 2	+196	+ 82
59	16	60 τ.....	23 30	80 15	25 54	80 26	+144	+ 11
60	17	31 ψ.....	70 40	84 30	73 13	83 46	+153	- 44
61	18	44 χ.....	47 40	83 30	49 38	83 11	+118	- 19
62	19	43 φ.....	39 10	84 50	42 27	84 36	+197	- 14
63	20	27 f.....	116 0	87 30	113 25	86 46	-155	- 44
64	21	28 ω.....	109 0	86 50	101 15	86 48	-465	- 2
65	22	18 g.....	156 20	81 15	152 41	81 39	-219	+ 24
66	23	19 h.....	156 40	83 0	152 38	83 12	-242	+ 12
67	24	22 ζ.....	155 40	84 50	150 40	84 47	-300	- 3
68	25	14 η.....	157 20	78 0	163 43	78 30	+383	+ 30
69	26	13 θ.....	160 20	74 40	166 56	74 31	+396	- 9
70	27	12 ι.....	160 0	70 0	154 33	71 7	-327	+ 67
71	28	10 i.....	124 40	64 40	124 44	65 15	+ 4	+ 35
72	29	11 α.....	128 30	65 30	127 18	66 16	- 72	+ 46
73	30	5 κ.....	106 30	61 15	106 19	61 36	- 11	+ 21
74	31	1 λ.....	100 30	+56 15	100 27	+57 3	- 3	+ 48
CEPHEUS.								
75	1	1 κ.....	32 20	+75 40	33 58	+75 13	+ 38	- 27
76	2	35 γ.....	30 20	64 15	30 48	64 15	+ 28	0
77	3	8 β.....	4 40	71 10	6 41	70 59	+121	- 11
78	4	5 α.....	344 0	69 0	343 44	68 56	- 16	- 4
79	5	3 η.....	336 40	72 0	334 47	71 33	-113	- 27
80	6	2 θ.....	337 20	74 0	336 19	73 56	- 61	- 4
81	7	17 ξ.....	355 50	65 30	355 4	65 44	- 46	+ 14
82	8	32 ι.....	4 50	62 30	4 19	62 27	- 31	- 3
83	9	23 ε.....	343 40	60 15	343 36	60 3	- 4	- 12
84	10	21 ζ.....	344 40	61 15	344 55	61 5	+ 15	- 10
85	11	22 λ.....	346 20	61 20	347 0	61 48	+ 40	+ 28
86	Inf. 1	13 μ.....	341 0	64 0	340 43	64 9	- 17	+ 9
87	2	27 δ.....	348 40	+59 30	348 30	+59 27	- 10	- 3
BOOTES.								
88	1	17 κ.....	149 40	+58 40	149 44	+58 51	+ 4	+ 11
89	2	21 ι.....	151 30	58 20	151 14	58 52	- 16	+ 32
90	3	23 θ.....	153 0	60 10	152 24	60 24	- 36	+ 14
91	4	19 λ.....	157 0	+54 40	157 12	+54 40	+ 12	0

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
BOOTES—continued.								
92	5	27 γ.....	167 0	+49 0	167 52	+49 35	+ 52	+ 35
93	6	42 β.....	174 0	53 50	174 18	54 16	+ 18	+ 26
94	7	49 δ.....	183 0	48 40	183 46	49 8	+ 46	+ 28
95	8	51 μ.....	183 0	53 15	183 14	53 30	+ 14	+ 15
96	9	{ 52 ν <sup>1</sup> ..... 53 ν <sup>2</sup> ..... }	182 20	57 30	182 41	57 18	+ 21	- 12
97	10	2 η Coronæ.....	185 0	46 30	187 9	47 2	+129	+ 32
98	11	1 ο Coronæ.....	185 50	45 30	186 52	46 8	+ 62	+ 38
99	12	45 c.....	185 30	41 40	185 22	40 40	- 8	- 60
100	13	43 ψ.....	184 0	41 40	183 48	42 31	- 12	+ 51
101	14	46 b.....	184 20	42 30	185 8	42 2	+ 48	- 28
102	15	41 ω.....	185 0	40 20	183 59	40 22	- 61	+ 2
103	16	36 ε.....	177 20	40 15	178 20	40 49	+ 60	+ 34
104	17	28 σ.....	173 0	41 40	173 58	42 7	+ 58	+ 27
105	18	25 ρ.....	172 20	42 10	173 4	42 30	+ 44	+ 20
106	19	30 ζ.....	182 40	28 0	183 19	28 2	+ 39	+ 2
107	20	8 η.....	168 40	28 0	169 32	28 23	+ 52	+ 23
108	21	4 τ.....	167 50	26 30	168 30	26 41	+ 40	+ 11
109	22	5 υ.....	168 40	25 0	169 29	25 18	+ 49	+ 18
110	Inf. I	16 a.....	174 20	+31 30	174 37	+32 4	+ 17	+ 34
CORONA BOREALIS.								
111	1	5 a.....	192 0	+44 30	192 24	+44 33	+ 24	+ 3
112	2	3 β.....	189 0	46 10	189 26	46 12	+ 26	+ 2
113	3	4 θ.....	189 10	48 0	189 38	48 46	+ 28	+ 46
114	4	9 π.....	191 0	50 30	192 14	50 39	+ 74	+ 9
115	5	8 γ.....	194 30	44 45	195 5	44 41	+ 35	- 4
116	6	10 δ.....	196 30	44 50	197 14	44 58	+ 44	+ 8
117	7	13 ε.....	198 40	46 10	199 20	46 17	+ 40	+ 7
118	8	14 ι.....	199 0	+49 20	199 12	+49 22	+ 12	+ 2
HERCULES.								
119	1	64 a.....	225 0	+37 30	226 31	+37 33	+ 91	+ 3
120	2	27 β.....	211 0	43 0	211 26	42 58	+ 26	- 2
121	3	20 γ.....	209 0	40 10	209 29	40 13	+ 29	+ 3
122	4	7 κ.....	205 20	37 10	206 0	37 27	+ 40	+ 17
123	5	65 δ.....	224 0	48 0	225 5	48 3	+ 65	+ 3
124	6	76 λ.....	229 20	49 30	230 14	49 34	+ 54	+ 4
125	7	86 μ.....	235 0	52 0	235 52	51 51	+ 52	- 9
126	8	103 ο.....	242 50	52 50	243 6	52 31	+ 16	- 19
127	9	94 ν.....	239 0	54 0	239 51	53 55	+ 51	- 5
128	10	92 ξ.....	238 50	53 0	239 35	52 59	+ 45	- 1
129	11	40 ζ.....	211 10	53 10	212 11	53 10	+ 61	0
130	12	58 ε.....	217 30	53 30	218 35	53 30	+ 65	0
131	13	59 d.....	217 20	56 10	218 14	56 10	+ 54	0
132	14	61 c.....	218 30	58 30	219 51	58 44	+ 81	+ 14
133	15	67 π.....	221 20	59 50	222 19	59 49	+ 59	- 1
134	16	69 e.....	222 40	60 20	223 12	60 23	+ 32	+ 3
135	17	75 ρ.....	223 40	61 15	225 44	60 15	+124	- 60
136	18	91 θ.....	238 10	61 0	238 51	60 59	+ 41	- 1
137	19	85 ι.....	229 30	69 20	229 56	69 33	+ 26	+ 13
138	20	74.....	222 40	+70 15	220 51	+69 18	-109	- 57

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
HERCULES—continued.								
139	21	77 <i>x</i> .....	224 10	+71 15	222 48	+71 30	- 82	+ 15
140	22	82 <i>y</i> .....	227 0	72 0	227 45	72 3	+ 45	+ 3
141	23	44 <i>η</i> .....	208 0	60 15	208 50	60 33	+ 50	+ 18
142	24	35 <i>σ</i> .....	202 40	63 0	203 18	63 22	+ 38	+ 22
143	25	22 <i>τ</i> .....	193 0	65 30	194 20	66 1	+ 80	+ 31
144	26	11 <i>φ</i> .....	191 0	63 40	191 45	63 57	+ 45	+ 17
145	27	6 <i>v</i> .....	187 30	64 15	188 11	64 31	+ 41	+ 16
146	28	1 <i>χ</i> .....	188 30	60 0	188 9	60 1	- 21	+ 1
147	29	{ 52 <i>v</i> <sup>1</sup> Bootis.....	182 20	57 30	182 41	57 18	+ 21	- 12
		{ 53 <i>v</i> <sup>2</sup> Bootis.....						
148	Inf. 1	24 <i>ω</i> .....	210 0	+38 10	211 53	+35 24	+113	-166
LYRA.								
149	1	3 <i>α</i> .....	254 40	+62 0	255 36	+61 53	+ 56	- 7
150	2	{ <i>ε</i> <sup>1</sup> .....	257 40	62 40	259 11	62 34	+ 91	- 6
		{ <i>ε</i> <sup>2</sup> .....						
151	3	{ <i>ζ</i> <sup>1</sup> .....	257 40	61 0	258 38	60 37	+ 58	- 23
		{ <i>ζ</i> <sup>2</sup> .....						
152	4	12 <i>δ</i> <sup>2</sup> .....	261 0	60 0	262 14	59 34	+ 74	- 26
153	5	20 <i>η</i> .....	269 20	61 20	270 42	60 55	+ 82	- 25
154	6	21 <i>θ</i> .....	270 0	60 20	271 9	59 48	+ 69	- 32
155	7	10 <i>β</i> .....	258 20	56 10	259 25	56 16	+ 65	+ 6
156	8	9 <i>v</i> <sup>2</sup> .....	258 10	55 0	259 7	55 28	+ 57	+ 28
157	9	14 <i>γ</i> .....	261 30	55 20	262 28	55 16	+ 58	- 4
158	10	15 <i>λ</i> .....	261 20	+54 45	262 41	+54 42	+ 81	- 3
CYGNUS.								
159	1	6 <i>β</i> .....	271 50	+49 20	271 49	+49 12	- 1	- 8
160	2	12 <i>φ</i> .....	276 20	50 30	275 34	50 50	- 46	+ 20
161	3	21 <i>η</i> .....	283 40	54 30	283 35	54 28	- 5	- 2
162	4	37 <i>γ</i> .....	295 50	57 20	295 36	57 18	- 14	- 2
163	5	50 <i>α</i> .....	306 30	60 0	306 11	60 2	- 19	+ 2
164	6	18 <i>δ</i> .....	287 0	64 40	287 1	64 37	+ 1	- 3
165	7	13 <i>θ</i> .....	289 50	69 40	289 25	69 40	- 25	0
166	8	10 <i>ι</i> .....	288 30	71 30	288 52	71 35	+ 22	+ 5
167	9	1 <i>κ</i> .....	284 0	74 0	285 55	73 58	+115	+ 2
168	10	53 <i>ε</i> .....	298 10	49 30	298 2	49 30	- 8	0
169	11	54 <i>λ</i> .....	301 10	52 10	300 29	51 46	- 41	- 24
170	12	64 <i>ζ</i> .....	304 0	44 0	303 40	43 50	- 20	- 10
171	13	58 <i>v</i> .....	307 20	55 10	306 49	55 2	- 31	- 8
172	14	62 <i>ξ</i> .....	311 50	57 0	311 36	56 40	- 14	- 20
173	15	{ 30 <i>ο</i> <sup>1</sup> .....	298 30	64 0	298 56	63 49	+ 26	- 11
		{ 31.....						
174	16	32 <i>ο</i> <sup>2</sup> .....	300 0	64 30	300 42	64 26	+ 42	- 4
175	17	46 <i>ω</i> <sup>2</sup> .....	309 30	63 45	307 44	64 18	-106	+ 33
176	Inf. 1	65 <i>τ</i> .....	308 0	49 40	309 2	50 30	+ 62	+ 50
177	2	67 <i>σ</i> .....	311 10	+51 40	311 5	+51 35	- 5	- 5
CASSIOPEIA.								
178	1	17 <i>ζ</i> .....	5 10	+45 20	5 42	+44 34	+ 32	- 46
179	2	18 <i>α</i> .....	8 10	46 45	8 25	46 28	+ 15	- 17
180	3	24 <i>η</i> .....	10 20	+47 50	10 25	+47 22	+ 5	- 28

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
CASSIOPEIA—continued.								
181	4	27 γ.....	14 0	+49 0	14 33	+48 38	+ 33	- 22
182	5	37 δ.....	18 0	45 30	18 23	46 20	+ 23	+ 50
183	6	45 ε.....	24 20	47 45	25 21	47 20	+ 61	- 25
184	7	35 Hev. ι.....	29 0	47 20	32 49	48 42	+229	+ 82
185	8	33 θ.....	12 0	44 20	12 22	42 58	+ 22	- 82
186	9	34 φ.....	15 0	45 0	16 7	44 55	+ 67	- 5
187	10	8 σ.....	359 40	50 0	0 50	49 17	+ 70	- 43
188	11	15 κ.....	12 20	52 40	13 16	52 6	+ 56	- 34
189	12	11 β.....	5 10	51 40	5 33	51 20	+ 23	- 20
190	13	7 ρ.....	1 0	+51 40	1 45	+51 1	+ 45	- 39
PERSEUS.								
191	1	7 χ.....	24 0	+40 30	24 49	+40 32	+ 49	+ 2
192	2	15 η.....	28 30	37 30	29 14	37 15	+ 44	- 15
193	3	23 γ.....	30 0	34 30	30 31	34 17	+ 31	- 13
194	4	13 θ.....	24 50	32 20	24 58	31 32	+ 8	- 48
195	5	18 τ.....	28 0	34 30	28 26	34 9	+ 26	- 21
196	6	18 Hev. ι.....	28 50	31 10	29 1	30 39	+ 11	- 31
197	7	33 α.....	32 10	30 0	32 34	29 53	+ 24	- 7
198	8	35 σ.....	32 40	27 50	33 5	27 47	+ 25	- 3
199	9	37 ψ.....	34 20	27 40	34 13	27 43	- 7	+ 3
200	10	39 δ.....	35 0	27 20	35 16	27 3	+ 16	- 17
201	11	27 κ.....	27 50	27 0	28 6	25 59	+ 16	- 61
202	12	26 β.....	27 0	23 0	26 37	22 12	- 23	- 48
203	13	28 ω.....	26 30	21 0	26 50	20 45	+ 20	- 15
204	14	25 ρ.....	25 0	21 0	25 19	20 26	+ 19	- 34
205	15	22 π.....	24 10	22 15	24 22	21 31	+ 12	- 44
206	16	72 b 21 Hev.....	42 10	28 15	42 16	28 11	+ 6	- 4
207	17	47 λ.....	40 20	28 10	40 13	28 37	- 7	+ 27
208	18	48 c.....	39 40	25 0	39 56	25 59	+ 16	+ 59
209	19	51 μ.....	41 20	26 15	41 15	26 26	- 5	+ 11
210	20	53 d.....	41 30	24 30	42 4	24 21	+ 34	- 9
211	21	58 e.....	43 40	18 45	44 1	18 44	+ 21	- 1
212	22	41 ν.....	34 10	21 50	34 17	21 54	+ 7	+ 4
213	23	45 ε.....	36 0	19 15	36 7	18 52	+ 7	- 23
214	24	46 ξ.....	35 40	14 45	35 25	14 41	- 15	- 4
215	25	38 ο.....	31 30	12 0	31 34	11 56	+ 4	- 4
216	26	44 ζ.....	33 40	11 0	33 33	11 5	- 7	+ 5
217	Inf. 1	52 f.....	39 10	18 0	39 35	18 40	+ 25	+ 40
218	2	14 Hev. Camel.....	42 20	31 0	42 46	31 28	+ 26	+ 28
219	3	16 p <sup>1</sup> .....	22 0	+20 40	22 10	+20 49	+ 10	+ 9
AURIGA.								
220	1	33 δ.....	59 50	+30 0	60 18	+30 39	+ 28	+ 39
221	2	30 ξ.....	59 40	31 50	59 33	31 59	- 7	+ 9
222	3	13 α.....	52 20	22 30	52 15	22 48	- 5	+ 18
223	4	34 β.....	60 10	20 0	60 21	21 13	+ 11	+ 73
224	5	32 ν.....	58 30	15 15	58 42	15 26	+ 12	+ 11
225	6	37 θ.....	60 10	13 20	60 19	13 32	+ 9	+ 12
226	7	7 ε.....	49 20	20 40	49 16	20 40	- 4	0
227	8	10 η.....	49 30	18 0	49 51	18 2	+ 21	+ 2
228	9	8 ζ.....	49 20	+18 0	49 3	+17 57	- 17	- 3

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. —2° 40'.	Lat.	Long.	Lati.		
AURIGA—continued.								
229	10	3 ι.....	47 10	+10 10	47 3	+10 12	- 7	+ 2
230	11	23 γ = 112 β Tauri..	53 0	5 0	52 59	5 11	- 1	+ 11
231	12	25 χ.....	53 20	8 30	54 33	8 35	+ 73	+ 5
232	13	24 φ.....	53 40	12 10	53 37	10 57	- 3	- 73
233	14	14.....	50 20	+10 20	50 55	+ 9 20	+ 35	- 60
OPHIUCHUS.								
234	1	55 α.....	232 10	+36 0	232 45	+36 14	+ 35	+ 14
235	2	60 β.....	235 20	27 15	235 42	28 18	+ 22	+ 63
236	3	62 γ.....	236 20	26 30	237 0	26 27	+ 40	- 3
237	4	25 ι.....	220 40	33 0	221 0	32 47	+ 20	- 13
238	5	27 κ.....	222 0	31 50	222 24	32 8	+ 24	+ 18
239	6	10 λ.....	215 40	23 45	215 57	23 49	+ 17	+ 4
240	7	1 δ.....	212 20	17 0	212 41	17 34	+ 21	+ 34
241	8	2 ε.....	213 20	16 30	213 51	16 40	+ 31	+ 10
242	9	57 μ.....	234 0	15 0	234 43	15 30	+ 43	+ 30
243	10	64 ν.....	239 40	13 40	240 10	14 1	+ 30	+ 21
244	11	69 τ.....	240 40	14 20	241 10	15 34	+ 30	+ 74
245	12	35 η.....	228 30	7 30	228 22	7 26	- 8	- 4
246	13	40 ξ.....	231 0	+ 2 15	231 8	+ 2 25	+ 8	+ 10
247	14	36 λ.....	230 20	- 2 15	230 39	- 2 33	+ 19	- 18
248	15	42 θ.....	231 40	1 30	231 48	1 34	+ 8	- 4
249	16	44 b.....	232 20	0 20	232 43	0 36	+ 23	- 19
250	17	51 c.....	233 10	- 0 15	233 53	- 0 24	+ 43	- 9
251	18	52.....	234 30	+ 1 0	234 40	+ 1 36	+ 10	+ 36
252	19	13 ζ.....	219 30	11 50	219 38	11 39	+ 8	- 11
253	20	8 φ.....	219 0	5 20	219 4	5 28	+ 4	+ 8
254	21	7 χ.....	218 0	3 10	218 23	3 29	+ 23	+ 19
255	22	4 ψ.....	217 10	1 40	217 57	1 49	+ 47	+ 9
256	23	9 ω.....	219 40	+ 0 40	220 2	+ 0 42	+ 22	+ 2
257	24	5 ρ.....	218 0	- 0 45	218 51	- 1 28	+ 51	- 43
258	Inf. 1	66.....	239 20	+28 10	240 28	+28 6	+ 68	- 4
259	2	67.....	240 0	26 20	240 35	26 40	+ 35	+ 20
260	3	68.....	240 20	25 0	240 53	25 2	+ 33	+ 2
261	4	70.....	241 0	27 0	241 46	26 53	+ 46	- 7
262	5	72.....	242 0	+33 0	242 34	+33 17	+ 34	+ 17
SERPENS.								
263	1	21 ι.....	196 10	+38 0	197 26	+38 18	+ 76	+ 18
264	2	38 ρ.....	199 0	40 0	199 46	40 12	+ 46	+ 12
265	3	41 γ.....	201 40	36 0	202 38	36 2	+ 58	+ 2
266	4	28 β.....	199 20	34 15	200 9	34 33	+ 49	+ 18
267	5	35 κ.....	198 40	37 15	200 2	37 19	+ 82	+ 4
268	6	44 π.....	200 30	42 30	202 21	42 40	+ 111	+ 10
269	7	13 δ.....	199 0	29 15	198 40	29 6	- 20	- 9
270	8	27 λ.....	202 10	26 30	202 50	26 47	+ 40	+ 17
271	9	24 α.....	201 40	25 20	202 19	25 42	+ 39	+ 22
272	10	37 ε.....	203 40	24 0	204 35	24 9	+ 55	+ 9
273	11	32 μ.....	206 10	16 30	206 21	16 29	+ 11	- 1
274	12	3 ν Ophiuchi.....	215 30	13 15?	216 56	13 28	+ 86	+ 13
275	13	53 ν.....	231 0	10 30	230 41	10 32	- 19	+ 2
276	14	55 ξ.....	234 20	+ 8 30	234 59	+ 8 15	+ 39	- 15

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
SERPENS—continued.								
277	15	56 α.....	235 10	+10 50	235 48	+10 47	+ 38	- 3
278	16	57 ζ.....	241 0	20 0	240 30	20 5	- 30	+ 5
279	17	58 η.....	246 0	21 10	246 28	21 9	+ 28	- 1
280	18	63 θ.....	255 40	+27 0	256 11	+27 9	+ 31	+ 9
SAGITTA.								
281	1	12 γ.....	277 30	+39 20	277 35	+39 25	+ 5	+ 5
282	2	8 ζ.....	274 0	39 10	274 36	38 39	+ 36	- 31
283	3	7 δ.....	273 10	39 50	273 51	39 9	+ 41	- 41
284	4	5 α.....	272 0	39 0	271 36	39 2	- 24	+ 2
285	5	6 β.....	270 40	+38 40	271 44	+38 27	+ 64	- 13
AQUILA.								
286	1	63 τ.....	274 30	+26 50	275 41	+27 15	+ 71	+ 25
287	2	60 β.....	272 10	27 10	272 56	27 8	+ 46	- 2
288	3	53 α.....	271 10	29 10	271 52	29 24	+ 42	+ 14
289	4	59 ξ.....	272 0	30 0	273 0	29 1	+ 60	- 59
290	5	50 γ.....	270 30	31 30	271 25	31 29	+ 55	- 1
291	6	61 φ.....	273 20	31 30	274 27	31 44	+ 67	+ 14
292	7	38 μ.....	267 0	28 40	267 8	29 1	+ 8	+ 21
293	8	44 σ.....	268 30	26 40	268 16	26 43	- 14	+ 3
294	9	17 ζ.....	259 30	36 20	260 16	36 31	+ 46	+ 11
295	Inf. 1	55 η.....	271 0	21 40	270 53	21 46	- 7	+ 6
296	2	65 θ.....	276 10	19 10	275 20	18 57	- 50	- 13
297	3	30 δ.....	263 20	25 0	263 54	25 2	+ 34	+ 2
298	4	41 ι.....	265 30	20 0	266 17	20 16	+ 47	+ 16
299	5	39 κ.....	267 0	15 30	265 17	14 37	- 103	- 53
300	6	16 λ.....	257 30	+18 10	257 47	+17 54	+ 17	- 16
DELPHINUS.								
301	1	2 ε.....	285 0	+29 10	284 35	+29 17	- 25	+ 7
302	2	5 ι.....	286 0	29 0	285 50	29 1	- 10	+ 1
303	3	7 κ.....	286 0	27 45	285 33	27 44	- 27	- 1
304	4	6 β.....	285 50	32 0	286 51	32 9	+ 61	+ 9
305	5	9 α.....	287 30	33 20	287 51	33 14	+ 21	- 6
306	6	11 δ.....	288 40	32 0	288 39	32 9	- 1	+ 9
307	7	12 γ.....	290 30	33 10	289 59	32 59	- 31	- 11
308	8	3 η.....	284 50	30 15	285 19	30 51	+ 29	+ 36
309	9	4 ζ.....	284 50	31 50	286 17	32 21	+ 87	+ 31
310	10	8 θ.....	286 20	+31 30	286 46	+30 48	+ 26	- 42
EQUULEUS.								
311	1	8 α.....	293 40	+20 30	293 35	+20 21	- 5	- 9
312	2	10 β.....	295 20	20 40	295 54	21 12	+ 34	- 28
313	3	5 γ.....	293 40	25 30	293 56	25 30	+ 16	0
314	4	7 δ.....	295 0	+25 0	294 59	+25 6	- 1	+ 6
PEGASUS.								
315	1	δ=21 α Andromedæ	345 10	+26 0	344 50	+25 44	- 20	- 16
316	2	88 γ.....	339 30	12 30	339 37	12 34	+ 7	+ 4
317	3	53 β.....	329 30	31 0	329 48	31 6	+ 18	+ 6
318	4	54 α.....	324 0	+19 40	323 59	+19 28	- 1	- 12

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		ΔLong.	ΔLat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
PEGASUS—continued.								
319	5	62 τ.....	331 50	+25 30	331 36	+25 34	- 14	+ 4
320	6	68 υ.....	332 20	25 0	332 23	24 50	+ 3	- 10
321	7	44 η.....	326 20	35 0	326 17	35 8	- 3	+ 8
322	8	43 ο.....	325 50	34 30	325 30	34 27	- 20	- 3
323	9	47 λ.....	323 30	29 0	323 37	28 50	+ 7	- 10
324	10	48 μ.....	324 20	29 30	324 52	29 30	+ 32	0
325	11	42 ζ.....	316 10	18 0	316 36	17 46	+ 26	- 14
326	12	46 ξ.....	317 50	19 0	318 28	18 48	+ 38	- 12
327	13	50 ρ.....	318 40	15 0	318 59	14 33	+ 19	- 27
328	14	49 σ.....	317 50	16 0	318 28	15 51	+ 38	- 9
329	15	26 θ.....	306 40	16 50	307 9	16 31	+ 29	- 19
330	16	22 ν.....	305 20	16 0	305 41	15 47	+ 21	- 13
331	17	8 ε.....	302 40	22 30	302 23	22 13	- 17	- 17
332	18	29 π.....	321 0	41 10	320 11	41 2	- 49	- 8
333	19	24 ι.....	315 0	34 15	314 47	34 23	- 13	+ 8
334	20	10 κ.....	309 40	+36 50	309 32	+36 44	- 8	- 6
ANDROMEDA.								
335	1	31 δ.....	352 40	+24 30	352 17	+24 19	- 23	- 11
336	2	29 π.....	353 40	27 0	353 13	27 3	- 27	+ 3
337	3	30 ε.....	351 40	23 0	351 38	23 0	- 2	0
338	4	25 σ.....	351 0	32 0	350 59	31 30	- 1	- 30
339	5	24 θ.....	352 0	33 30	351 47	33 17	- 13	- 13
340	6	27 ρ.....	352 20	32 20	352 12	32 17	- 8	- 3
341	7	17 ι.....	347 0	41 0	346 43	40 57	- 17	- 3
342	8	19 κ.....	348 0	42 0	347 56	41 38	- 4	- 22
343	9	16 λ.....	349 30	44 0	349 3	43 59	- 27	- 1
344	10	34 ζ.....	351 30	17 30	351 8	17 32	- 22	+ 2
345	11	38 η.....	353 0	15 50	352 53	15 50	- 7	0
346	12	43 β.....	1 10	26 20	0 52	25 53	- 18	- 27
347	13	37 μ.....	359 10	30 0	359 38	29 33	+ 28	- 27
348	14	35 ν.....	359 20	32 30	359 43	32 27	+ 23	- 3
349	15	57 γ.....	14 10	28 0	14 44	27 39	+ 34	- 21
350	16	54 = φ Persei.....	14 30	37 20	15 9	36 40	+ 39	- 40
351	17	51 = ν Persei.....	12 30	35 40	13 0	35 18	+ 30	- 22
352	18	50 υ.....	9 40	29 0	9 18	28 59	- 22	- 1
353	19	53 τ.....	9 20	28 0	9 26	27 46	+ 6	- 14
354	20	42 φ.....	7 30	35 30	7 2	36 11	- 28	+ 41
355	21	49 Λ.....	10 0	34 30	10 40	34 23	+ 40	- 7
356	22	52 χ.....	11 30	32 30	11 3	31 18	- 27	- 72
357	23	1 ο.....	339 0	+44 0	338 28	+43 44	- 32	- 16
TRIANGULUM.								
358	1	2 α.....	8 20	+16 30	7 22	+16 45	- 58	+ 15
359	2	4 β.....	13 20	20 40	12 46	20 27	- 34	- 13
360	3	8 δ.....	13 40	19 40	13 31	19 27	- 9	- 13
361	4	9 γ.....	14 10	+19 0	14 0	+18 45	- 10	- 15
ARIES.								
362	1	5 γ.....	4 0	+ 7 20	3 36	+ 7 5	- 24	- 15
363	2	6 β.....	5 0	8 20	4 24	8 24	- 36	+ 4
364	3	17 η.....	8 20	+ 7 40	8 28	+ 7 16	+ 8	- 24

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
ARIES—continued.								
365	4	22 θ.....	8 50	+ 6 0	9 18	+ 5 35	+ 28	- 25
366	5	8 ι.....	3 50	5 30	3 57	5 19	+ 7	- 11
367	6	32 ν.....	15 0	6 0	14 34	5 59	- 26	- 1
368	7	48 ε.....	18 40	4 50	18 56	3 57	+ 16	- 53
369	8	57 δ.....	21 10	1 40	21 9	1 38	- 1	- 2
370	9	58 ζ.....	22 40	2 30	22 21	2 40	- 19	+ 10
371	10	63 η <sup>2</sup> .....	24 20	1 50	24 3	1 54	- 17	+ 4
372	11	46 ρ <sup>3</sup> .....	17 0	+ 1 10	17 12	+ 1 8	+ 12	- 2
373	12	43 σ.....	15 20	- 1 30	15 20	- 1 29	0	+ 1
374	13	87 μ Ceti.....	12 20	- 5 15	12 11	- 5 41	- 9	- 26
375	Inf. I	13 α.....	8 0	+ 10 0	8 2	+ 9 54	+ 2	- 6
376	2	41 c.....	19 0	10 10	18 37	10 19	- 23	+ 9
377	3	39.....	18 40	12 40	18 46	12 22	+ 6	- 18
378	4	35.....	17 0	11 10	17 23	11 7	+ 23	- 3
379	5	33.....	16 30	+ 10 40	16 33	+ 10 43	+ 3	+ 3
TAURUS.								
380	I	5 f.....	23 40	- 6 0	23 59	- 6 8	+ 19	- 8
381	2	4 s.....	23 20	7 15	23 29	7 39	+ 9	- 24
382	3	2 ξ.....	22 0	8 30	22 16	9 0	+ 16	- 30
383	4	1 ο.....	21 40	9 15	21 35	9 32	- 5	- 17
384	5	30 ε.....	27 0	9 30	27 44	8 52	+ 44	+ 38
385	6	35 λ.....	31 0	8 0	31 2	8 12	+ 2	- 12
386	7	49 μ.....	34 0	12 40	33 58	12 25	- 2	+ 15
387	8	38 ν.....	30 20	14 50	30 17	14 40	- 3	+ 10
388	9	90 ρ <sup>1</sup> .....	39 30	10 0	40 6	9 46	+ 36	+ 14
389	10	88 δ.....	40 20	13 0	39 11	12 1	- 69	+ 59
390	11	54 γ.....	36 20	5 45	36 9	5 58	- 11	- 13
391	12	61 δ <sup>1</sup> .....	37 40	4 15	37 13	4 13	- 27	+ 2
392	13	77 θ <sup>1</sup> .....	38 10	5 50	38 20	6 0	+ 10	- 10
393	14	87 α.....	40 0	5 10	40 10	5 39	+ 10	- 29
394	15	74 ε.....	39 10	3 0	38 49	2 49	- 21	+ 11
395	16	97 ι.....	44 30	4 0	44 9	3 54	- 21	+ 6
396	17	104 m.....	47 40	5 0	47 36	4 29	- 4	+ 31
397	18	106 l <sup>1</sup> .....	47 20	3 30	48 11	2 45	+ 51	+ 45
398	19	123 ζ.....	55 0	2 30	55 12	- 2 28	+ 12	+ 2
399	20	94 τ.....	43 0	- 0 15	42 34	+ 0 26	- 26	+ 41
400	21	112 β.....	53 0	+ 5 0	52 59	5 12	- 1	+ 12
401	22	69 υ <sup>1</sup> .....	39 20	0 30	38 49	0 52	- 31	+ 22
402	23	65 κ.....	39 0	0 15	38 36	0 22	- 24	+ 7
403	24	37 A <sup>1</sup> .....	34 20	+ 0 40	33 49	+ 1 3	- 31	+ 23
404	25	50 ω <sup>2</sup> .....	36 20	- 1 0	36 28	- 1 0	+ 8	0
405	26	44 ρ.....	35 20	+ 5 0	36 5	+ 5 3	+ 45	+ 3
406	27	42 ψ.....	35 50	7 10	35 45	7 40	- 5	+ 30
407	28	59 χ.....	39 20	3 0	38 34	3 48	- 46	+ 48
408	29	52 φ.....	39 0	5 0	38 20	5 35	- 40	+ 35
409	30	19 (Taygeta) ε.....	29 30	4 30	29 58	4 17	+ 28	- 13
410	31	23 (Merope) δ.....	29 50	3 40	30 6	3 43	+ 16	+ 3
411	32	27 (Atlas) f.....	31 0	3 40	30 46	3 41	- 14	+ 1
412	33	III 170.....	31 0	+ 5 0	31 21	+ 5 7	+ 21	+ 7
413	Inf. I	10.....	22 20	- 17 30	22 31	- 18 26	+ 11	- 56
414	2	102 ι.....	47 20	- 2 0	47 11	- 1 28	- 9	+ 32

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
TAURUS—continued.								
415	3	109 <i>n</i> .....	51 20	- 1 45	50 55	- 1 17	- 25	+ 28
416	4	114 <i>o</i> .....	53 20	2 0	52 54	1 34	- 26	+ 26
417	5	126.....	56 20	6 20	55 53	7 7	- 27	- 47
418	6	129.....	56 20	- 7 40	57 11	- 7 52	+ 51	- 12
419	7	121.....	54 20	+ 0 40	54 48	+ 0 27	+ 28	- 13
420	8	125.....	56 20	1 0	55 51	2 16	- 29	+ 76
421	9	132.....	58 20	1 20	57 55	0 52	- 25	- 28
422	10	136.....	59 40	3 20	58 56	3 53	- 44	+ 33
423	11	139.....	60 40	+ 1 15	59 57	+ 2 13	- 43	+ 58
GEMINI.								
424	1	66 <i>a</i> .....	80 40	+ 9 40	80 42	+ 9 53	+ 2	+ 13
425	2	78 <i>β</i> .....	84 0	6 15	83 55	6 29	- 5	+ 14
426	3	34 <i>θ</i> .....	74 0	10 0	71 31	10 45	- 149	+ 45
427	4	46 <i>τ</i> .....	76 0	7 20	75 51	7 29	- 9	+ 9
428	5	60 <i>ι</i> .....	79 20	5 30	79 25	5 32	+ 5	+ 2
429	6	69 <i>ν</i> .....	81 20	4 50	81 43	5 0	+ 23	+ 10
430	7	77 <i>κ</i> .....	84 0	2 40	84 4	2 50	+ 4	+ 10
431	8	57 <i>λ</i> .....	79 0	2 40	79 16	2 42	+ 16	+ 2
432	9	58.....	80 30	0 20	79 33	0 47	- 57	+ 27
433	10	27 <i>ε</i> .....	70 20	+ 1 30	70 21	+ 1 47	+ 1	+ 17
434	11	43 <i>ζ</i> .....	75 30	- 2 30	75 24	- 2 19	- 6	+ 11
435	12	55 <i>δ</i> .....	79 0	0 30	78 56	0 28	+ 4	+ 2
436	13	54 <i>λ</i> .....	79 0	6 0	79 13	5 54	+ 13	+ 6
437	14	7 <i>η</i> .....	63 50	1 30	63 52	1 10	+ 2	+ 20
438	15	13 <i>μ</i> .....	65 30	1 15	65 40	1 4	+ 10	+ 11
439	16	18 <i>ν</i> .....	67 30	3 30	67 13	3 19	- 17	+ 11
440	17	24 <i>γ</i> .....	69 20	7 30	69 29	7 1	+ 9	+ 29
441	18	31 <i>ξ</i> .....	72 0	10 30	71 40	10 17	- 20	+ 13
442	Inf. 1	1 <i>H</i> .....	61 30	- 0 40	61 21	- 0 24	- 9	+ 16
443	2	44 <i>κ Aurigæ</i> .....	63 50	+ 5 50	63 46	+ 5 58	- 4	+ 8
444	3	36 <i>d</i> .....	72 30	- 2 15	72 22	- 1 25	- 8	+ 50
445	4	85.....	85 40	1 20	87 29	1 7	+ 109	+ 13
446	5	81 <i>g</i> .....	83 40	3 20	85 33	2 52	+ 113	+ 28
447	6	74 <i>f</i> .....	83 20	4 30	84 1	4 0	+ 41	+ 30
448	7	16 <i>ξ Cancræ</i> .....	93 0	- 2 40	91 42	- 2 28	- 78	+ 12
CANCER.								
449	1	41 <i>ε</i> .....	97 40	+ 0 40	97 48	+ 0 57	+ 8	+ 17
450	2	33 <i>η</i> .....	95 0	+ 1 15	95 49	+ 1 22	+ 49	+ 7
451	3	31 <i>θ</i> .....	95 20	- 1 10	96 9	- 0 57	+ 49	+ 13
452	4	43 <i>γ</i> .....	97 40	+ 2 40	97 58	+ 3 0	+ 18	+ 20
453	5	47 <i>δ</i> .....	98 40	- 0 10	99 6	0 0	+ 26	+ 10
454	6	65 <i>α</i> .....	103 50	- 5 30	104 4	- 5 17	+ 14	+ 13
455	7	48 <i>ι</i> .....	95 40	+ 11 50	96 44	+ 10 14	+ 64	- 96
456	8	10 <i>μ</i> .....	90 0	+ 1 0	89 53	+ 1 7	- 7	+ 7
457	9	17 <i>β</i> .....	94 30	- 10 30	94 43	- 10 29	+ 13	+ 1
458	Inf. 1	62 <i>σ</i> <sup>1</sup> .....	103 0	2 20	102 47	2 2	- 13	+ 18
459	2	76 <i>κ</i> .....	108 30	- 5 40	106 36	- 5 46	- 114	- 6
460	3	69 <i>ν</i> .....	101 20	+ 7 15	101 26	+ 7 4	+ 6	- 11
461	4	77 <i>ξ</i> .....	104 20	+ 4 50	103 36	+ 5 13	- 44	+ 23

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
		LEO.	° /	° /	° /	° /	'	'
462	1	1 κ.....	105 40	+10 0	105 40	+10 14	0	+ 14
463	2	4 λ.....	108 30	7 30	108 15	7 42	- 15	+ 12
464	3	24 μ.....	111 40	12 0	111 53	12 14	+ 13	+ 14
465	4	17 ε.....	111 30	9 30	111 6	9 32	- 24	+ 2
466	5	36 ζ.....	117 30	11 0	117 55	11 42	+ 25	+ 42
467	6	41 γ.....	119 30	8 30	119 49	8 41	+ 19	+ 11
468	7	30 η.....	118 0	4 30	118 18	4 43	+ 18	+ 13
469	8	32 α.....	119 50	+ 0 10	120 21	+ 0 23	+ 31	+ 13
470	9	31 λ.....	120 50	- 1 50	120 52	- 1 37	+ 2	+ 13
471	10	27 ν.....	117 20	0 15	117 45	- 0 7	+ 25	+ 8
472	11	16 ψ.....	114 40	0 0	113 54	+ 0 12	- 46	+ 12
473	12	5 ξ.....	111 30	3 40	112 5	- 3 20	+ 35	+ 20
474	13	14 ο.....	114 40	4 10	114 44	3 53	+ 4	+ 17
475	14	29 π.....	119 50	4 15	119 44	- 4 4	- 6	+ 11
476	15	47 ρ.....	126 30	- 0 10	126 48	+ 0 1	+ 18	+ 11
477	16	46 ι.....	124 20	+ 4 0	124 51	4 27	+ 31	+ 27
478	17	52 κ.....	127 40	5 20	128 6	5 53	+ 26	+ 33
479	18	53 λ.....	129 40	2 20	130 4	2 43	+ 24	+ 23
480	19	60 β.....	128 40	12 15	129 12	12 48	+ 32	+ 33
481	20	68 δ.....	131 30	13 40	131 33	14 16	+ 3	+ 36
482	21	?	131 40	11 10				
483	22	70 θ.....	133 40	9 40	133 48	9 40	+ 8	0
484	23	78 ι.....	137 40	5 50	137 50	6 2	+ 10	+ 12
485	24	77 σ.....	139 0	+ 1 15	139 7	+ 1 39	+ 7	+ 24
486	25	84 τ.....	142 0	- 0 50	141 55	- 0 36	- 5	+ 14
487	26	91 υ.....	144 50	- 3 0	145 28	- 3 5	+ 38	- 5
488	27	94 β.....	141 50	+ 11 50	142 12	+ 12 23	+ 22	+ 33
489	Inf. 1	41 Leo Min.....	123 20	13 20	123 54	13 51	+ 34	+ 31
490	2	54.....	125 30	15 30	125 49	16 22	+ 19	+ 52
491	3	63 χ.....	134 50	+ 1 10	134 47	+ 1 23	- 3	+ 13
492	4	59 ς.....	134 30	- 0 30	134 17	- 0 19	- 13	+ 11
493	5	58 δ.....	135 20	- 2 40	135 21	- 2 35	+ 1	+ 5
494	6	15 c Com. Ber.....	142 10	+ 30 0	144 8	+ 28 25	+ 118	- 95
495	7	7 h Com. Ber.....	141 40	25 0	143 54	23 26	+ 134	- 94
496	8	23 κ Com. Ber.....	145 50	+ 25 30	148 44	+ 24 6	+ 174	- 84
		VIRGO.						
497	1	3 ν.....	144 20	+ 4 15	144 29	+ 4 39	+ 9	+ 24
498	2	2 ξ.....	143 40	5 40	143 43	6 5	+ 3	+ 25
499	3	9 ο.....	148 0	8 0	148 11	8 32	+ 11	+ 32
500	4	8 π.....	147 30	5 30	147 57	6 8	+ 27	+ 38
501	5	5 β.....	146 20	0 10	147 9	0 39	+ 49	+ 29
502	6	15 η.....	155 35	1 10	155 15	1 24	- 20	+ 14
503	7	29 γ.....	160 30	2 50	160 49	2 58	+ 19	+ 8
504	8	46.....	164 30	2 50	165 40	2 55	+ 70	+ 5
505	9	51 θ.....	168 20	1 40	168 39	1 50	+ 19	+ 10
506	10	43 δ.....	161 40	8 30	162 3	8 48	+ 23	+ 18
507	11	30 ρ.....	155 30	13 50	155 47	13 37	+ 17	- 13
508	12	32 δ <sup>2</sup> .....	157 30	11 40	157 50	11 38	+ 20	- 2
509	13	47 ε.....	159 30	+ 16 0?	160 23	+ 16 18	+ 53	+ 18
510	14	67 α.....	174 0	- 2 0	174 16	- 1 55	+ 16	+ 5
511	15	79 ζ.....	172 10	+ 8 40	172 39	+ 8 47	+ 29	+ 7

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
VIRGO—continued.								
512	16	74 <i>l</i> .....	173 40	+ 3 20	173 59	+ 3 14	+ 19	- 6
513	17	76 <i>h</i> .....	174 35	0 10	175 40	- 0 18	+ 65	- 28
514	18	82 <i>m</i> .....	177 20	+ 1 30	177 10	+ 1 52	- 10	+ 22
515	19	68 <i>i</i> .....	175 20	- 3 0	175 14	- 3 11	- 6	- 11
516	20	86.....	179 0	- 1 30	179 26	- 1 15	+ 26	+ 15
517	21	90 <i>p</i> .....	175 20	+ 8 30	177 34	+ 9 45	+ 134	+ 75
518	22	99 <i>ι</i> .....	184 0	7 30	184 7	7 36	+ 7	+ 6
519	23	98 <i>κ</i> .....	184 40	2 40	184 55	3 1	+ 15	+ 21
520	24	105 <i>φ</i> .....	185 40	11 40	185 50	11 56	+ 10	+ 16
521	25	100 <i>λ</i> .....	187 20	0 30	187 22	0 40	+ 2	+ 10
522	26	107 <i>μ</i> .....	190 0	+ 9 50	190 24	+ 10 0	+ 24	+ 10
523	Inf. 1	26 <i>χ</i> .....	162 0	- 3 30	162 35	- 3 24	+ 35	+ 6
524	2	40 <i>ψ</i> .....	166 20	3 30	166 38	3 20	+ 18	+ 10
525	3	49.....	169 35	3 20	170 10	3 10	+ 35	+ 10
526	4	53.....	174 30	7 20	173 5	7 40	- 85	- 20
527	5	61.....	175 30	8 20	175 45	8 27	+ 15	- 7
528	6	89.....	182 20	- 7 50	182 27	- 6 11	+ 7	+ 99
LIBRA.								
529	1	9 <i>α</i> .....	195 20	+ 0 40	195 31	+ 0 36	+ 11	- 4
530	2	7 <i>μ</i> .....	194 20	2 30	194 35	2 13	+ 15	- 17
531	3	27 <i>β</i> .....	199 30	8 50	199 46	8 44	+ 16	- 6
532	4	19 <i>δ</i> .....	195 0	+ 8 30	195 40	+ 8 26	+ 40	- 4
533	5	24 <i>ι</i> .....	201 20	- 1 40	201 25	- 1 38	+ 5	+ 2
534	6	21 <i>ν</i> .....	198 40	+ 1 15	199 11	+ 1 24	+ 31	+ 9
535	7	38 <i>γ</i> .....	205 10	4 45	205 32	4 36	+ 22	- 9
536	8	46 <i>θ</i> .....	210 20	3 30	210 14	3 36	- 6	+ 6
537	Inf. 1	37.....	203 30	9 0	203 51	9 12	+ 21	+ 12
538	2	48 <i>ψ</i> .....	211 0	6 40	210 47	6 19	- 13	- 21
539	3	51 = ξ Scorpii.....	211 40	9 15	211 42	9 29	+ 2	+ 14
540	4	45 <i>λ</i> .....	210 50	0 30	210 53	0 19	+ 3	- 11
541	5	43 <i>κ</i> .....	207 40	+ 0 20	208 9	+ 0 17	+ 29	- 3
542	6	oh Arg. 14782.	208 30	- 1 30	208 32	- 1 11	+ 2	+ 19
543	7	20 = γ Scorpii.....	200 20	7 30	201 9	7 23	+ 49	+ 7
544	8	39.....	208 30	8 10	209 3	8 16	+ 33	- 6
545	9	40 <i>τ</i> .....	209 20	- 9 40	209 47	- 9 45	+ 27	- 5
SCORPIUS.								
546	1	8 <i>β</i> .....	213 40	+ 1 20	213 36	+ 1 16	- 4	- 4
547	2	7 <i>δ</i> .....	213 0	- 1 40	213 0	- 1 42	0	- 2
548	3	6 <i>π</i> .....	213 0	5 0	213 21	5 12	+ 21	- 12
549	4	5 <i>ρ</i> .....	213 20	- 7 50	213 34	- 8 19	+ 14	- 29
550	5	14 <i>ν</i> .....	214 20	+ 1 40	215 3	+ 1 55	+ 43	+ 15
551	6	{ 9 ω <sup>1</sup> ..... 10 ω <sup>2</sup> ..... }	213 40	+ 0 30	214 4	+ 0 28	+ 24	- 2
552	7	20 <i>σ</i> .....	218 0	- 3 45	218 13	- 3 45	+ 13	0
553	8	21 <i>α</i> .....	220 0	4 0	220 10	4 18	+ 10	- 18
554	9	23 <i>τ</i> .....	221 50	5 30	221 52	5 50	+ 2	- 20
555	10	13 <i>ε</i> <sup>1</sup> .....	216 40	6 10	216 40	6 25	0	- 15
556	11	XVI 31 <i>d</i> .....	218 0	6 40	218 6	6 51	+ 6	- 11
557	12	26 <i>ε</i> .....	225 50	- 11 0	226 4	- 11 17	+ 14	- 17

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
SCORPIUS—continued.								
558	13	{ $\mu^1$ ..... $\mu^2$ ..... }	226 10	-15 0	226 37	-15 8	+ 27	- 8
559	14	XVI 198 $\zeta^1$ .....	227 20	18 40	227 33	19 23	+ 13	- 43
560	15	XVI 206 $\zeta^2$ .....	227 30	19 0	227 44	19 14	+ 14	- 14
561	16	XVI 302 $\eta$ .....	230 30	19 30	231 9	19 45	+ 39	- 15
562	17	XVII 138 $\theta$ .....	235 30	18 50	236 0	19 20	+ 30	- 30
563	18	XVII 210 $\iota$ .....	237 50	16 40	237 56	16 25	+ 6	+ 15
564	19	XVII 174 $\kappa$ .....	236 20	15 10	236 53	15 20	+ 33	- 10
565	20	35 $\lambda$ .....	234 50	13 20	235 0	13 29	+ 10	- 9
566	21	34 $\nu$ .....	234 20	13 30	234 26	13 41	+ 6	- 11
567	Inf. 1	XVII 229.....	238 30	13 15	238 17	13 21	- 13	- 6
568	2	45 $d$ Ophiuchi.....	232 50	6 10	233 19	6 17	+ 29	- 7
569	3	3 Sagittarii.....	236 50	- 4 10	237 39	- 4 8	+ 49	+ 2
SAGITTARIUS.								
570	1	10 $\gamma$ .....	241 50	- 6 20	241 42	- 6 35	- 8	- 15
571	2	19 $\delta$ .....	245 0	6 30	244 58	6 10	- 2	+ 20
572	3	20 $\epsilon$ .....	245 20	10 50	245 30	10 41	+ 10	+ 9
573	4	22 $\lambda$ .....	246 20	- 1 30	246 45	- 1 45	+ 25	- 15
574	5	13 $\mu^1$ .....	244 0	+ 2 50	243 38	+ 2 39	- 22	- 11
575	6	34 $\sigma$ .....	252 40	- 3 10	252 47	- 3 7	+ 7	+ 3
576	7	27 $\varphi$ .....	250 20	- 3 50	250 33	- 3 40	+ 13	+ 10
577	8	{ 32 $\nu^1$ ..... 35 $\nu^2$ ..... }	252 30	+ 0 45	252 57	+ 0 25	+ 27	- 20
578	9	37 $\xi^3$ .....	253 0	2 10	253 51	1 58	+ 51	- 12
579	10	39 $\omicron$ .....	255 0	1 30	255 23	1 11	+ 23	- 19
580	11	41 $\pi$ .....	256 30	2 0	256 40	1 45	+ 10	- 15
581	12	43 $d$ .....	258 40	2 50	258 45	3 32	+ 5	+ 42
582	13	44 $\rho$ .....	259 40	4 30	259 53	4 29	+ 13	- 1
583	14	46 $\nu$ .....	260 10	6 30	260 8	6 22	- 2	- 8
584	15	{ 54 $e^1$ ..... 55 $e^2$ ..... }	263 0	5 30	264 50	5 23	+ 110	- 7
585	16	61 $g$ .....	266 50	5 50	268 52	5 24	+ 122	- 26
586	17	56 $f$ .....	265 0	+ 2 0	265 25	+ 1 42	+ 25	- 18
587	18	{ 47 $\chi^1$ ..... 49 $\chi^3$ ..... }	259 40	- 1 50	259 48	- 2 0	+ 8	- 10
588	19	{ 51 $h^1$ ..... 52 $h^2$ ..... }	262 10	2 50	262 11	2 53	+ 1	- 3
589	20	42 $\psi$ .....	257 20	2 30	257 27	2 39	+ 7	- 9
590	21	40 $\tau$ .....	255 0	4 30	255 17	4 40	+ 17	- 10
591	22	38 $\zeta$ .....	253 40	6 45	254 4	6 54	+ 24	- 9
592	23	{ $\beta^1$ ..... $\beta^2$ ..... }	255 0	23 0	256 12	22 0	+ 72	+ 60
593	24	XIX 68 $a$ .....	254 20	18 0	257 1	18 2	+ 161	- 2
594	25	XVIII 17 $\eta$ .....	244 0	13 0	244 7	13 1	+ 7	- 1
595	26	{ XIX 330..... XIX 333..... }	264 40	13 30	265 19	13 50	+ 39	- 20
596	27	XIX 297 $\iota$ .....	264 10	20 10	262 56	20 24	- 74	- 14
597	28	58 $\omega$ .....	265 0	4 50	266 8	5 5	+ 68	- 15
598	29	60 $\Lambda$ .....	266 10	4 50	266 58	5 12	+ 48	- 22
599	30	59 $b$ .....	266 10	5 50	266 19	6 3	+ 9	- 13
600	31	62 $c$ .....	267 0	- 6 30	267 27	- 6 51	+ 27	- 21

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.	Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
		Long. -2° 40'.	Lat.	Long.	Lat.		
CAPRICORNUS.							
		° ' /	° ' /	° ' /	° ' /	' /	' /
601	1 { 5 α <sup>1</sup> ..... 6 α <sup>2</sup> .....	274 40	+ 7 20	274 13	+ 7 11	- 27	- 9
602	2 8 ν.....	275 0	6 40	274 52	6 49	- 8	+ 9
603	3 9 β.....	274 40	5 0	274 27	4 50	- 13	- 10
604	4 { 1 ξ <sup>1</sup> ..... 2 ξ <sup>2</sup> .....	273 20	8 0	272 50	7 35	- 30	- 25
605	5 12 ο.....	276 20	0 45	275 38	0 37	- 42	- 8
606	6 10 π.....	276 0	1 45	275 7	1 8	- 53	- 37
607	7 11 ρ.....	276 10	1 30	275 34	1 26	- 36	- 4
608	8 7 σ.....	273 30	0 40	273 5	0 42	- 25	+ 2
609	9 { 13 τ <sup>1</sup> ..... 14 τ <sup>2</sup> .....	279 0	3 50	278 27	3 32	- 33	- 18
610	10 15 υ.....	279 10	+ 0 50	278 4	+ 0 27	- 66	- 23
611	11 16 ψ.....	278 10	- 6 30	277 36	- 6 43	- 34	- 13
612	12 18 ω.....	279 0	8 40	278 21	8 45	- 39	- 5
613	13 24 Α.....	284 0	7 40	282 13	7 52	- 107	- 12
614	14 34 ζ.....	287 30	6 50	287 19	6 48	- 11	+ 2
615	15 36 δ.....	287 40	6 0	287 52	6 20	+ 12	- 20
616	16 28 φ.....	286 0	4 15	285 25	4 20	- 35	- 5
617	17 25 χ.....	284 0	4 0	283 41	4 21	- 19	- 21
618	18 22 η.....	284 0	2 50	283 9	2 47	- 51	+ 3
619	19 23 θ.....	284 0	0 0	284 12	0 20	+ 12	- 20
620	20 32 ι.....	288 20	0 50	288 5	1 10	- 15	- 20
621	21 39 ε.....	290 40	4 45	290 35	4 48	- 5	- 3
622	22 43 κ.....	292 20	4 30	291 58	4 38	- 22	- 8
623	23 40 γ.....	292 10	2 10	292 6	2 20	- 4	- 10
624	24 49 δ.....	293 40	- 2 0	293 51	- 2 14	+ 11	- 14
625	25 42 δ.....	294 10	+ 0 20	293 30	+ 0 6	- 40	- 14
626	26 51 μ.....	296 0	0 0	296 2	- 0 29	+ 2	- 29
627	27 48 λ.....	295 0	2 50	295 26	+ 2 7	+ 26	- 43
628	28 46 ε <sup>1</sup> .....	296 0	+ 4 20	295 48	+ 4 22	- 12	+ 2
AQUARIUS.							
629	1 25 δ.....	297 40	+ 15 45	298 25	+ 15 30	+ 45	- 15
630	2 34 α.....	303 40	11 0	303 48	10 48	+ 8	- 12
631	3 31 ο.....	302 30	9 40	302 33	9 19	+ 3	- 21
632	4 22 β.....	293 50	8 50	293 50	8 47	0	- 3
633	5 23 ξ.....	294 40	6 15	294 29	6 10	- 11	- 5
634	6 13 ν.....	285 0	5 30	286 46	4 59	+ 106	- 31
635	7 6 μ.....	283 30	8 0	283 28	8 28	- 2	+ 28
636	8 2 ε.....	282 0	8 40	282 9	8 19	+ 9	- 21
637	9 48 γ.....	306 50	8 45	307 6	8 23	+ 16	- 22
638	10 52 π.....	309 0	10 45	309 3	10 35	+ 3	- 10
639	11 55 ζ.....	309 20	9 0	309 14	8 58	- 6	- 2
640	12 62 η.....	310 40	8 30	310 49	8 17	+ 9	- 13
641	13 43 θ.....	303 30	3 0	303 37	2 53	+ 7	- 7
642	14 46 ρ.....	304 20	+ 3 10	304 27	+ 2 30	+ 7	- 40
643	15 57 σ.....	306 0	- 0 50	305 48	- 1 6	- 12	- 16
644	16 33 ι.....	299 0	- 1 40	299 7	1 55	+ 7	- 15
645	17 38 ε.....	300 30	+ 0 15	300 54	0 8	+ 24	- 23
646	18 76 δ.....	309 0	- 7 30	309 16	8 4	+ 16	- 34
647	19 71 τ.....	308 40	- 5 0	308 59	- 5 33	+ 19	- 33

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
AQUARIUS—continued.								
648	20	53 <i>f</i> .....	302 0	- 5 40	302 29	- 6 19	+ 29	- 39
649	21	68 <i>g</i> <sup>2</sup> .....	305 40	10 0	306 17	10 49	+ 37	- 49
650	22	66 <i>g</i> <sup>1</sup> .....	305 10	- 9 0	305 36	- 9 50	+ 26	- 50
651	23	63 <i>κ</i> .....	312 20	+ 2 0	309 55	+ 4 16	- 145	+ 136
652	24	73 <i>λ</i> .....	312 10	+ 0 10	311 58	- 0 19	- 12	- 29
653	25	83 <i>h</i> .....	315 0	- 1 10	314 43	1 35	- 17	- 25
654	26	90 <i>φ</i> .....	317 20	0 30	317 34	0 54	+ 14	- 24
655	27	92 <i>χ</i> .....	317 50	1 40	317 28	2 46	- 22	- 66
656	28	91 <i>ψ</i> <sup>1</sup> .....	316 20	3 30	316 30	3 49	+ 10	- 19
657	29	{ 93 <i>ψ</i> <sup>2</sup> ..... 93 <i>ψ</i> <sup>3</sup> .....}	317 10	4 10	317 9	4 27	- 1	- 17
658	30	94.....	315 10	8 15	315 32	8 6	+ 22	+ 9
659	31	102 <i>ω</i> <sup>1</sup> .....	320 0	11 0	320 1	10 59	+ 1	+ 1
660	32	105 <i>ω</i> <sup>2</sup> .....	320 30	10 50	320 31	11 31	+ 1	- 41
661	33	{ 103 <i>A</i> <sup>1</sup> ..... 104 <i>A</i> <sup>2</sup> .....}	319 0	14 0	318 52	14 33	- 8	- 33
662	34	106 <i>i</i> <sup>1</sup> .....	319 30	14 45	319 17	15 7	- 13	- 22
663	35	108 <i>i</i> <sup>3</sup> .....	320 30	15 40	320 37	16 24	+ 7	- 44
664	36	98 <i>b</i> <sup>1</sup> .....	314 20	14 10	313 54	14 41	- 26	- 31
665	37	99 <i>b</i> <sup>2</sup> .....	314 50	15 0	314 14	15 30	- 36	- 30
666	38	101 <i>b</i> <sup>3</sup> .....	315 40	15 45	315 43	16 27	+ 3	- 42
667	39	86 <i>c</i> <sup>1</sup> .....	309 10	16 15	308 39	16 28	- 31	- 13
668	40	89 <i>c</i> <sup>2</sup> .....	310 0	15 20	309 56	15 36	- 4	- 16
669	41	88 <i>c</i> <sup>2</sup> .....	310 30	14 0	310 19	14 24	- 11	- 24
670	42	79 = <i>a</i> Pis. Aust. ....	304 20	20 20	304 2	20 51	- 18	- 31
671	Inf. 1	2 Ceti.....	324 0	15 30	324 5	16 12	+ 5	- 42
672	2	6 Ceti.....	327 0	14 40	326 42	15 7	- 18	- 27
673	3	7 Ceti.....	326 20	- 18 15	325 51	- 18 44	- 29	- 29
PISCES.								
674	1	4 <i>β</i> .....	319 0	+ 9 15	319 2	+ 9 6	+ 2	- 9
675	2	6 <i>γ</i> .....	321 30	7 30	321 29	7 30	- 1	0
676	3	7 <i>b</i> .....	323 20	9 20	323 28	8 55	+ 8	- 25
677	4	10 <i>θ</i> .....	325 30	9 30	325 42	9 4	+ 12	- 26
678	5	17 <i>ι</i> .....	328 0	7 30	327 58	7 31	- 2	+ 1
679	6	8 <i>κ</i> .....	323 20	4 30	323 18	4 34	- 2	+ 4
680	7	18 <i>λ</i> .....	327 0	3 30	327 8	3 30	+ 8	0
681	8	28 <i>ω</i> .....	333 20	6 20	332 58	6 27	- 22	+ 7
682	9	41 <i>d</i> .....	338 20	5 45	338 24	5 27	+ 4	- 18
683	10	51.....	340 20	3 45	340 36	3 8	+ 16	- 37
684	11	63 <i>δ</i> .....	344 30	2 15	344 34	2 7	+ 4	- 8
685	12	71 <i>ε</i> .....	347 50	+ 1 10	347 56	+ 1 0	+ 6	- 10
686	13	86 <i>ζ</i> .....	350 20	- 0 10	350 14	- 0 16	- 6	- 6
687	14	80 <i>e</i> .....	349 40	2 0	348 30	1 33	- 70	+ 27
688	15	89 <i>f</i> .....	350 20	5 0	349 43	4 41	- 37	+ 19
689	16	98 <i>μ</i> .....	353 50	2 20	353 24	3 6	- 26	- 46
690	17	106 <i>ν</i> .....	356 0	4 40	355 52	4 53	- 8	- 13
691	18	111 <i>ξ</i> .....	358 0	7 45	357 53	8 3	- 7	- 18
692	19	113 <i>α</i> .....	359 50	8 30	359 45	9 11	- 5	- 41
693	20	110 <i>ο</i> .....	357 50	- 1 40	358 5	- 1 45	+ 15	- 5
694	21	102 <i>π</i> .....	357 30	+ 1 50	357 20	+ 1 46	- 10	- 4
695	22	99 <i>η</i> .....	357 40	+ 5 20	357 14	+ 5 15	- 26	- 5

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
PISCES—continued.								
696	23	{93 94} ρ.....	357 50	+ 9 0	357 35	+ 9 17	- 15	+ 17
697	24	82 g.....	359 20	21 45	359 18	21 53	- 2	+ 8
698	25	83 τ.....	359 0	21 40	358 47	20 38	- 13	- 62
699	26	68 h.....	356 0	20 0	355 25	20 51	- 35	+ 51
700	27	67 k.....	355 0	19 50	354 13	19 24	- 47	- 26
701	28	65 i.....	354 20	20 20	353 9	20 25	- 71	+ 5
702	29	74 ψ <sup>1</sup> .....	353 0	14 20	353 52	13 15	+ 52	- 65
703	30	79 ψ <sup>2</sup> .....	354 0	13 0	354 5	12 27	+ 5	- 33
704	31	81 ψ <sup>3</sup> .....	355 0	12 0	354 5	11 12	- 55	- 48
705	32	90 υ.....	359 30	17 0	359 16	17 20	- 14	+ 20
706	33	85 φ.....	357 10	15 20	356 56	15 24	- 14	+ 4
707	34	84 χ.....	357 20	+11 45	354 58	+12 19	-142	+ 34
708	Inf. I	27.....	328 30	- 2 40	328 40	- 3 4	+ 10	- 24
709	2	29.....	329 35	2 30	329 36	2 57	+ 1	- 27
710	3	30.....	328 0	5 30	328 26	5 42	+ 26	- 12
711	4	33.....	329 40	- 5 30	329 19	- 5 45	- 21	- 15
CETUS.								
712	1	91 λ.....	15 0	- 7 45	15 26	- 7 56	+ 26	- 11
713	2	92 α.....	15 0	12 20	14 43	12 45	- 17	- 25
714	3	86 γ.....	10 0	11 30	9 54	12 8	- 6	- 38
715	4	82 δ.....	7 50	14 0	7 55	14 38	+ 5	- 38
716	5	?.....	7 30	8 10				
717	6	?.....	10 0	6 20				
718	7	65 ξ <sup>1</sup> .....	4 40	4 10	4 26	4 25	- 14	- 15
719	8	72 ρ.....	0 20	24 30	0 0	25 22	- 20	- 52
720	9	76 σ.....	0 40	28 0	0 26	28 35	- 14	- 35
721	10	83 ε.....	4 0	25 10	3 35	25 59	- 25	- 49
722	11	89 π.....	4 20	27 30	4 2	28 24	- 18	- 54
723	12	52 τ.....	349 20	25 20	348 50	25 42	- 30	- 22
724	13	59 υ.....	350 20	30 50	349 36	31 5	- 44	- 15
725	14	55 ζ.....	352 20	20 0	352 14	20 26	- 6	- 26
726	15	45 θ.....	347 0	15 20	346 38	15 46	- 22	- 26
727	16	31 η.....	342 20	15 40	342 0	16 5	- 20	- 25
728	17	19 φ <sup>2</sup> .....	338 20	13 40	337 50	14 41	- 30	- 61
729	18	O. 198.....	338 0	14 40	336 11	17 21	-109	-161
730	19	17 φ <sup>1</sup> .....	336 40	13 0	336 16	14 3	- 24	- 63
731	20	O. 161.....	336 20	14 0	335 33	15 22	- 47	- 82
732	21	8 ι.....	332 0	9 40	331 18	10 1	- 42	- 21
733	22	16 β.....	333 0	-20 20	332 45	-20 46	- 15	- 26
ORION.								
734	1	39 λ.....	54 20	-13 50	54 6	-13 40	- 14	+ 10
735	2	58 α.....	59 20	17 0	59 8	16 19	- 12	+ 41
736	3	24 γ.....	51 20	17 30	51 21	17 6	+ 1	+ 24
737	4	32 Δ.....	52 20	18 0	52 47	17 35	+ 27	+ 25
738	5	61 μ.....	61 40	14 30	61 1	14 4	- 39	+ 26
739	6	74 κ.....	63 40	11 50	64 30	11 24	+ 50	+ 26
740	7	70 ξ.....	63 50	10 0	63 20	9 29	- 30	+ 31
741	8	67 υ.....	63 20	9 45	62 16	8 57	- 64	+ 48
742	9	72 f <sup>2</sup> .....	64 40	- 8 15	64 8	- 7 32	- 32	+ 43

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		ΔLong.	ΔLat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
ORION—continued.								
743	10	69 $f^1$ .....	64 0	- 8 15	63 20	- 7 34	- 40	+ 41
744	11	54 $\chi^1$ .....	59 0	3 45	59 13	3 27	+ 13	+ 18
745	12	62 $\chi^2$ .....	61 40	4 15	61 20	3 35	- 20	+ 40
746	13	47 $\omega$ .....	55 10	19 40	54 54	19 30	- 16	+ 10
747	14	38 $n^2$ .....	53 40	20 0	53 35	19 48	- 5	+ 12
748	15	33 $n^1$ .....	52 40	20 20	52 45	20 14	+ 5	+ 6
749	16	30 $\psi^2$ .....	51 30	20 40	51 34	20 22	+ 4	+ 18
750	17	15 $y^2$ .....	47 50	8 0	48 12	7 35	+ 22	+ 25
751	18	11 $y^1$ .....	46 40	8 10	46 56	7 40	+ 16	+ 30
752	19	9 $o^2$ .....	45 20	10 15	44 46	9 20	- 34	+ 55
753	20	7 $\pi^1$ .....	43 40	12 50	43 57	12 33	+ 17	+ 17
754	21	2 $\pi^2$ .....	42 30	14 15	42 41	13 44	+ 11	+ 31
755	22	1 $\pi^3$ .....	42 10	15 50	42 3	15 39	- 7	+ 11
756	23	3 $\pi^4$ .....	42 10	17 10	42 30	17 3	+ 20	+ 7
757	24	8 $\pi^5$ .....	42 40	20 20	42 52	20 17	+ 12	+ 3
758	25	10 $\pi^6$ .....	43 40	21 30	43 55	21 8	+ 15	+ 22
759	26	34 $\delta$ .....	52 40	24 10	52 45	23 51	+ 5	+ 19
760	27	46 $\epsilon$ .....	54 40	24 50	53 52	24 48	- 48	+ 2
761	28	50 $\zeta$ .....	55 30	25 40	55 4	25 35	- 26	+ 5
762	29	28 $\eta$ .....	51 10	25 50	50 33	25 49	- 37	+ 1
763	30	$\iota$ .....	53 50	28 40	53 26	28 25	- 24	+ 15
764	31	$\theta$ .....	54 0	29 10	53 23	28 58	- 37	+ 12
765	32	44 $\iota$ .....	54 20	29 50	53 23	29 29	- 57	+ 21
766	33	49 $d$ .....	55 0	30 40	54 18	30 49	- 42	- 9
767	34	36 $v$ .....	53 30	30 50	52 17	30 49	- 73	+ 1
768	35	19 $\beta$ .....	47 10	31 30	47 12	31 25	+ 2	+ 5
769	36	20 $\tau$ .....	48 20	30 15	48 13	30 7	- 7	+ 8
770	37	29 $e$ .....	50 40	31 10	49 56	31 12	- 44	- 2
771	38	53 $\kappa$ .....	57 30	-33 30	56 47	-33 21	- 43	+ 9
ERIDANUS.								
772	1	69 $\lambda$ .....	45 40	-31 50	45 35	-31 49	- 5	+ 1
773	2	67 $\beta$ .....	46 10	28 15	45 43	28 7	- 27	+ 8
774	3	65 $\psi$ .....	45 20	29 50	43 35	30 2	- 105	- 12
775	4	61 $\omega$ .....	42 0	28 15	41 24	28 4	- 36	+ 11
776	5	57 $\mu$ .....	40 30	25 50	39 39	25 58	- 51	- 8
777	6	48 $\nu$ .....	37 30	25 20	37 10	25 23	- 20	- 3
778	7	42 $\xi$ .....	33 40	26 0	33 41	25 12	+ 1	+ 48
779	8	40 $o^2$ .....	32 50	27 0	32 14	27 7	- 36	- 7
780	9	38 $o^1$ .....	30 10	27 50	29 46	27 42	- 24	+ 8
781	10	34 $\gamma$ .....	24 20	32 50	24 13	33 23	- 7	- 33
782	11	26 $\pi$ .....	21 40	31 0	21 16	31 20	- 24	- 20
783	12	23 $\delta$ .....	21 30	28 50	21 6	29 15	- 24	- 25
784	13	18 $\epsilon$ .....	19 20	28 0	19 2	28 3	- 18	- 3
785	14	13 $\zeta$ .....	14 30	25 30	14 8	26 8	- 22	- 38
786	15	9 $\rho^2$ .....	12 10	23 50	11 6	24 3	- 64	- 13
787	16	3 $\eta$ .....	9 30	23 50	9 3	24 35	- 27	- 45
788	17	?	7 50	23 15				
789	18	1 $\tau^1$ .....	2 30	32 10	2 10	32 51	- 20	- 41
790	19	2 $\tau^2$ .....	3 10	34 50	2 56	35 39	- 14	- 49
791	20	11 $\tau^3$ .....	6 10	38 30	4 52	39 3	- 78	- 33
792	21	16 $\tau^4$ .....	11 10	-38 10	10 20	-38 41	- 50	- 31

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
ERIDANUS—continued.								
793	22	19 τ <sup>5</sup> .....	14 50	-39 0	14 27	-39 37	- 23	- 37
794	23	27 τ <sup>6</sup> .....	18 40	41 20	17 49	41 51	- 51	- 31
795	24	28 τ <sup>7</sup> .....	18 50	42 30	17 35	42 45	- 75	- 15
796	25	33 τ <sup>8</sup> .....	19 30	43 15	18 59	43 50	- 31	- 35
797	26	36 τ <sup>9</sup> .....	22 0	43 20	21 13	43 41	- 47	- 21
798	27	50 υ <sup>6</sup> .....	31 30	50 20	29 53	51 3	- 97	- 43
799	28	52 υ <sup>7</sup> .....	32 20	51 45	30 8	52 3	-132	- 18
800	29	43 υ <sup>8</sup> .....	25 30	53 50	24 40	54 46	- 50	- 56
801	30	41 υ <sup>4</sup> .....	23 10	53 10	22 40	54 12	- 30	- 62
802	31	υ <sup>3</sup> .....	15 10	53 0	14 8	53 26	- 62	- 26
803	32	υ <sup>2</sup> .....	12 10	53 30	11 53	54 30	- 17	- 60
804	33	υ <sup>1</sup> .....	9 10	52 0	9 1	55 0	- 9	
805	34	θ.....	357 30	-53 30	353 22	-53 56		- 26
LEPUS.								
806	1	3 ι.....	47 0	-35 0	46 7	-35 0	- 53	0
807	2	4 κ.....	47 10	36 30	46 16	36 5	- 54	+ 25
808	3	7 ν.....	48 40	35 40	48 21	35 37	- 19	+ 3
809	4	6 λ.....	48 40	36 40	48 8	36 28	- 32	+ 12
810	5	5 μ.....	46 30	39 15	45 45	39 19	- 45	- 4
811	6	2 ε.....	43 30	45 15	42 20	45 11	- 70	+ 4
812	7	11 α.....	53 10	41 30	51 45	41 22	- 85	+ 8
813	8	9 β.....	51 40	44 20	50 2	44 10	- 98	+ 10
814	9	15 δ.....	58 20	44 0	57 22	44 11	- 58	- 11
815	10	13 γ.....	56 20	45 50	55 21	45 53	- 59	- 3
816	11	14 ζ.....	57 20	38 20	56 22	38 30	- 58	- 10
817	12	16 η.....	60 0	-38 10	59 12	-37 58	- 48	+ 12
CANIS MAJOR.								
818	1	9 α.....	75 0	-39 10	74 50	-39 13	- 10	- 3
819	2	14 θ.....	77 0	35 0	76 42	34 59	- 18	+ 1
820	3	18 μ.....	78 40	36 30	77 30	36 56	- 70	- 26
821	4	23 γ.....	80 40	37 45	80 4	38 16	- 36	- 31
822	5	20 ι.....	77 40	40 0	78 0	39 56	+ 20	+ 4
823	6	15 π <sup>1</sup> .....	77 50	42 40	77 43	43 8	- 7	- 28
824	7	8 υ <sup>3</sup> .....	73 30	41 15	72 27	41 32	- 63	- 17
825	8	7 υ <sup>2</sup> .....	73 20	42 30	72 1	42 34	- 79	- 4
826	9	2 β.....	68 20	41 20	67 37	41 33	- 43	- 13
827	10	4 ξ <sup>1</sup> .....	72 0	46 30	71 6	46 51	- 54	- 21
828	11	5 ξ <sup>2</sup> .....	73 30	45 50	72 2	46 22	- 88	- 32
829	12	24 σ <sup>1</sup> .....	82 0	46 10	81 30	46 24	- 30	- 14
830	13	16 σ <sup>1</sup> .....	79 0	47 0	78 40	47 3	- 20	- 3
831	14	25 δ.....	84 0	48 45	83 56	48 42	- 4	+ 3
832	15	21 ε.....	81 0	51 30	81 18	51 39	+ 17	- 9
833	16	13 κ.....	78 20	55 10	79 5	55 25	+ 45	- 15
834	17	1 ζ.....	67 0	53 45	67 49	53 40	+ 49	+ 5
835	18	31 η.....	89 30	50 40	90 7	50 51	+ 37	- 11
836	Inf. 1	22 Monocerotis.....	76 50	25 15	79 59	23 0	+189	+135
837	2	VI 9 θ Columbæ....	64 20	61 30	63 28	60 58	- 52	+ 32
838	3	VI 65 κ Columbæ..	68 40	58 45	66 55	58 47	-105	- 2
839	4	VI 95 δ Columbæ..	70 20	57 0	68 47	57 0	- 93	0
840	5	VI 136 λ.....	71 30	-56 0	70 55	-56 0	- 35	0

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		$\Delta$ Long.	$\Delta$ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
CANIS MAJOR—continued.								
841	6	$\mu$ Columbæ.....	55 20	-55 30	55 6	-55 58	- 14	- 28
842	7	$\lambda$ Columbæ.....	57 40	57 40	57 44	57 31	+ 4	+ 9
843	8	$\gamma$ Columbæ.....	59 40	59 30	59 24	59 1	- 16	+ 29
844	9	$\beta$ Columbæ.....	56 20	59 40	56 46	59 29	+ 26	+ 11
845	10	$\alpha$ Columbæ.....	53 20	57 40	52 31	57 39	- 49	+ 1
846	11	$\epsilon$ Columbæ.....	49 30	-59 30	48 59	-58 54	- 31	+ 36
CANIS MINOR.								
847	1	3 $\beta$ .....	82 20	-14 0	82 38	-13 43	+ 18	+ 17
848	2	10 $\alpha$ .....	86 30	-16 10	86 30	-15 40	0	+ 30
ARGO NAVIS.								
849	1	11 $e$ .....	97 40	-42 30	98 12	-42 48	+ 32	- 18
850	2	15 $\rho$ Puppis.....	101 40	43 20	102 3	43 30	+ 23	- 10
851	3	7 $\xi$ Puppis.....	96 10	45 0	96 36	45 10	+ 26	- 10
852	4	VII 220.....	96 0	46 0	96 38	46 16	+ 38	- 16
853	5	VII 173.....	92 40	45 30	93 20	46 17	+ 40	- 47
854	6	VII 175 dup.....	93 40	47 15	94 2	47 39	+ 22	- 24
855	7	VII 163.....	92 40	49 30	93 30	49 21	+ 50	+ 9
856	8	3 Puppis.....	96 40	49 30	96 28	49 26	- 12	+ 4
857	9	VII 200 1.....	95 50	49 15	96 9	48 56	+ 19	+ 19
858	10	VII 277.....	101 20	49 50	101 32	49 54	+ 12	- 4
859	11	VII 99 Puppis.....	91 20	53 0	90 44	53 25	- 36	- 25
860	12	VII 68 $\pi$ Puppis.....	91 20	58 40	90 57	58 46	- 23	- 6
861	13	VII 172 $f$ Puppis.....	97 30	55 30	97 6	55 35	- 24	- 5
862	14	VII 186 $d$ Puppis.....	99 30	58 40	99 44	58 28	+ 14	+ 12
863	15	VII 214 $c$ Puppis.....	101 0	57 15	101 35	57 57	+ 35	- 42
864	16	VII 254 $b$ Puppis.....	103 50	57 45	104 44	58 17	+ 54	- 32
865	17	VII 306 $\xi$ Puppis.....	108 30	58 20	109 21	58 32	+ 51	- 12
866	18	VII 253 $a$ Puppis.....	105 30	60 0	105 49	59 54	+ 19	+ 6
867	19	Lac. 3128.....	108 20	59 20	109 57	59 43	+ 97	- 23
868	20	VIII 21 $h^1$ Puppis.....	110 20	56 40	111 37	57 35	+ 77	- 55
869	21	VIII 35 $h^2$ Puppis.....	111 40	57 40	112 57	58 2	+ 77	- 22
870	22	Lac. 3580.....	123 0	51 30	123 40	53 18	+ 40	-108
871	23	VIII 168 $d$ Velæ.....	123 30	55 40	124 29	57 30	+ 59	-110
872	24	VIII 139 $e$ Velæ.....	121 20	57 10	122 46	58 24	+ 86	- 74
873	25	VIII 176 $a$ Velæ.....	126 30	60 0	128 21	60 16	+111	- 16
874	26	VIII 155 $b$ Velæ.....	126 20	61 15	127 25	61 16	+ 65	- 1
875	27	VIII 145 $\beta$ Pyx.....	117 30	51 30	117 30	51 19	0	+ 11
876	28	VIII 162 $a$ Pyx.....	116 40	49 0	117 11	49 5	+ 31	- 5
877	29	VIII 193 $\gamma$ Pyx.....	115 20	43 20	116 5	43 27	+ 45	- 7
878	30	VIII 220 $\delta$ Pyx.....	116 20	43 30	117 27	43 1	+ 67	+ 29
879	31	IX 1 $\lambda$ Velæ.....	131 30	54 30	132 1	55 58	+ 31	- 88
880	32	IX 116 $\psi$ Velæ.....	134 50	51 15	135 30	51 14	+ 40	+ 1
881	33	VII 135 $\sigma$ Puppis.....	98 30	63 0	99 35	64 5	+ 65	- 65
882	34	VII 235 $P$ Puppis.....	106 20	64 30	109 32	65 46	+192	- 76
883	35	$\gamma$ Velæ.....	117 20	63 50	118 16	64 38	+ 56	- 48
884	36	$\chi$ Carinæ.....	125 50	69 40	121 48	70 28	-242	- 48
885	37	$\circ$ Puppis.....	132 30	65 40	135 44	66 21	+194	- 41
886	38	$\delta$ Velæ.....	138 40	65 50	139 55	67 13	+ 75	- 83
887	39	$f$ Carinæ.....	143 20	67 20	144 15	68 26	+ 55	- 66
888	40	$\kappa$ Velæ.....	148 20	-62 50	149 53	-63 44	+ 93	- 54

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.		Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
			Long. -2° 40'.	Lat.	Long.	Lat.		
ARGO NAVIS—continued.								
889	41	N Velæ.....	155 20	-62 15	155 14	-64 13	- 6	-118
890	42	V 315 η Columbæ...	61 20	65 50	60 1	66 33	- 79	- 43
891	43	VI 205 ν Puppis....	77 30	65 40	77 43	66 21	+ 13	- 41
892	44	α Argus Canopus...	74 30	75 0	75 38	76 7	+ 68	- 67
893	45	τ Puppis.....	86 20	-71 45	88 27	-73 3	+127	- 78
HYDRA.								
894	1	5 σ.....	101 20	-15 0	101 40	-14 49	+ 20	+ 11
895	2	4 δ.....	100 40	13 10	100 48	12 36	+ 8	+ 34
896	3	11 ε.....	102 40	11 30	102 52	11 15	+ 12	+ 15
897	4	7 η.....	102 50	14 45	102 46	14 27	- 4	+ 18
898	5	16 ζ.....	105 10	12 0	105 3	11 10	- 7	+ 50
899	6	18 ω.....	107 40	11 50	107 51	11 13	+ 11	+ 37
900	7	22 θ.....	110 40	13 40	110 37	13 6	- 3	+ 34
901	8	32 τ <sup>2</sup> .....	116 10	15 20	116 12	15 7	+ 2	+ 13
902	9	35 ι.....	118 0	14 50	117 58	14 24	- 2	+ 26
903	10	31 τ <sup>1</sup> .....	115 50	17 10	115 57	16 53	+ 7	+ 17
904	11	Ll. 18657 W. 9 <sup>h</sup> 439.	116 30	19 45	116 53	20 5	+ 23	- 20
905	12	30 α.....	117 20	23 0	117 49	22 34	+ 29	+ 26
906	13	38 κ.....	123 20	26 30	123 13	26 43	- 7	- 13
907	14	39 υ <sup>1</sup> .....	126 0	26 0	126 13	26 12	+ 13	- 12
908	15	40 υ <sup>2</sup> .....	128 30	23 15	128 51	23 17	+ 21	- 2
909	16	42 μ.....	135 20	24 40	135 38	24 41	+ 18	- 1
910	17	φ (2 Crat.).....	137 20	23 0	138 38	23 33	+ 78	- 33
911	18	ν (4 Crat.).....	140 20	22 10	140 54	21 58	+ 34	+ 12
912	19	(11 β Crat.).....	148 50	25 45	149 3	25 42	+ 13	+ 3
913	20	χ <sup>1</sup> (9 Crat.).....	149 40	30 10	149 59	30 14	+ 19	- 4
914	21	ξ (19 Crat.).....	159 30	31 20	158 38	31 31	- 52	- 11
915	22	ο (25 Crat.).....	161 50	33 10	161 46	33 24	- 4	- 14
916	23	β (28 Crat.).....	163 30	31 20	164 1	31 25	+ 31	- 5
917	24	46 γ.....	177 20	13 40	177 26	13 36	+ 6	+ 4
918	25	49 π.....	190 50	17 40	189 2	12 48	-108	
919	Inf. 1	30 Monocerotis.....	99 50	23 15	100 29	22 40	+ 39	+ 35
920	2	{ 15 α Sextantis.....	128 20	-10 10	{ 124 34	11 15	-262	- 65
		{ 24 Sextantis.....			{ 128 27	-10 19	+ 7	- 9
CRATER.								
921	1	7 α.....	143 40	-23 0	144 30	-22 42	+ 50	+ 18
922	2	15 γ.....	149 50	19 30	149 47	19 40	- 3	- 10
923	3	12 δ.....	147 20	18 0	147 18	17 40	- 2	+ 20
924	4	27 ζ.....	154 20	18 30	154 34	18 17	+ 14	+ 13
925	5	14 ε.....	146 40	13 40	146 43	13 30	+ 3	+ 10
926	6	30 η.....	156 30	16 10	156 35	16 4	+ 5	+ 6
927	7	21 θ.....	149 0	-11 50	149 3	-11 19	+ 3	+ 31
CORVUS.								
928	1	1 α.....	162 40	-21 40	162 43	-21 41	+ 3	- 1
929	2	2 ε.....	161 40	19 40	162 13	19 37	+ 33	+ 3
930	3	5 ζ.....	164 0	18 10	164 20	18 12	+ 20	- 2
931	4	4 γ.....	160 50	14 50	161 17	14 26	+ 27	+ 24
932	5	7 δ.....	164 0	12 30	163 59	12 2	- 1	+ 28
933	6	8 η.....	164 20	11 45	164 28	11 31	+ 8	+ 14
934	7	9 β.....	167 50	-18 10	167 51	-17 55	+ 1	+ 15

## Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.	Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
		Long. -2° 40'.	Lat.	Long.	Lat.		
	<b>CENTAURUS.</b>	° /	° /	° /	° /	/	/
935	1 2 <i>g</i> .....	187 50	-21 40	188 29	-21 22	+ 39	+ 18
936	2 4 <i>h</i> .....	187 20	18 50	188 17	18 47	+ 57	+ 3
937	3 1 <i>i</i> .....	186 30	20 30	187 23	20 14	+ 53	+ 16
938	4 3 <i>k</i> .....	187 20	20 0	188 26	19 50	+ 66	+ 10
939	5 XIII 53 <i>ι</i> .....	183 30	25 40	183 49	25 45	+ 19	- 5
940	6 5 <i>θ</i> .....	193 0	22 30	192 58	21 32	- 2	+ 58
941	7 XIII 99 <i>d</i> .....	186 30	27 30	187 1	27 27	+ 31	+ 3
942	8 XIV 40 <i>ψ</i> .....	195 30	22 20	196 10	22 19	+ 40	+ 1
943	9 XIV 55 <i>a</i> .....	196 30	23 45	197 17	23 39	+ 47	+ 6
944	10 XIV 150 <i>c</i> <sup>1</sup> .....	199 20	18 15	199 52	18 4	+ 32	+ 11
945	11 XIV 141 <i>b</i> .....	199 50	20 50	200 24	20 47	+ 34	+ 3
946	12 XIII 197 <i>ν</i> .....	190 40	28 20	191 41	28 6	+ 61	+ 14
947	13 XIII 198 <i>μ</i> .....	191 20	29 20	192 4	28 48	+ 44	+ 32
948	14 XIII 246 <i>φ</i> .....	192 30	28 0	193 34	27 49	+ 64	+ 11
949	15 XIII 288 <i>χ</i> .....	193 40	26 30	194 40	26 28	+ 60	+ 2
950	16 XIV 109 <i>η</i> .....	200 10	25 15	200 45	25 16	+ 35	- 1
951	17 XIV 216 <i>κ</i> .....	204 50	24 0	205 17	23 48	+ 27	+ 12
952	18 XIII 231 <i>ξ</i> .....	195 20	33 30	195 30	32 42	+ 10	+ 48
953	19 XIII 267 <i>υ</i> <sup>2</sup> .....	195 0	31 0	195 49	30 47	+ 49	+ 13
954	20 XIII 249 <i>υ</i> <sup>1</sup> .....	194 10	30 20	194 53	30 16	+ 43	+ 4
955	21 ω cum.....	189 30	34 50	190 21	35 3	+ 51	- 13
956	22 <i>f</i> .....	186 20	37 40	187 8	37 33	+ 48	+ 7
957	23 γ.....	183 10	40 0	183 2	39 57	- 8	+ 3
958	24 τ.....	182 20	40 20	182 4	39 54	- 16	+ 26
959	25 σ.....	180 0	41 0	181 25	42 11	+ 85	- 71
960	26 δ.....	180 0	46 10	178 9	44 21	-111	+109
961	27 ρ.....	180 50	46 45	180 4	45 27	- 46	+ 78
962	28 <i>M</i> .....	195 40	40 45	196 6	37 7	+ 26	+218
963	29 ε.....	193 40	43 0	196 8	39 22	+148	+218
964	30 <i>Q</i> .....	195 0	43 45	197 7	40 14	+127	+211
965	31 γ Crucis.....	187 20	51 10	187 16	47 33	+ 4	+217
966	32 β Crucis.....	192 40	51 40	192 18	48 26	- 22	+194
967	33 δ Crucis.....	183 40	55 10	186 21	50 16	+161	+294
968	34 α Crucis.....	188 30	55 20	192 35	52 40	+245	+160
969	35 α Centauri.....	215 40	44 10	212 33	41 51	-187	+139
970	36 β Centauri.....	201 30	45 20	204 22	43 54	+172	+ 86
971	37 μ Crucis.....	192 0	-49 10	191 14	-45 54	- 46	+196
	<b>LUPUS.</b>						
972	1 XIV 211 β.....	205 20	-24 50	205 31	-24 47	+ 11	+ 3
973	2 α.....	203 10	29 10	204 1	29 47	+ 51	- 37
974	3 XV 31 δ.....	208 20	21 15	209 7	21 12	+ 47	+ 3
975	4 XV 98 γ.....	211 30	21 0	211 58	20 58	+ 28	+ 2
976	5 XV 35 ε.....	210 20	25 10	210 35	25 0	+ 15	+ 10
977	6 λ.....	207 30	27 0	208 11	26 18	+ 41	+ 42
978	7 XV 242 π.....	208 0	29 0	208 7	28 11	+ 7	+ 49
979	8 μ.....	212 0	28 30	210 51	28 15	- 69	+ 15
980	9 κ.....	211 0	30 10	209 57	29 24	- 63	+ 46
981	10 ζ.....	213 0	33 10	211 15	32 35	-105	+ 35
982	11 ρ?.....						
983	12 ι.....	199 10	30 30	199 19	29 59	+ 9	+ 31
984	13 {XIV 66 τ <sup>1</sup> ..... XIV 67 τ <sup>2</sup> .....}	200 20	-29 20	200 14	-28 51	- 6	+ 29

Catalogue III—continued.

Baily's No.	Ptolemy's No. and modern name.	Ptolemy.		Positions computed for B. C. 130.		Δ Long.	Δ Lat.
		Long. -2° 40'.	Lat.	Long.	Lat.		
LUPUS—continued.							
985	14 XV 217 η.....	216 10	-17 0	216 13	-17 9	+ 3	- 9
986	15 XV 248 θ.....	216 40	15 20	217 11	15 22	+ 31	- 2
987	16 XV 174 Fl. 5 χ.....	213 0	13 20	213 17	12 55	+ 17	+ 25
988	17 XV 204 ξ.....	214 0	11 50	214 35	12 59	+ 35	- 69
989	18 XV 10 Fl. 1 i.....	204 40	11 30	205 8	12 47	+ 28	- 77
990	19 XV 22 Fl. 2 f.....	204 50	-10 0	205 27	-11 17	+ 37	- 77
ARA.							
991	1 σ.....	235 0	-22 40	235 52	-22 53	+ 52	- 13
992	2 θ.....	240 20	25 45	241 35	26 22	+ 75	- 37
993	3 α.....	233 30	26 30	235 22	26 13	+112	+ 17
994	4 ε <sup>1</sup> .....	228 0	30 20	230 1	29 59	+121	+ 21
995	5 γ.....	232 30	34 10	234 43	32 50	+133	+ 80
996	6 β.....	232 20	33 20	234 38	31 57	+138	+ 83
997	7 ζ.....	228 10	-34 0	230 17	-32 47	+127	+ 73
CORONA AUSTRALIS.							
998	1 { XVIII 73 δ <sup>1</sup> ..... XVIII 76 δ <sup>2</sup> ..... }	246 30	-21 30	246 28	-22 14	- 2	- 44
999	2 { XVIII 166 η <sup>1</sup> ..... XVIII 169 η <sup>2</sup> ..... }	249 0	21 0	249 53	20 14	+ 53	+ 46
1000	3 Lac. 7909.....	250 30	20 20	251 20	19 31	+ 50	+ 49
1001	4 ζ.....	252 10	20 0	252 44	19 3	+ 34	+ 57
1002	5 δ.....	253 30	18 30	253 58	17 35	+ 28	+ 55
1003	6 β.....	254 20	17 10	254 27	16 28	+ 7	+ 42
1004	7 α.....	254 10	16 0	254 31	15 2	+ 21	+ 58
1005	8 γ.....	253 50	15 10	254 0	14 6	+ 10	+ 64
1006	9 ε.....	252 30	15 20	252 26	13 59	- 4	+ 81
1007	10 ν.....	252 0	14 50	251 59	14 11	- 1	+ 39
1008	11 λ.....	249 10	14 40	249 17	14 56	+ 7	- 16
1009	12 Lac. 7748 ξ (Bode)..	247 0	15 50	246 53	16 9	- 7	- 19
1010	13 θ.....	246 30	-18 30	246 56	-18 46	+ 26	- 16
PISCIS AUSTRINUS.							
1011	1 24 α.....	304 20	-20 20	304 3	-20 52	- 17	- 32
1012	2 17 β.....	298 0	20 20	297 30	21 12	- 30	- 52
1013	3 22 γ.....	301 30	22 15	301 38	23 30	+ 8	- 75
1014	4 23 δ.....	302 40	22 30	302 29	23 30	- 11	- 60
1015	5 18 ε.....	301 40	16 15	301 40	17 4	0	- 49
1016	6 14 μ.....	292 30	19 30	292 21	19 51	- 9	- 21
1017	7 ζ.....	298 30	15 10	299 58	15 23	+ 88	- 13
1018	8 16 λ.....	296 10	14 40	295 45	15 33	- 25	- 53
1019	9 12 η.....	292 30	15 0	292 37	15 5	+ 7	- 5
1020	10 10 θ.....	289 10	16 30	288 58	16 22	- 12	+ 8
1021	11 9 ι.....	288 20	18 10	287 33	17 5	- 47	+ 65
1022	12 XXI 308 γ Gruis...	287 30	22 15	287 44	22 51	+ 14	- 36
1023	Inf. 1 XX 307 α Micr....	275 20	22 20	276 0	15 13	+ 40	+7° 7'
1024	2 XX 403 γ Micr....	278 30	22 10	278 48	14 27	+ 18	+7 43
1025	3 XXI 46 ε Micr....	281 20	21 10	282 17	15 26	+ 57	+5 44
1026	4 XX 445.....	279 20	20 50	279 50	14 51	+ 30	+5 59
1027	5 XXI 12.....	281 10	17 0	282 46	10 48	+ 96	+6 12
1028	6 24 A Capricorni....	281 10	-14 50	282 13	- 7 52	+ 63	+6 58

## NOTES TO THE CATALOGUE OF STARS.

The following notes to the stars include all those found in Dr. Peters' manuscripts. These consisted of brief notes and remarks all written in pencil on various papers. Some of his earlier notes, communicated to Harvard Annals, Vol. XIV, are superseded by later researches.

- 3. Long. Most authorities have  $16^{\circ} 0'$ , an error of  $1s = 16^{\circ}$ , for  $1s' = 10^{\circ} 10'$ .  
 Lat. Most Greek manuscripts have  $74^{\circ} 20'$ , and the Arabs  $74^{\circ} 0'$ —either  $\text{O}\Delta\Gamma'$  or  $\text{O}\Delta$ ; it is more likely that the  $\Gamma'$  was omitted than that it was added.
- 6. Long. Paris 2389, Vat. 1594, and all the Arabs give  $17^{\circ} 10'$ . Manitius has  $17^{\circ} 30'$ .
- 12. Long. Baily gives  $26^{\circ} 30'$ .
- 13. Long. Baily and most Greek and Arab manuscripts have  $26^{\circ} 40'$ . Trapezuntius and Gerard of Cremona give  $27^{\circ} 40'$ , which has been adopted. Confusion in Arabic between 6 and 7 is very common, but it is not easy to explain an error in Greek of  $s=6$  for  $Z=7$ .
- 18. Lat. Baily and all Greek manuscripts give  $44^{\circ} 0'$ . Sûfi, B. M. Reg. 16, and Bod. 369 have  $45^{\circ} 0'$ . All are clearly erroneous. Sûfi finds no fault with the position. The star is certainly Fl. 30  $\varphi$ , which is described by Sûfi and was observed by Ulugh Beg. Peters conjectures that in the original uncial Greek  $\Lambda Z\Delta' = 37^{\circ} 15'$  was written as shown in the Facsimiles (page 23) and thus resembled  $M\Delta = 44^{\circ} 0'$ .
- 25. Long. Baily gives  $22^{\circ} 30'$ .
- 26. Long. Baily gives  $3^{\circ} 30'$ .
- 37. Lat. All authorities agree. Latitude is  $1^{\circ}$  too large; it should be  $M\Gamma' = 40^{\circ} 20'$ , not  $M\Lambda\Gamma' = 41^{\circ} 20'$ .
- 41. Long. Baily gives  $12^{\circ} 10'$ . No star exists corresponding with the position in the Almagest. It was not identified by Baily or Schjellerup. Manitius considers it to be Fl. 8 Leo Minor. Peters conjectured that there was confusion in the Greek between  $1B s' = 12^{\circ} 10'$  and  $1\epsilon s' = 15^{\circ} 10'$ , which he adopts, and so arrives at the same star observed by Ulugh Beg (see photograph of Venice Codex 313, where  $\epsilon$  in the abbreviation for  $\text{Μείζων}$  might possibly be taken for  $\beta$ ). Bod. 3374 has similar error of  $\epsilon$  for  $\beta$  in the latitude, noted by Bernard about 1684. All the Arabs give latitude  $22^{\circ} 45'$ , Vat. 1594,  $22^{\circ} 30'$ .

	υα	s r	ωρ	κστ	τ
υ.	υα	ε τ	ωρ	λς	Δ'
	υα	ε ς	ωρ	λτ	Δ'
	υα	ι ζ τ	ωρ	λθ	β
	υα	ικβ s	ωρ	κδς	β'
	λβ	τ s	ωρ	κδ	γ'
	λβ	τ	ωρ	κδς	β
ουμ	υα	ικβ τ	ωρ	ικθ τ	γ'
	υα	ικδ s	ωρ	ικη δ	τ β
	λβ	λ τ	ωρ	λε δ	λ λ
	λβ	θ τ	ωρ	ικε τ	γ'
	λβ	ι τ	ωρ	ικε	γ'
	λβ	ιβ s	ωρ	ικες	β
	λβ	ιη	ωρ	κε τ	β'
	λβ	ικθς τ	ωρ	κδ	β

FIG. 3.—Venice Codex 313.

42. Lat. Most authorities give  $23^{\circ} 0'$ , but Ven. 313, Vat. 1594 and the Arabs have  $20^{\circ} 20'$ , which is right. Baily and Schjellerup could not identify. Manitius considers it to be Fl. 10 Leo minor. Peters finds that the star is VIII 245.
57. The large proper motion of  $61 \sigma$ , *R. A.*  $+0'.0973$ , *Dec.*  $-1''.766$ , makes the identification of this star right.
58. Lat. Baily and all Greek manuscripts have  $81^{\circ} 20'$ ; all the Arabs  $81^{\circ} 40'$ , which is adopted.
66. Lat. All Greek manuscripts have the incorrect latitude; the Arabs are right.  $\Pi\Gamma' = 80^{\circ} 20'$  for  $\Pi\Gamma = 83^{\circ} 0'$ .
69. Long. All the Greek manuscripts have the erroneous longitude of  $10^{\circ} 20'$ ; the Arabs are right.  $\Gamma'$  for  $\Gamma$ .
75. Long. Baily adopts  $5^{\circ} 10'$  from Gerard of Cremona. All the Greek manuscripts have the erroneous longitude of  $9^{\circ} 0'$ . The Arabs have  $5^{\circ} 0'$ , which is correct. One of the numerous errors of  $\Theta = 9^{\circ} 0'$  for  $\Theta = 5^{\circ} 0'$ .
79. Proper motion makes the disagreement in longitude much worse.
90. Long. Nearly all Greek manuscripts have the erroneous longitude  $9^{\circ} 40'$ . The Arabs are correct with  $5^{\circ} 40'$ . A similar error to No. 75.
96. This is the same star as No. 147.
97. Peters, Peirce, and Schjellerup identify this star as  $\eta$  Coronæ, which accords with the description, but the position agrees better with  $\chi$  Bootis, adopted by Bode, Halma, Delambre, and Manitius. Baily is undecided between  $\eta$  and  $\sigma$  Coronæ.

Positions A. D. 100.

	$\eta$ Coronæ.		$\chi$ Bootis.	
	$^{\circ}$	$'$	$^{\circ}$	$'$
Ptolemy Longitude . . . .	187	40	190	20
Latitude . . . . .	46	30	47	1

98. Not identified by Bode and Manitius. Baily and Schjellerup consider it to be  $\chi$  Bootis, and Halma  $\eta$  Coronæ. The description accords best with Fl. 1  $\sigma$  Coronæ.
- 99 to 102. There is much diversity of opinion as to the identification of these stars. Peters considered that they were in the following order:  $\omega$ ,  $b$ ,  $\psi$ , and  $c$ ; Schjellerup as  $b$ ,  $\omega$ ,  $\psi$ , and  $c$ ; Bode, Baily, and Manitius,  $c$ ,  $\psi$ ,  $b$ , and  $\omega$ . The last accords best with the description and has been adopted. The comparisons for A. D. 100 are:

	Long.	Lat.		Long.	Lat.	$\Delta l$	$\Delta b$		Long.	Lat.	$\Delta l$	$\Delta b$
	$^{\circ}$	$'$		$^{\circ}$	$'$	$'$	$'$		$^{\circ}$	$'$	$'$	$'$
Ptolemy 12	188	10	$\omega$	187	10	-60	-79	$c$	188	33	+23	-61
13	186	40	$b$	188	19	+99	+21	$\psi$	186	59	+19	+50
14	187	0	$\psi$	186	59	-1	0	$b$	188	19	+79	-29
15	187	40	$c$	188	33	+55	+19	$\omega$	187	10	-30	-1

112. Lat. Baily and all Greek manuscripts have  $46^{\circ} 30'$ ; the Arabs have  $46^{\circ} 10'$ , which agrees best.
129. Baily has Long.  $3^{\circ} 40'$ , Lat.  $53^{\circ} 0'$ . He remarks that there is no authority for latitude  $50^{\circ} 40'$  adopted by Halma, but reference to the Table of Collations shows that nearly all Greek manuscripts have that latitude. Peters adopts  $53^{\circ} 10'$  as in Sûfi and B. M. Reg. 16.
131. Lat. Baily gives  $56^{\circ} 30'$ .

134. Lat. All the Greek manuscripts give  $63^{\circ} 0'$ , which is wrong; the Arabs have the correct latitude,  $60^{\circ} 20'$ . Error of  $\Xi\Gamma$  for  $\Xi\Gamma'$ .
135. Ptolemy's place is largely in error.
- 138, 139. Ptolemy's errors here are very large, and it is singular that the errors of the positions of these stars in Ulugh Beg are about as large. The identification of the stars is probably correct, but differs from Baily and Manitius.
140. Lat. Baily gives  $72^{\circ} 15'$ . The latitude  $72^{\circ} 0'$  of the Arabs is adopted.
141. Lat. All the Greeks give  $64^{\circ} 0'$ , and the Arabs  $60^{\circ} 15'$ , which is correct. An error of  $\Xi\Delta$  for  $\Xi\Delta'$ .
146. Long. The longitude agrees closely with the computed position, but considering the large errors in Ptolemy's longitudes of the stars in Hercules, it is probably  $1^{\circ}$  too large.
147. This is the same star as No. 96.
148. The identification of this star is probably correct, but the longitude and latitude are largely in error and no explanation of the discrepancy is available from the numerous manuscripts examined. Ulugh Beg has the correct latitude.
154. Long. There is no authority for the longitude  $2^{\circ} 40'$  assigned by Peters to this star. All the manuscripts give  $1^{\circ} 40'$ . The very numerous errors in Greek of  $\Lambda=1$  for  $\Delta=4$  would suggest that here the longitude should be  $4^{\circ} 40'$ , which agrees closely with the computed place; but seeing the large errors in longitude common to all the stars in Lyra, it is doubtful if this explanation is available.
156. Identified as Fl.  $9 \nu^2$ , which agrees a little better and also is brighter than  $8 \nu^1$ , which Baily has taken.
159. Lat. Baily gives the latitude  $49^{\circ} 0'$ .
164. Long. Baily gives  $19^{\circ} 20'$ .
175. Peters considers this star the combination of  $43 \omega^1$  and  $45 \omega^2$ . All the Greek and Arabic manuscripts give the latitude as  $63^{\circ} 45'$ , though  $64^{\circ} 45'$ , adopted by Baily, agrees closer; Halley gives  $64^{\circ} 50'$ .
184. Baily, Bode, Peirce, and Peters agree that this is  $\iota$  Cassiopeia. Sûfi remarks that it is in a straight line with the two preceding stars  $\delta$  and  $\epsilon$ , which proves the identification correct. The longitude is  $4^{\circ}$  in error. All Greek and Arab authorities agree in Long.  $1^{\circ} 40'$ . The only explanation is an error in the earliest manuscripts of  $\Lambda=1^{\circ}$  for  $\Delta=4^{\circ}$ , of which there are numerous instances in the manuscripts under discussion. Upon this explanation the difference of the computed place would be  $+78'$ , harmonizing with the general errors of the longitudes in Cassiopeia. The latitude is  $1^{\circ}$  in error, which is less easy to explain.
206. Lat. Baily and the Greek authorities give  $28^{\circ} 0'$ , and the Arabs  $28^{\circ} 15'$ , which is adopted.
221. Lat. Vatican 1594, Laurentian 1, Venice 313, and Paris 2390 are alike in giving the latitude as  $\lambda\alpha \iota\Gamma'$ . It is not clear what this means, but probably the iota has been written by mistake for the sign for  $\eta\mu\sigma\nu$ ; thus it would be  $31^{\circ} 50'$ , as in Paris 2389 and Bod. 3374.
223. Lat. All authorities, except B. M. Arabic 7475, have latitude  $20^{\circ} 0'$ ; the latter has  $22^{\circ} 0'$ , which is more nearly correct. Ulugh Beg has  $21^{\circ} 30'$ .
230. This is the same star as No. 400.
231. Long. All authorities, except B. M. Arabic 7475, have  $26^{\circ} 0'$ , which is  $1^{\circ}$  too small. B. M. 7475 has  $27^{\circ} 0'$ , which is correct. See note to No. 13.
233. Long. Baily gives longitude  $20^{\circ} 40'$ , latitude  $16^{\circ} 20'$ . Most of the Greek manuscripts have  $20^{\circ} 40'$ , an error conjectured of  $\kappa\Gamma$  for  $\kappa\Gamma'$ . Paris Cod. 2394,  $23^{\circ} 0'$ , which is adopted. Grynæus  $20^{\circ} 20'$ , error of  $\kappa\Gamma'$  for  $\kappa\Gamma$ . For

latitude there are the readings  $16^{\circ} 20'$  and  $10^{\circ} 20'$ ; the latter is adopted. Sûfi remarks upon the erroneous position of Ptolemy, and Ulugh Beg did not find the star. The nearest star to the position is Fl. 5, but this is only 6.7 mag. The largest star in the neighbourhood is Fl. 2 of 5.0 mag., identified by Manitius, but this gives the large errors of Long.  $-56'$  and Lat.  $-150'$ .

235. Lat. All authorities have  $27^{\circ}$ , which is  $1^{\circ}$  too small.
236. Lat. The Greek authorities have  $26^{\circ} 30'$  and the Arabs  $26^{\circ} 45'$ .
239. There is great discordance in the manuscripts as to the coördinates of this star. The identification by Baily, Peirce, and Peters as Fl. 10  $\lambda$  is probably correct. The Arabs have the correct longitude. The latitudes, as appear in the table, are very discordant. Peters considered the latitude as  $23^{\circ} 30'$  or  $23^{\circ} 50'$ . Cod. Ven. Greek 311, B. M. Reg. 16, and the Laurentian Arabic 156 have  $23^{\circ} 45'$ . Bodleian Arabic 369 has  $28^{\circ} 45'$ , which by the common error in Arabic of  $\tau=8$  for  $\tau=3$  may well accord. Probably  $23^{\circ} 45'$  is the best to adopt. Baily has latitude  $33^{\circ} 50'$ .
246. Long. Baily and the Greek manuscripts give  $26^{\circ} 40'$ , which is erroneous; the Arabs and one reading of Paris 2389 have  $23^{\circ} 40'$ , which is correct. Peters remarks that if the Greek longitude is right, the star might be the Nova 1604, but Ulugh Beg observed the star 40  $\xi$ . This identification is confirmed by Peters, Baily, and Manitius.
- 247 to 250. Peirce states that these stars present one of the greatest perplexities of the whole catalogue. On reference to the Table of Collations, it will be seen that the manuscript authorities are about equally divided as to the latitude being north or south. Paris Codex 2389 gives both, which indicates that it is a compilation from more than one manuscript. Grynæus gives 247 as *north*, and omits any designation to 248–250, and it is singular that these are the only omissions in his whole catalogue of designation of the latitude, probably from the conflicting evidence in the manuscripts he used. The only printed editions which give the latitude of all these stars as *south* are Copernicus and Clavius. Peirce has discussed these stars in H. A. Vol. IX, but he is in error in stating that Baily has altered the latitude of the 16th star, No. 249. Peters' investigation leaves little room for doubt of his correct identification of the stars, and of their latitudes being *south*. The longitude of 250 is largely in error.
250. Lat. Baily has  $0^{\circ} 45'$ , which is found only in Liechtenstein and B. M. 7475.
251. There is some uncertainty as to the identification of this star. All manuscripts agree in longitude and latitude. Schjellerup and Manitius identify as Fl. 58, which would make the longitude erroneous by  $2^{\circ}$  and the latitude  $1^{\circ}$ . Bode and Halma give Fl. 2 *e* (Sagittarius). The nearest star to the position is Fl. 52 (adopted by Baily), which is 6.6 mag. It has been conjectured that the star may have been Nova 1604, the position of which for A. D. 100 is longitude  $236^{\circ} 44'$ , latitude  $+2^{\circ} 2'$ , a difference of  $1^{\circ}$  in each coördinate. Peters does not decide between 52 Ophiuchi and 2 Sagittarii.
255. The Arabs have the correct latitude  $1^{\circ} 40'$ ; Baily has  $1^{\circ} 50'$ .
262. Sûfi calls this a double star, which is Fl. 71 and 72 together.
268. Long. Most authorities and Baily give  $23^{\circ} 10'$ , which is  $1^{\circ}$  too small. Paris 2389 gives  $26^{\circ} 10'$ , which is nearer the computed place but is discordant with the other longitudes as being too large.
274. Lat. All authorities, Greek and Arabic, have latitude  $16^{\circ} 15'$ . But there is no suitable star in latitude  $16^{\circ}$ . Baily states that Bode and Delambre give it as  $13^{\circ} 15'$ , but without authority. Bode, however, gives it as  $13^{\circ} 0'$ .

There is no doubt that  $13^{\circ} 15'$  is taken from Halley's edition of the Catalogue (*Geographiæ Veteris Scriptores Græci Minores, 1712*) which is a copy in which the positions of the stars have been corrected by computation.\* It is probable that the identification of the star as Fl. 3  $\nu$  Ophiuchi is correct, and Ulugh Beg certainly observed this star. The latitude should be  $13^{\circ} 15'$ , and so it has been adopted by Peters. No explanation of the error in Greek is available.

285. Lat. Baily has  $37^{\circ} 40'$ , but the Arabs have  $38^{\circ} 40'$ , which is adopted.
289. Bode, Halma, Delambre, Baily, and Manitius make this star Fl. 54  $\alpha$ . Peters remarks that Fl. 59  $\xi$  is Ulugh Beg's star and probably that of Ptolemy, but the latitude is  $1^{\circ}$  too large; besides  $\xi$  is 1 magnitude brighter than  $\alpha$ .
296. Long. Bod. 3374 and Ven. 302 have  $50^{\circ} 50'$ , error of  $\nu$  for  $\eta$ .
299. Longitude is  $2^{\circ}$  too large and latitude  $1^{\circ}$  too large.
300. Long. All authorities give  $21^{\circ} 10'$ , which is  $1^{\circ}$  too large. The position of this and the preceding star in Ulugh Beg are quite erroneous. Peters has adopted  $20^{\circ} 10'$ .
- 304 and 309. Long. In these stars longitude is  $1^{\circ}$  too small.
305. Lat. Adopted from Grynæus and Paris 2394. Most authorities give  $33^{\circ} 50'$ , which Baily adopts.
308. Lat. Several Greek and Arab authorities have  $34^{\circ} 0'$ . Error of  $\Lambda\Delta$  for  $\Lambda\Delta'$ .
329. Long. Baily gives  $9^{\circ} 10'$ .
332. Long. Comparison with Ulugh Beg seems to indicate an error of  $1^{\circ}$  too large in Ptolemy's longitude.
346. Lat. Vat. 1594, Ven. 310 and 313, and all the Arabs have the correct latitude.
356. Lat. All authorities have  $32^{\circ} 30'$ , which is  $1^{\circ}$  too large, which is confirmed by comparison with Ulugh Beg.
357. Peters confirms Peirce in identifying this star as Fl. 1  $\alpha$ .
360. Long. There appears to be no authority for  $16^{\circ} 40'$  adopted by Baily.
368. Latitude appears to be  $1^{\circ}$  too large; Ulugh Beg has  $3^{\circ} 12'$ ; all authorities give  $4^{\circ} 30'$  or  $4^{\circ} 50'$ .
371. The position of 63  $\tau^2$  Arietis agrees much better than 61  $\tau^1$ , and was certainly the star observed by Ulugh Beg.
372. Lat. Baily has  $1^{\circ} 30'$ .
374. The position agrees well with Fl. 87  $\mu$  Ceti (see note to 716 and 717, Ptolemy's 5 and 6 Ceti). Schjellerup, following Bode, identifies both 374 and 717 as  $\mu$  Ceti. The agreement of Ulugh Beg with Ptolemy is so good that there can be no doubt that they observed here  $\mu$  Ceti, while 717 does not agree at all. Manitius identifies 374 as Fl. 38, but the position for A. D. 100 is discordant.  $\Delta$  long. =  $+70'$ ;  $\Delta$  lat. =  $+107'$ .
375. Lat. Baily has  $10^{\circ} 30'$ .
382. Long. Baily has  $24^{\circ} 20'$ , but the Arabs have probably the more correct longitude,  $24^{\circ} 40'$ .
383. Long. All Greek manuscripts, except Ven. 311, have erroneously  $21^{\circ} 20'$ . An error of  $\kappa\Delta = 21^{\circ}$  for  $\kappa\Delta = 24^{\circ}$ .
389. Both longitude and latitude about  $1^{\circ}$  too large. Vat. Reg. 90 and Manitius give longitude as  $10^{\circ} 20'$ , an error of  $1\Gamma' = 10^{\circ} 20'$  for  $1\Gamma = 13^{\circ}$ .
392. Ptolemy probably observed  $\theta^1$  and  $\theta^2$  as one mass.
394. Longitude  $11^{\circ} 50'$  is adopted from all the Arabs, one reading of Paris 2389 and Ven. 312. Baily has  $12^{\circ} 50'$ , also from a variant in Paris 2389.

\*The only available information about Halley's edition is the following paragraph from the preface to the above work: "Quod vero hisce omnibus subjungere placuerit Ptolemæi Catalogum Fixatum Stellarum, alicui forsan mirum videatur, cum sit argumenti plane dissimilis, minime tamen dubito quin hoc mihi ignoscat, qui norit quot ab illis syderibus maculas abstersit, quantamque eis lucem affundit Cl. Hallejus; eandem scilicet, qua, Ptolemæo illa contemplante, emittuerunt: cum diu in libris, tam Mss. quam editis, ob voces perturbatas numerosque confusos, illa cæli lumina crassis obvoluta fuissent tenebris."

395. Long. The Arabs give  $17^{\circ} 10'$  and the Greeks  $17^{\circ} 30'$ , as adopted by Baily; the first is preferable. Latitude in Paris 2389 is erroneously  $0^{\circ} 15'$ ; error of  $\Delta' = 0^{\circ} 15'$  for  $\Delta = 4^{\circ} 0'$ .
399. Lat. All authorities have  $4^{\circ} 0'$ , which is wrong; error of  $\Delta = 4^{\circ} 0'$  for  $\Delta' = 0^{\circ} 15'$ . B. M. 7475 makes the latitude *north*, all the others *south*. Latitude  $+0^{\circ} 15'$  would give the best accordance.
400. This is the same star as No. 230.
402. Lat. The Arabic Bod. 369 and B. M. Reg. 16 are the only authorities which have the correct latitude  $0^{\circ} 15'$ ; all others, including Sûfi, have  $4^{\circ} 0'$ . Sûfi remarks that "Ptolemy's latitude is false, as the latitude places the star *north* of the preceding star, whereas the description states that it is *south*." This shows that the manuscript of Ptolemy used by Sûfi had the same error as in No. 399 above, viz.,  $\Delta = 4^{\circ} 0'$  for  $\Delta' = 0^{\circ} 15'$ .
404. Paris 2390, and the two Venice codices, 310 and 313, give the latitude correctly *south*.
405. Long. All manuscripts agree in giving  $8^{\circ} 0'$ ; Manitius has  $8^{\circ} 30'$ .
406. The identification of this star is not free from doubt. Baily and Halma considered it to be  $42 \psi$  Tauri and this star was finally adopted by Peters, but he remarks that Ulugh Beg's position of Ptolemy's 27th star in Taurus agrees fairly with  $41$  Tauri, but badly with  $42 \psi$ . Ptolemy's star is in better harmony with  $41$  Tauri if we could assume an error of  $1^{\circ}$  in the latitude. The errors for A. D. 100 are:

	$\Delta$ Long.	$\Delta$ Lat.	Mag.
	/	/	
41 Tauri . . . . .	+ 2	- 57	5.3
42 $\psi$ . . . . .	+ 25	+ 32	5.3

Baily adopts latitude  $7^{\circ} 20'$ .

410. Long. Baily has  $2^{\circ} 20'$ .
412. Peters considered that there was no doubt that this star is III 170 and not Fl. 18 as Baily has, which gives errors for A. D. 100 of Long.  $-27'$ , Lat.  $-19'$ , mag. 5.6. III 170 gives errors of Long.  $+51'$ , Lat.  $+9'$ , mag. 5.4. The star can not be Alcyone. Ptolemy describes it distinctly as *μικρὸς* (small). Gerard of Cremona gives mag. 5; all other authorities mag. 4.
415. The longitude  $24^{\circ} 0'$  is adopted from one reading in Paris 2389, Venice 303, 311, 312, and the Arabs. The difference with other manuscripts is the common confusion of the alpha and delta. Baily has  $21^{\circ} 0'$ .
418. Peters, Peirce, and Manitius identify as Fl. 129 observed by Ulugh Beg, but the star is rather small and the longitude is too small. Peirce suggests that it might be better to make 418 as Fl. 126, and to suppose that 417 had disappeared. The position of Fl. 126 for A. D. 100 would accord very well with Ptolemy's star No. 418, but the identifications adopted accord best with the description.
- 419 to 423. Sûfi remarks that the longitudes and latitudes of these stars are grossly in error. There seems little doubt that Peters' identification is correct. Ulugh Beg's positions agree fairly well with them. They are all small stars.
424. Lat. Baily and all the Greeks have  $9^{\circ} 30'$ , and the Arabs  $9^{\circ} 40'$ , which is more correct.
426. Long. All authorities agree, but the longitude is  $2^{\circ}$  too large. The latitude is too small. Bod. Arabic 369 gives  $11^{\circ} 0'$ , which is more nearly correct.
432. Baily adopts longitude  $26^{\circ} 10'$ , latitude  $3^{\circ} 0'$ . The Greek manuscripts give longitude  $26^{\circ} 10'$ , and the Arabs  $23^{\circ} 10'$ ; the latter is certainly the better to

- adopt. The latitudes are either  $\Gamma = 3^\circ 0'$  or  $\Gamma' = 0^\circ 20'$ . Adopting the latter, the position agrees with Fl. 58. Baily identifies as 76 *c*. Peirce as 52 Tauri, Schjellerup as *b*, and Manitius as 63.
434. Lat. Baily adopts  $18^\circ 15'$  from all authorities. Peters gives the longitude as  $18^\circ 10'$  for the reasons given on page 12 for believing that the instrument used for measuring longitudes was not graduated to  $15'$ .
436. Long. Baily has  $21^\circ 20'$ . There is great uncertainty in the latitude of this star in all Greek manuscripts and in the printed Greek of Grynæus and Halma. In all cases it is represented by the character for  $\frac{1}{2}$  followed by that for  $\frac{1}{6}$ , or in Paris 2389 and Laurentian 1, by 6. There is a slight indication in Paris 2389 (though not in Laurentian 1) of a separation of 6 from  $\frac{1}{2}$ , in which case it may be possibly  $\frac{1}{2}$  with  $6^\circ$  as a variant. Peters considered the majority of cases he examined to be  $0^\circ 30'$  with variant  $0^\circ 10'$ , not  $0^\circ 40'$ . All the Arabs agree in latitude  $6^\circ 0'$ , which is adopted.
438. Long. The better reading is that given by the Arabs and Vienna 14.
- 445 and 446. Baily, who took the Greek descriptions of the stars from Grynæus, did not perceive the error in the descriptions of these two stars, which are equally erroneous in Paris 2389. He gives:
445. τῶν ἐπομένων τῇ δεξιᾷ χειρὶ τοῦ ἐπομένου (?ἐπομένου) διδύμου ὁ μέσος τῶν γ. (τριῶν).
446. ἐπ' εὐθείας ὁ βόρειος. It is obvious that these descriptions should be as in Vatican 1594 thus:
445. τῶν ἐπομένων τῇ δεξιᾷ χειρὶ τοῦ ἐπομένου διδύμου τριῶν ἐπ' εὐθείας ὁ βόρειος.
446. ὁ μέσος τῶν τριῶν. Baily also states that the latitude of 445 in Paris 2389 is  $-2^\circ 40'$ , but in that manuscript it is clearly  $-1^\circ 20'$ .
- 445 to 448. The longitudes of these stars are all in error. The authorities give longitude of 448 as  $0^\circ 40'$ , except Laurentian 39, Vienna 14, and Vatican Reg. 90, which give  $3^\circ 0'$ , and Gerard of Cremona, B. M. Sloane 2795, which gives  $5^\circ 40'$ , the same as Liechtenstein; the last has been adopted. Peters remarks, "There is no other star than ζ Cancri that suits the position," hence the longitude is  $1^\circ$  too large.
449. Lat. Baily has  $0^\circ 20'$ . The value  $0^\circ 40'$  given by the Arabs has been adopted as agreeing better with the computed position, and also by comparison with Ulugh Beg.
455. Ptolemy's position is erroneous. Ulugh Beg is right.
457. Lat. Baily and all authorities give  $7^\circ 30'$ . The error in latitude is remarked on by Sûfi and must be very old. Peters has adopted  $10^\circ 30'$  without authority.
458. Long. All authorities have  $19^\circ 10'$  (adopted by Baily) or  $19^\circ 40'$ , except Bodleian Arabic 369, and B. M. Reg. 16, which have  $15^\circ 10'$ . Sûfi remarked the error in longitude. There is little doubt the Arabs are correct, and we have another instance of error in the Greek of  $\Theta = 9$  for  $\epsilon = 5$ . Peters identifies the star as the combination of 62  $\sigma^1$  and 63  $\sigma^2$ . Sûfi and Ulugh Beg both observed  $\sigma$  Cancri. Baily, Schjellerup, and Manitius consider the star to be  $\pi$  Cancri.
459. Sûfi speaks of the error in longitude, which is  $2^\circ$  too large.
- 460 and 461. The latitudes of these two stars are wrongly transposed in all the authorities.
472. Long. All authorities agree, still the longitude is  $1^\circ$  too large. Ulugh Beg also has the longitude too large.
479. Long. Baily gives  $12^\circ 10'$ .
482. The identification of this star is one of the most difficult in the catalogue. Ptolemy states that it is the northern of two stars, the southern, No. 483, being well identified as  $\theta$  Leonis. Fl. 81 is possibly the star, in which case Ptolemy's

latitude would agree, but the longitude would be 4° in error. Peters remarks, "if we will not assume that a star disappeared near X 251, mag. 6.8, then the correction of longitude  $\text{IH}\Gamma' = 18^\circ 20'$  for  $\text{I}\Delta\Gamma' = 14^\circ 20'$  is the most plausible conjecture that can be made." There is, however, no evidence in the uncial Greek of papyri or of vellum manuscripts, nor in cursive Greek, of a confusion between  $\text{H} = 8$  and  $\Delta = 4$ . "Sûfi speaks of the error in latitude of Ptolemy, but this can not be Ptolemy's star, and Sûfi had another star in view, while Ulugh Beg in his observations was guided by Sûfi." "Baily's identification with 71 Leonis is entirely to be rejected, since Baily himself has shown that the R. A. of 71 Leonis in Flamsteed by mistake is 2° too small."

486. Long. The authorities have either  $24^\circ 40'$  or  $21^\circ 40'$ . The former is adopted, the latter is an error of  $\Delta = 1$  for  $\Delta = 4$ . The star is identified as 84  $\tau$ . Ulugh Beg observed 69  $p^5$ . Sûfi's description points to 74  $\varphi$ .

487. Lat. All the Greek manuscripts, with the exception of Vat. Reg. 90, give the latitude as  $3^\circ 12'$ , which is clearly erroneous. There is no other instance in the whole catalogue of the fraction  $\frac{1}{2}$ . The error is doubtless of very ancient date. The magnitude of the star is  $\epsilon' = 5$ , and the latitude and magnitude are written thus:  $\Gamma\epsilon'\epsilon'$ . It is probable that in an early manuscript the magnitude was written by mistake within the latitude column, whence the mistake arose. Manitius has latitude  $3^\circ 10'$  as Vat. Reg. 90. The Arabs have either  $3^\circ 0'$  or  $0^\circ 20'$ , a confusion of  $\Gamma$  and  $\Gamma'$ . Latitude  $3^\circ 0'$  is correct and so no doubt it was given in the original Greek.

494 to 496. The identification of these stars seems correct, and these were the stars observed by Ulugh Beg. The large error they have in common makes it look as if they were determined either differentially or by some other observer. Thus may be explained also why they are called *ἀμαυρός*, while not smaller than many others.

	C—Pt.	
	$\Delta l$	$\Delta b$
	° ' ,	° ' ,
494.	+2 29	-1 35
495.	+2 45	-1 34
496.	+3 25	-1 24

The following are the several identifications of the stars:

	Peters.	Baily.	Bode.	Halma.	Schjellerup.	Manitius.
494.	15 <i>c</i>	.....	<i>c</i>	<i>e</i>	15 <i>c</i>	15 <i>c</i>
495.	7 <i>h</i>	4 Comæ.	<i>h</i>	<i>h</i>	12	7
496.	23 <i>k</i>	21 Comæ.	<i>g</i>	<i>g</i>	21	23

494 is given of magnitude 5, and is described by Ptolemy as *λαμπρός*. In Paris 2389 and Vat. 1594 it is *λαμπρός ἀμαυρός*; in the Trapezuntius edition "splendida," and in Liechtenstein, "luminosa." Ptolemy designates as *λαμπρός*, six stars mag. 1, thirteen mag. 2, seven mag. 3, and eleven mag. 4. He does not apply the word to any other star so faint as 494. It seems probable that here is a variable star.\*

\*These three stars of the *informata* of Leo, and described by Ptolemy as in the figure *πλόκαμος*, are three of the 12 stars which he designates as *ἀμαυρός*, the others being Nos. 40 to 43, among the *informata* of Ursa major, 219, the last of the *informata* of Perseus, and 311 to 314, the four stars in Equuleus. It is difficult to conjecture why these stars should have been designated *ἀμαυρός* (obscure). The magnitudes range from 4.1 to 5.1, the mean magnitude being 4.7. The constellations Equuleus and *πλόκαμος* are not mentioned by Aratus, Eratosthenes, Manilius, or Hipparchus in his commentary on Aratus. But Geminus (circa B. C. 77), in his work *Γεμίνου ἐισάγωγὴ εἰς τὰ φαίνομενα*, in his enumeration of the constellations, includes the constellation *προτομή ἵππου*, *sectio equi*, "according to Hipparchus"; and he also includes *βερεικῆς πλόκαμος*, *Coma Berenices*. (Petavius, Uranologia, p. 12.)

- 497, 498. The longitudes of these stars are interchanged in all the manuscripts. Baily has not corrected them. The longitude  $25^{\circ} 20'$  he gives to 497 should be that of 498. All the Greeks have  $25^{\circ} 20'$ , and the Arabs  $26^{\circ} 20'$ , which is adopted.
504. Peters remarks that the stars Fl. 44, 46, and 48, Virginis, mags. 5.9, 6.1, and 6.5, are near together, which may explain the greater brightness, mag. 5, estimated by both Ptolemy and Sûfi. Combined mag. 5.0.
509. Lat. Greek authorities give  $20^{\circ} 10'$ , the Arabs  $15^{\circ} 10'$ . Ulugh Beg's latitude is  $16^{\circ} 15'$ . Peters has adopted  $16^{\circ} 0'$  from Halma, who is copied by Baily, and he remarks that Halma gives no authority. It is clear that Halma took  $16^{\circ} 0'$  from Halley. It is of course correct, but is not supported by any manuscript.
513. Long. This is  $1^{\circ}$  too small; all authorities agree.
515. Peters and Baily agree that Ptolemy's position indicates 68 *i*, and both remark that it is clear that this position can not form the south following corner of the quadrilateral Ptolemy speaks of. But it is evident that the position of Ptolemy's 20th star in Virgo (correctly identified as 86) is exactly in the south following corner of the quadrilateral formed by 74, 76, and 82. The descriptions of Nos. 515 and 516 should be therefore interchanged.
517. Ptolemy's longitude is  $2^{\circ}$  too small, and the latitude error is similar in Ulugh Beg. This casts much doubt upon the identification of the star as 90 *p*, which, however, is not discordant with the description "in dextro crure posteriori." Peters questions whether there is here a variable or a star lost.
526. The identification as 53 is right, but Ptolemy's longitude is  $2^{\circ}$  too large. Ulugh Beg is also  $1^{\circ}$  too large. Baily gives latitude  $7^{\circ} 10'$ .
527. Ptolemy calls this star *διπλούς*; Sûfi likewise. The proper motion of Fl. 61 is so great, its distance from Fl. 63 ( $73'$  in 1800) is reduced to  $35'.4$  in Ptolemy's time. But could these two together appear double?
528. Peters agrees with Peirce in identifying this as 89, but the latitude is  $1^{\circ}$  too far south; Ulugh Beg likewise. Paris 2389, Vat. 1594, and the Arabs have the correct longitude,  $5^{\circ} 0'$ . Baily has  $0^{\circ} 0'$ .
529. The star is probably  $\frac{a^1+a^2}{2}$  Libræ.
532. Long. Baily has  $19^{\circ} 40'$ , probably a misprint.
541. Ulugh Beg, misled by Sûfi, here probably observed 44 *η*, but Ptolemy's description does not admit this star. Greek authorities give latitude  $3^{\circ} 0'$ , which is probably an error of  $\Gamma = 3^{\circ} 0'$  for  $\Gamma' = 0^{\circ} 20'$ . Bod. Arabic 369 and B. M. Reg. 16 have the latitude which has been adopted.
542. Peters identifies the position of this star as Oeltzen's Argelander, 14782, which has been found to be variable. Pickering remarks that it has not been observed brighter than mag. 9.
544. Lat. The Greek manuscripts have  $8^{\circ} 30'$  and the Arabs  $8^{\circ} 10'$ , which latter is adopted. Baily has  $8^{\circ} 30'$ .
551. The star is  $\frac{\omega^1+\omega^2}{2}$
553. This star,  $\alpha$  Scorpii, is one of the six stars designated by Ptolemy as *ὑπόκίρρος*; the others being  $\alpha$  Bootis,  $\alpha$  Tauri,  $\beta$  Geminorum,  $\alpha$  Orionis, and  $\alpha$  Canis Majoris. Questions relating to the color of these stars have been fully discussed by Nallino,\* Schiaparelli,† Schjellerup,‡ and Knobel,§ including particular reference to the words used in Arabic texts as translation of the Greek. The word *ὑπόκίρρος* has been erroneously considered as

\*Al Battâni. Pars II. †Rubra canicula. ‡Al Sûfi. Description des Etoiles Fixes.  
§Monthly Notices, Vol. XLV; and Eleventh Oriental Congress, 1897.

signifying *red*, its true meaning being "yellow, fire or wax-colored, cereus." and in that sense it has been correctly translated in the British Museum Arabic *Almagest* 7475, where the Greek word is expressed by the word *شمعي* *shemai*, "wax-like;" but not so in *Sûfi* and all other Arabic texts. In these the Greek word is rendered by the sentence *يَضْرِبُ إِلَى الْحَوْصِي* or *الْحَوْصِي*, meaning "inclines towards" some color expressed by *الْحَوْصِي*. It is clear that this particular word is quite unknown to Arabs generally, and is not in any Arabic dictionary. All efforts to obtain a solution from scholars, and from the authorities at the Al Azhar Mosque at Cairo, have failed. Causin de Perceval,\* speaking of another word used in Arabian Astronomy, says, "On chercherait en vain dans les dictionnaires Arabes et Latins l'explication de ce mot, et en général de presque tous les termes d'astronomie Arabe."† Ptolemy's designation of Sirius as *ὑπόκισσός* has been exhaustively investigated by Schiaparelli and Schjellerup, who have shown the strong improbability of the term "Rubra Canicula" having been correctly applied to that star, or of there being any sound evidence of change in color. Though *Sûfi* omits all reference to the color of Sirius, yet in Bod. 369 and B. M. Reg. 16 the star is described by the same words indicating color as in the other five stars.

555. Lat. The Arabs  $6^{\circ} 10'$  agrees a little better than the Greek  $6^{\circ} 30'$  adopted by Baily.
560. Lat. All authorities, except *Sûfi* and Ulugh Beg, have  $18^{\circ} 0'$ ; *Sûfi*  $19^{\circ} 30'$ . The star, according to Ptolemy's description, should be *south* of the preceding star and  $18^{\circ}$  does not agree at all;  $19^{\circ} 0'$  has therefore been adopted.
567. Identified correctly by Peters as  $\gamma$  Telescopii. Ulugh Beg also observed this star. Ptolemy calls it nebulous. Peters says, "I can not see any nebulosity around it and *Sûfi* seems to doubt the same." There is, however, close to this star, the cluster N. G. C. 6441, described by Dreyer as "a globular cluster, very bright and pretty large." This seems to be the explanation of Ptolemy designating the object as nebulous.
569. The Greek authorities give the longitude as  $25^{\circ} 30'$ , which Baily has, and the Arabs  $29^{\circ} 30'$ , an error in the Greek of  $\epsilon = 5$  for  $\theta = 9$ . The Greek latitude is  $1^{\circ} 10'$ , and the Arabs  $4^{\circ} 10'$ , a common error in Greek of  $\Delta = 1$  for  $\Delta = 4$ . In both elements the Arabs are right.
570. Long. All the Greek manuscripts give  $9^{\circ} 30'$ , except Ven. 312,  $5^{\circ} 30'$  (same error as in the preceding note). The Arabs have  $4^{\circ} 30'$ , which is right. The confusion of  $\theta$  or  $\epsilon$  for  $\Delta = 4$  is not easily explicable.
577. The star is  $\frac{\nu^1 + \nu^2}{2}$ . Ptolemy describes it as *νεφέλωειδής και διπλούς*. There are several small stars close.
578. Fl. 37  $\xi^2$  agrees better for position and is brighter than  $\xi^1$ .
- 584 and 585. Ptolemy's large errors in longitude appear also in Ulugh Beg. Baily gives longitude of 584 as  $25^{\circ} 20'$ . There are no other stars corresponding.
587. Long. The Greek give longitude  $22^{\circ} 40'$  and the Arabs  $22^{\circ} 20'$ , which latter is to be preferred. It is probable that 47  $\chi^1$  and 49  $\chi^3$  were observed as one mass.
592. Lat. The latitude is  $1^{\circ}$  too far south.
593. Long. Ptolemy's longitude is  $2^{\circ}$  too small. *Sûfi* remarks the error; Ulugh Beg is right.
596. Long. All the Greek authorities have  $23^{\circ} 50'$  and the Arabs  $26^{\circ} 50'$ —the latter is

\*Notices et Extraits. Tome VII.

†M. D'Abbadie informed the writer that Fresnel told him that he learned in the Red Sea many current expressions not found in any native dictionaries.

- adopted. Peters had  $24^{\circ} 50'$  from Halley. The latitude in all the Greeks and some Arabs is  $26^{\circ} 0'$ . The only manuscript that gives the right latitude is B. M. Arabic 7475,  $20^{\circ} 10'$ . In the Greek there is an error of  $Ks$  for  $Ks'$ .
597. Long. Baily has  $27^{\circ} 20'$ .
604. Long. All authorities give the longitude either  $9^{\circ} 0'$  or  $5^{\circ} 0'$ ; similar error in the Greek, of which several examples have been given. Peters' adopted longitude of  $6^{\circ} 0'$  is mere conjecture. It is more probable that the original was  $5^{\circ} 0'$  and this was the opinion of Halley. Peters remarks that the proper motion of  $2 \xi^2$  would bring the stars  $\xi^1$  and  $\xi^2$  quite close together in Ptolemy's time, only  $5'.5$  apart, and that it was the combination of these stars that was observed.
609. As  $\tau^2$  is a little larger it was more likely to be the star observed, but perhaps  $\frac{\tau^1 + \tau^2}{2}$  was observed as one mass.
610. Lat. Baily has  $0^{\circ} 10'$  from Trapezuntius. The Arabs have  $0^{\circ} 50'$ , which is adopted.
- 611, 612, 613. See Baily's note on the confusion of these stars in different manuscripts. The description adopted agrees with Baily and Gerard of Cremona. Manitius adopts a different order.
613. Ptolemy's longitude is  $1^{\circ}$  too large.
615. Baily identifies as 35 Capricorni, mag. 6.0. Peters adopts 36 *b*, mag. 4.5, as being larger and more probable.
624. Liechtenstein and Sûfi erroneously designate the latitude *north*.
625. Ptolemy's longitude is too large.
626. Table of Collations shows that four Greek authorities (as well as Grynæus and Halma) have the erroneous longitude  $20^{\circ} 40'$ .
634.  $13\nu$  was the star observed by Ptolemy, whose longitude, however, needs a correction of  $+2^{\circ}$ .
635. The latitude appears to be  $1^{\circ}$  too small, though it agrees with Ulugh Beg.
642. Baily adopts latitude  $2^{\circ} 10'$ , which is erroneous.
645. Most of the authorities have latitude  $4^{\circ} 0'$ . Paris 2389 is correct; error of  $\Delta = 4^{\circ} 0'$  for  $\Delta' = 0^{\circ} 15'$ . Peters identifies as 38 *e*, Baily as 37 *e*<sup>1</sup>. Sûfi, misled by the erroneous latitude  $4^{\circ} 0'$ , observed Fl. 30. Manitius makes the latitude *south*.
649. Sûfi's observations point to 68 *g*<sup>2</sup> as the star which was observed by Ulugh Beg. Baily's identification as 59 *v* supposes an error of  $3^{\circ}$  in Ptolemy's longitude.
- 651 and 652. Peters identifies 651 as Fl. 63  $\kappa$ , but longitude and latitude are largely in error. The description of 651 is "Antecedens duarum quæ sunt in ipso aquæ fluxu a manu"; and the description of the following star, 652, is "Quæ istam adhuc sequitur." The latter star is correctly identified as Fl. 73  $\lambda$ . The star which precedes it and forms the pair referred to by Ptolemy is perhaps Fl. 67, though very uncertain, and it is smaller than 63  $\kappa$ . In the case of 63  $\kappa$  we have errors, longitude  $-115'$ , latitude  $+136'$ , and for Fl. 67 the errors are longitude  $-106'$ , latitude  $-51'$ . Baily identifies 651 as 67 and adds that a correction of  $+2^{\circ}$  should be made to the longitude. Schjellerup identifies as Fl. 67. Sûfi omits 651 altogether.
657. The position is equally good for either 93  $\psi^2$  or 95  $\psi^3$ . The first is the larger star.
658. The star is probably Fl. 94. Sûfi seems to have observed Fl. 97, which gives errors of longitude  $-113'$ , and latitude  $-106'$ , and is smaller than 94. Ulugh Beg observed 94. All authorities give longitude  $20^{\circ} 50'$ , which is  $3^{\circ}$  too large. Upon this assumption Peters adopts  $17^{\circ} 50'$ .
- 659, 660. Baily gives the longitude of 659 as  $22^{\circ} 20'$ . There is no doubt that Ptolemy and Ulugh Beg observed  $\omega^1$  and  $\omega^2$ . It is curious that Sûfi remarks that

near one of these stars there is a star of mag. 6, which makes it double. Peters says it can hardly be the variable R Aquarii, which is  $1^\circ$  distant. It is probable that Sûfi really observed R at its maximum. The positions of  $\omega^2$  and R for 1875 are:

	R. A.			Decl.	
	h	m	s	°	'
$\omega^2$ Aquarii . . .	23	36	14	-15	14.1
R Aquarii . . .	23	37	21	-15	58.6 var. mag. 6-11.

661. It is probable that the two stars  $A^1$  and  $A^2$  were observed as one mass  $\frac{A^1+A^2}{2}$ .
663. Baily identifies as 106  $i^1$ , but 108  $i^3$  agrees better; it is also described by Sûfi. Ulugh Beg seems to have observed 107.
- 665 and 666. The longitudes and latitudes are transposed in nearly all the manuscripts.
667. Lat. Peters' latitude,  $16^\circ 15'$ , is a conjecture; there is no authority for it, and there is no ready explanation of confusion in the Greek letters for  $14^\circ 45'$  or  $14^\circ 50'$  and  $16^\circ 15'$ .
668. Long. Baily has  $12^\circ 20'$ .
670. This is the same star as No. 1011.
685. Long. Baily has  $20^\circ 10'$ .
687. Longitude  $1^\circ$  too large, latitude  $1^\circ$  too far south.
688. Longitude adopted from Paris 2389, one reading, and Arabs. Baily has  $23^\circ 20'$ . Latitude  $1^\circ$  too far south.
689. Here Ulugh Beg has the south latitude too small.
690. Longitude of the Arabs adopted as more correct. Baily has  $28^\circ 20'$ .
694. Lat. Baily has  $1^\circ 45'$ , which is found only in Trapezuntius, Schreckenfuchs, and the Crawford manuscript of Gerard of Cremona.
695. Longitude of Arabs  $0^\circ 20'$  is better than the Greek  $0^\circ 40'$ , which Baily adopts.
696. Peters identifies as the combination of 93, mag. 5.3, and 94, mag. 5.6, and adds that these two stars viewed as one mass would appear about mag. 4.7, so that the mean differences should be taken.
- 702 to 704. These are the stars observed by Ptolemy and described by Sûfi, but the positions are in error, as was noted by Sûfi. Manitius identifies 704 as  $\chi$ , but though the position would suit, it is discordant with the description. Peters considered there was no doubt that No. 707 is correctly identified as  $\chi$ , though the longitude is  $2^\circ$  too large.
- 716, 717. Baily gives the longitude of 716 as  $10^\circ 20'$ . These two stars present much difficulty. It is suggested that 716 may be either 78  $\nu$ , or 73  $\xi^2$ , but both give large errors in both elements. No star harmonizes with Ptolemy's position of 717. Schjellerup and Manitius identify as  $\mu$  Ceti, but this star is more probably 374, Ptolemy's 13th star in Aries. The question of these two stars remains undecided.

	Ptolemy.			Position A. D. 100.			
	Long.	Lat.		Long.	Lat.		
	°	'		°	'		
716.	10	10	78 $\nu$	11	58	-9	21
			73 $\xi^2$	11	2	-6	1
717.	12	40	87 $\mu$	15	21	-5	40

726. The latitude  $15^\circ 20'$  of the Arabs has been adopted in preference to  $15^\circ 40'$  of the Greek, which Baily has.
- 728 to 731. The identification of these 4 stars seems correct; they accord with the description. Longitude and latitude of 729 are largely in error. Ulugh Beg's latitude also in error.

734. Lat. The Greek manuscripts all have  $16^{\circ} 30'$ , with the exception of one reading of Paris 2389, and Cod. Ven. 303, which are  $13^{\circ} 30'$ . Sûfi and the Arabs have  $13^{\circ} 50'$ , or  $18^{\circ} 50'$ , which are equivalent by the common error of  $\tau=8$  and  $\bar{\tau}=3$ . Baily remarks upon the error of  $3^{\circ}$  in the Greek authorities. Ptolemy describes this star as *νεφελοειδής*, probably from it making with  $\varphi^1$  and  $\varphi^2$  Orionis a small cluster.
738. Ptolemy's longitude seems  $1^{\circ}$  too large.
739. Ptolemy's longitude is too small, also when compared with Ulugh Beg.
740. Peters' identification is right. Ptolemy calls it *διπλούς*, probably from LL 11748 and LL 11884 being near and south of  $\xi$ .
741. Ptolemy's longitude  $1^{\circ}$  too large.
- 742 and 743. As Gore has correctly pointed out, the description of these stars should be reversed.
748. Lat. Baily has  $20^{\circ} 10'$ .
752. Baily denotes this as 6 g. Peters identifies as 9 o<sup>2</sup>. The same deviations in longitude and latitude are found here as in Ulugh Beg. Baily's star 6 g. does not agree at all.
763. Lat. The Greek  $28^{\circ} 20'$ , which Baily has; the Arabs  $28^{\circ} 40'$ , which is adopted.
767. Long. The Greek  $26^{\circ} 30'$ , except Vienna 14, the Arabs  $26^{\circ} 10'$ , adopted, but longitude still too large.
774. Long. All the authorities have  $48^{\circ} 0'$ , which is  $1^{\circ}$  too large, also in comparison with Ulugh Beg.
775. Long. Paris 2394 has *ιδ u'* in which the "u" is an old cursive form of  $\beta$ , and in this manuscript it would signify  $14^{\circ} 40'$ . Grynæus has *ιδ ε'* =  $14^{\circ} 12'$ .
777. Long. Several Greek manuscripts have  $16^{\circ} 0'$  for  $10^{\circ} 10'$ ; error of 1s for 1s'. Baily has  $18^{\circ} 20'$ , for which there is no authority.
778. Lat. Halma has  $25^{\circ} 20'$ , which he has taken from Halley.
779. Baily has longitude  $3^{\circ} 30'$ , and latitude  $28^{\circ} 30'$ . Peirce considers the star to be 98 Heis. Peters agrees with Baily and Schjellerup in identifying as 40 o<sup>2</sup>.
781. Lat. All authorities give  $32^{\circ} 50'$ . Halma gives  $33^{\circ} 10'$ , which he has taken from Halley.
786. It is not possible to decide whether the star is  $\rho^2$  or  $\rho^3$ . Ptolemy observed them as one mass.
787. Lat. The Greek authorities give  $23^{\circ} 30'$ , while the Arabs have  $23^{\circ} 50'$ . Halma alone has  $24^{\circ} 30'$ , taken from Halley, and Baily adopts it. Peters did not notice the extracts from Halley made by Halma and Baily, and which he had adopted. In the present case the reading of the Arabs is taken.
788. Flamsteed remarks that a star noted by Ptolemy as of the 4th magnitude, and which is the 17th of the constellation Eridanus in his catalogue, could not be found now. About the position of the star all editions agree; it is the same in all existing manuscripts, both Greek and Arabic, and was the same also in the manuscript used by Sûfi. Sûfi says of this star: "The 17th, which precedes the 16th, is the last of the four, and at the western extremity of the series, near the four stars situated on the breast of Cetus. It is of the smaller ones of the 5th mag., almost of the 6th, and there is between it and the nearest star of the four situated on the breast of Cetus, that is, the 10th of Cetus, less than one 'coudée.'" Bode takes the star to be  $\sigma$  Eridani (Bayer and Ideler likewise), but says that since Flamsteed it is wanting upon all star charts and in the sky. Manitius takes it to be  $\eta$ , and the preceding star  $\rho^3$ . According to Ptolemy's difference with  $\eta$  Eridani, the star could be Heis 10, 6.7 mag. = W. B. 2<sup>h</sup> 788. According to Sûfi's description, the star seems to be nearer to  $\epsilon$  Ceti (moins d'une coudée) than to  $\eta$  Eridani. He puts the distance between  $\rho$  and  $\eta$  Eridani as one coudée.

The following table shows the comparison between Ptolemy, Ulugh Beg, and computed positions, for A. D. 100, assuming the star to be W. B. 2<sup>h</sup> 788:

Ptolemy's star.	Ptolemy.			Ulugh Beg reduced.		Name.	Computed.	
	Mag.	Long.	Lat.	Long.	Lat.		Long.	Lat.
16 Eridani..	3	12 10	-23 30	12 37	-24 35	η Eridani....	12 14	-24 41
17 Eridani..	4	10 30	-23 15	11 35	-24 17	W. B. 2 <sup>h</sup> 788.	11 7	-24 56
10 Ceti.....	4	6 40	-25 10	7 46	-26 20	ε Ceti.....	6 48	-26 7

We get the differences:

	17-η Eridani.		17-ε Ceti.	
	Long.	Lat.	Long.	Lat.
Ptolemy....	0 / -1 40	/ +15	0 / +3 50	0 / +1 55
Ulugh Beg...	-1 2	+18	+3 49	+2 3
Computed...	-1 7	-15	+4 19	+1 11

The star W. B. 2<sup>h</sup> 788 is therefore the nearest. Ptolemy calls 17 Eridani of the 4th magnitude, but Sûfi of the 5th magnitude, *small*, almost the 6th. In Harvard R. Photometry η Eridani is 4.0 mag. and ε Ceti 5.0 mag. The Uranometria Argentina gives the magnitude of W. B. 2<sup>h</sup> 788 as 6.4. In the following chart the position of W. B. 2<sup>h</sup> 788 is marked by a +.

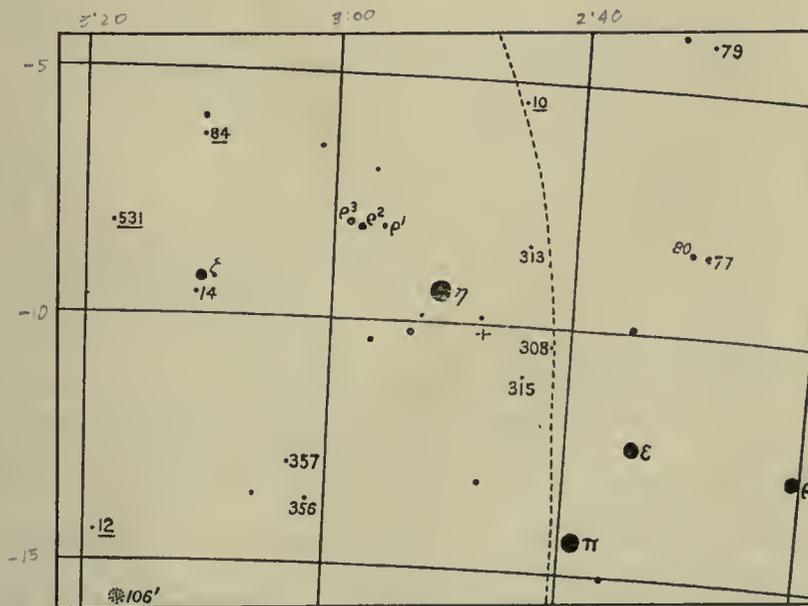


FIG. 4.—Chart of the Position of Ptolemy's Star 17 Eridani.

798. All the Greek manuscripts have the latitude erroneously  $53^{\circ} 20'$ ; the Arabs are right. The longitudes of this and the following star are  $1^{\circ}$  too large, also by comparison with Ulugh Beg.
- 798 to 804. There is some confusion in the nomenclature of these stars, which are named  $\nu^1$  to  $\nu^7$ , but in different order. The designations given by Peters are those of Taylor's Madras Catalogue, the maps of the S. D. U. K. and Proctor's Atlas. The reverse order is adopted in the Uranometria Argentina, Cape Catalogues, by Peirce, Houzeau; Schjellerup, and Manitius.
802. The position agrees better with III 202, though Ulugh Beg observed III 189.
803. Ptolemy's position agrees better with Lac. *g*, though Ulugh Beg observed Lac. *f*.
804. Ptolemy's latitude is  $2^{\circ}$  or  $3^{\circ}$  too small. Sûfi's description of Ptolemy's 31-33 identifies them as Lacaille *g*, *f*, and *h*.
805. Several Greek authorities give the longitude  $7^{\circ} 30'$ ; one reading of Paris 2389 and all the Arabs have  $0^{\circ} 10'$ . Halma gives as a variant  $27^{\circ} 30'$ , which he has clearly taken from Halley. In Paris 2394 the degrees of longitude are represented by an old cursive form of the letter  $\xi$  and so the longitude is  $60^{\circ} 40'$ ; Grynæus has the longitude  $60^{\circ} 40'$ , precisely the same. Baily gives Grynæus erroneously as  $7^{\circ} 40'$ . All authorities, even Sûfi, designate the star as of the first magnitude. The nearest star of the first magnitude is  $\alpha$  Eridani, which could not have been seen by Ptolemy and Sûfi. The position is near the place of  $\theta$  Eridani. Peters suggests that Ptolemy's place may be a compilation from inaccurate sources; he remarks that Sûfi clearly considered  $\theta$ , and not  $\alpha$  Eridani. The computed positions of the two stars for A. D. 100 are:

	Long.	Lat.
$\theta$ Eridani...	$356^{\circ} 47'$	$-53^{\circ} 50'$
$\alpha$ Eridani...	$318^{\circ} 27'$	$-59^{\circ} 16'$

It is surmised that there is a large error in Ptolemy's position or that the magnitude has changed. Peters, Baily, Peirce, and Manitius identify the star as  $\theta$ , Halma and Schjellerup as  $\alpha$  Eridani; Delambre adopts Halley's longitude,  $27^{\circ} 30'$ , and adds in a note "*La dernière brillante du Fleuve ne peut être que la dernière de l'eau du Verseau, qui s'appelle aussi le Fleuve ou le Nil.*"  $\theta$  Eridani shows no signs of variability; it is therefore highly improbable that its magnitude has changed from a first to a third magnitude star. All Almagests give mag. 1, and it is most probable that in a very ancient manuscript the  $\delta = 4$  was erroneously taken to be an  $\alpha = 1$ , of which the present investigation shows numerous examples. Thus Ptolemy's magnitude should be 4. A corresponding error is found in the Bodleian Greek Almagest, where the magnitude of Sirius is given as 4 instead of 1.

806. Long. Baily adopts  $19^{\circ} 0'$ , but the authority for  $19^{\circ} 40'$  is much stronger.
813. All Greek authorities give longitude  $24^{\circ} 50'$ ; the Arabs (Bod. 369, B. M. Reg. 16, Laur. 156, and Sûfi) have  $24^{\circ} 20'$ , which is better and has been adopted.
822. All the manuscripts have longitude  $25^{\circ} 20'$ , which is erroneous. Sûfi has  $20^{\circ} 20'$ , which is right.
833. All authorities give longitude  $23^{\circ} 0'$ . Peters suggests that it should be  $21^{\circ} 0'$  and it would then compare with Ulugh Beg.
836. Peters identifies as 22 Monocerotis (4.1 mag.) in preference to 19 Monocerotis (4.9 mag.); adopted by Baily and followed by Manitius, though the position of the former is more largely in error than the latter.

837. All authorities give longitude  $10^{\circ} 0'$ , which is  $3^{\circ}$  too large. Ulugh Beg is right. Peters has adopted  $7^{\circ} 0'$ .
843. Lat. The Greek manuscripts have  $59^{\circ} 50'$ , and the Arabs  $59^{\circ} 30'$ , which is better.
848. Long. The Arabs have  $29^{\circ} 10'$ , which is better than  $29^{\circ} 30'$ , as in the Greek and Baily.
849. The nomenclature of the stars in Argo is very confusing. The Index in Harvard Annals, vol. 50, has been followed as far as possible.
855. Latitude is variously given as  $49^{\circ} 15'$ ,  $49^{\circ} 30'$ ,  $49^{\circ} 45'$ , and  $49^{\circ} 50'$ ;  $49^{\circ} 30'$  seems to have the most authority. Baily adopts  $49^{\circ} 15'$ .
856. Latitude  $49^{\circ} 30'$  of the Arabs is preferable to  $49^{\circ} 50'$  of the Greeks, which Baily takes.
859. Sûfi's description leads upon Lacaille 2834. Mag. 5.3, U. A., the computed position of which is longitude  $96^{\circ} 7'$ , latitude  $-52^{\circ} 6'$ , giving errors of longitude  $+127'$  and latitude  $+54'$ .
861. Lat. Baily gives  $56^{\circ} 30'$ , for which the only authority found is the Crawford Codex.
865. Lat. Greek  $58^{\circ} 40'$ , Arabs  $58^{\circ} 20'$ , the latter adopted; but this is not Ptolemy's star, whose position accords better with the group VII 102, 108, and 113.
867. Peters remarks that there is no star in the position described by Sûfi.
868. Long. Baily adopts  $23^{\circ} 10'$ .
869. Lat. Greek  $57^{\circ} 40'$ , and Arabs  $57^{\circ} 0'$ .
870. Peters identifies this star as Lacaille 3580, mag. 5.8, but questions whether it is not too small. There is no star in the place described by Sûfi.
875. Lat. Baily adopts  $51^{\circ} 40'$ .
879. Long.  $14^{\circ} 10'$  has much better authority than  $15^{\circ} 10'$  given by Baily.
880. Lat. All authorities agree, but it is  $1^{\circ}$  too far south.
882. Long. This is  $2^{\circ}$  too small, also by comparison with Ulugh Beg. Sûfi's description leads to Lac. 3022, which does not agree at all; longitude  $113^{\circ} 2'$ , latitude  $-65^{\circ} 24'$ .
884. Ptolemy's longitude wrong. There is no other star here larger than mag. 4.
885. The identification of this star is probably correct, but longitude is  $3^{\circ}$  in error.
886. The identification right, longitude too small.
887. Identified as  $f$  Carinæ, with which the position agrees, but the magnitude is 4.6, which is entirely discordant with Ptolemy's mag. 2. Baily adopts  $\iota$  Argūs, but this involves an error of  $12^{\circ}$  in longitude and  $3^{\circ}$  in latitude. Schjellerup also adopts  $\iota$  Argūs, the magnitude of which is 2.2 (H. R.). Is  $f$  Carinæ variable?
- Sûfi's description of the latter half of the constellation Argo is accurate and agrees with the sky (except Nos. 19 and 22, where there are no stars to be seen now). But the positions of Ptolemy and of Ulugh Beg do not agree with Sûfi in many places.
889. Lat. Baily has  $65^{\circ} 15'$ , for which there is far less authority than  $62^{\circ} 15'$ .
895. Lat. Baily has  $13^{\circ} 40'$ .
897. Lat. Paris 2389 confirms the Arabs'  $14^{\circ} 45'$ , which agrees better than  $14^{\circ} 15'$ .
898. The latitude  $12^{\circ} 0'$  of the Arabs agrees better than  $12^{\circ} 15'$  of the Greek.
899. Sûfi has latitude  $14^{\circ} 40'$ , an error in the degrees of  $\Delta$  for  $A$ .
900. Sûfi has the erroneous latitude of  $19^{\circ} 20'$ .
904. The identification of this star as Ll. 18657 = W. B. 9<sup>h</sup> 439 agrees better than Baily's star Fl. 28 A. Manitius gives it as Fl. 29.
905. All authorities have latitude  $20^{\circ} 30'$ , which should be  $23^{\circ} 0'$ . Probably it was  $20^{\circ} 20'$ , with the common mistake of  $\text{K}\Gamma'$  for  $\text{K}\Gamma$ .
908. All Greeks have latitude  $26^{\circ} 15'$ , which is erroneous. The Arabs have it correctly,  $23^{\circ} 15'$ . Baily adopts  $23^{\circ} 35'$  from Liechtenstein, which is an obvious mistake of Gerard of Cremona.

909. Lat. The correct latitude of  $24^{\circ} 40'$  is found in the Greek manuscripts Paris 2389, 2390, Ven. 312, Vat. Reg. 90, and the Arabs. All the others, including variants in Paris 2389, 2390, and Ven. 312, have  $45^{\circ} 30'$ , or  $49^{\circ} 30'$  ( $\Theta$  for  $\text{€}$ ). It is possible that in a very ancient manuscript the latitude of a star in Argo was copied inadvertently into Hydra.
910. Ptolemy's longitude is  $1^{\circ}$  too small, also in comparison with Ulugh Beg.
914. Longitude  $1^{\circ}$  too large, also by comparison with Ulugh Beg.
918. Ptolemy's longitude and latitude quite erroneous. B. M. Sloane 2795 gives latitude  $13^{\circ} 40'$ , but probably copied from the previous star. Ulugh Beg is right.
920. All authorities give latitude  $16^{\circ} 0'$ , probably an error of  $1s = 16^{\circ} 0'$  for  $1s' = 10^{\circ} 10'$ , which is adopted. Ulugh Beg's errors are similar. The position accords best with 24 Sextantis, longitude  $131^{\circ} 36'$ , latitude  $-10^{\circ} 18'$ , but that star is only mag. 6.7 (U. A.). Sûfi certainly describes 15 *a* Sextantis (mag. 4.5), and this star is adopted by Schjellerup and Peirce, but it assumes an error of  $3^{\circ}$  in the longitude. To all appearance there was here a star seen by Ptolemy, Sûfi, and Ulugh Beg that now is not visible or shining prominently. Manitius identifies as  $\delta$  Sextantis.
927. The longitude of the Arabs has been adopted. Baily gives  $1^{\circ} 20'$ .
940. The large proper motion of  $\theta$  Centauri, amounting in 1700 years to  $28'$  in latitude, increases the discordance with Ptolemy's latitude, which is  $1^{\circ}$  too far south.
956. Peters identifies as Lac. 5390 *f* as Baily; Schjellerup as  $\xi$ . Sûfi calls the star double, which clearly refers to  $\xi^1$  and  $\xi^2$ , but the position of  $\xi^1$  (longitude  $190^{\circ} 28'$ , latitude  $38^{\circ} 42'$ ) deviates more than 5390 *f*.
- 962 to 971. There are very large errors in the longitude and latitude of these stars common to all the manuscripts. Some of the errors may be accidental, or due to the scribe, but the general inference is that the observations were made by different observers. (See note to 494-496.)
964. Sûfi finds no star visible near Ptolemy's place. It should be, as Sûfi remarks, of mag. 3, following upon the 29th star (No. 963). The nearest star would be Lacaille 5632 *Q*, but the magnitude is 5.4.
969. Long. Peters considered that there was here the not uncommon error in the Arabic of 8 for 3, which would make the longitude  $213^{\circ} 20'$ , but the resulting error is equally large, though of a different sign.
971. Cod. Vienna 14 and Cod. Vat. Reg. 90 give the longitude as  $11^{\circ} 40'$ ; all other Greek sources, as well as the Arabs, give  $14^{\circ} 40'$ , an error of  $\Delta$  for  $\Delta$ . The adoption of  $11^{\circ} 40'$  would give a more consistent error in Ptolemy's longitude =  $+2^{\circ} 43'$ .
- 979 to 981. The errors in longitudes of these three stars differ from all others in the constellation Lupus in that they have a *minus* sign. From this Peters inferred that they may have been derived from a different observer.
982. Long. The Greeks  $22^{\circ} 0'$  and the Arabs  $20^{\circ} 20'$ . Peters corrects it to  $26^{\circ} 0'$ . The identification of this star presents considerable difficulty. The description states "Australis de tribus quæ sunt in extrema cauda." The following star, 983, correctly identified as  $\iota$  Lupi, is "Media ipsarum," and the next, 984, also correctly identified as  $\tau^1$  and  $\tau^2$ , is "Borealis ipsarum." Peters first suggested that the star was Lac. 5209, but this is in Crux and a long way from the described position. Sûfi could not find the star and of course it is omitted by Ulugh Beg. Peters finally adopted Lac. 6003 *p*, which, assuming an error of  $4^{\circ}$  in longitude, would agree well; but the position is quite discordant with the description. Manitius identifies 982-984 as  $\sigma$ ,  $\rho$ , and  $\alpha$  Lupi, the positions of which would accord with the description, but involve very large errors in longitude; moreover,  $\alpha$  Lupi

seems well identified as Ptolemy's second star in Lupus. Baily's identification for the three stars is Lac. 1201  $\tau$ , 1215  $\iota$ , and 1209  $\kappa$  (1201 =  $\iota$  and 1209 =  $\tau^1$ ). It must remain a question whether there is here a variable or a lost star.

983. Long. Baily has  $24^\circ 50'$ .
989. Peters' identification agrees with Baily and Manitiu. The longitude and latitude of the Arabs has been adopted. Baily gives longitude  $27^\circ 10'$ , latitude  $11^\circ 50'$ .
990. All authorities give longitude  $26^\circ 30'$ , except B. M. Arabic 7475, which has  $27^\circ 30'$ . Halma has  $27^\circ 30'$ , which would be much better. Peters questions his authority. There is no doubt that Halma took it from Halley's edition. Ulugh Beg's longitude is also  $1^\circ$  too small. The latitudes of the last three stars in Lupus are  $1^\circ$  too far north.
992. Several Greek authorities have longitude  $3^\circ 0'$ ; the Arabs  $0^\circ 20'$ ; the former is adopted—an error of  $\Gamma' = 0^\circ 20'$  for  $\Gamma = 3^\circ 0'$ . Baily adopts  $3^\circ 10'$ .
993. Long. Baily adopts  $26^\circ 20'$ .
994. Lat. With the exception of Ven. 311, Laur. 1, and Laur. 6, all Greek codices, as well as Grynæus and Halma, have latitude  $1^\circ 30'$  instead of  $30^\circ 30'$ . An error of  $\Lambda = 1^\circ$  for  $\Lambda = 30^\circ$ .
997. Latitude  $34^\circ 0'$  adopted from the Arabs. Baily has  $34^\circ 15'$ . Peters agrees with Schjellerup in the identification of the stars in Ara. Baily identifies in this order:  $\gamma$ ,  $\epsilon$ ,  $\delta$ ,  $\alpha$ ,  $\beta$ ,  $\eta$ ,  $\theta$ . There is a large error in all the longitudes, averaging  $2^\circ 18'$  too small. These errors resemble those already referred to under 494-496, and 962-971.
998. Peters identifies as  $\frac{\delta^1 + \delta^2}{2}$  Telescopii, as it agrees better in longitude, but remarks that it is not probable that  $\alpha$  Telescopii should have been omitted.
1000. Baily identifies as 1566  $\zeta$ , which star Peters identifies in No. 1001.
1001. Baily identifies as  $\beta$ . Peters considers  $\beta$  to be 1003.
1004. Longitude  $16^\circ 50'$  adopted from Cod. Vat. 1594, and the Arabs. Baily has  $16^\circ 20'$ .
1008. Baily has latitude  $15^\circ 50'$ , for which there is no authority; it is probably a misprint.
1009. Identified as Lac. 7748, which agrees better with Ulugh Beg's observations than Lac. 7758 = 1528  $\kappa$ , identified by Baily, Schjellerup, and Manitiu. Sûfi's description refers clearly to Lac. 7748.
1011. This is the same star as No. 670. Baily gives latitude  $23^\circ 0'$ , though for No. 670 he has  $20^\circ 20'$ .
- 1013 and 1015. Vatican Reg. 90 gives the longitudes as  $30^\circ 10'$  and  $30^\circ 20'$ , respectively. Probably the original degrees were  $\Delta = 4$ , then erroneously  $\Lambda = 1$ , then erroneously  $\Lambda = 30$ .
1017. Peters remarks that longitude  $2^\circ 10'$ , adopted by Halma, would be much better, but there is no authority. Here again Halma has taken the longitude from Halley, which, as already pointed out, is not a collation of any manuscripts, but an edition in which many errors are corrected by computation.
1023. Baily has taken the Greek description of this star from Grynæus, which is identical with Paris 2389; both are erroneous, as they omit the word  $\tau\rho\iota\omega\nu$ . Vatican 1594 is correct.
- 1023 to 1028. Peters identifies these six stars, forming the *informatae* of Piscis Austrinus, as Lacaille 8579, 8639, 8761, 8685, 8731, and 8689. The identifications are not open to much doubt, but there are large errors in the coördinates of the six stars, averaging in longitude  $+1^\circ 21'$ , and in latitude  $+6^\circ 36'$ . Upon this identification 1028 is the same star as 613.

TABLE VI.

*Differences of Identification.*

Baily's No.	Ptolemy's No.	Peters.	Baily.	Schjellerup.	Peirce.	Manitius.
<b>URSA MAJOR.</b>						
18	10	30 φ	44 Lyncis	φ	63 Heis.	φ
40	Inf. 5	10 Leo minor	?10 Leo minor	10 Leo minor		11 Leo minor.
41	Inf. 6	IX 115	—	—		8 Leo minor.
42	Inf. 7	36 Lyncis	—	—		10 Leo minor.
<b>CEPHEUS.</b>						
86	Inf. 1	μ Cephei	?XXI 248	ν Cephei	μ	μ
<b>BOOTES.</b>						
97	10	2 η Cor. Bor.	?1 or 2 Cor. Bor.	η Cor. Bor.	η Cor. Bor.	χ
98	11	1 ο Cor. Bor.	48 χ	χ		—
99	12	41 ω	45 c	b		c
100	13	46 b	43 ψ	ω		ψ
101	14	43 ψ	46 b	ψ		b
102	15	45 c	41 ω	c		ω
<b>HERCULES.</b>						
138	20	74	77 x	x		x
139	21	77 x	82 y	y		y
140	22	82 y	88 z	z		z
<b>LYRA.</b>						
156	8	9 ν <sup>2</sup>	8 ν <sup>1</sup>	ν	8	ν
<b>CASSIOPEIA.</b>						
184	7	35 (Hev.) ι	?II 72	ι	ι	ι
185	8	33 θ	33 θ	μ		μ
186	9	34 φ	34 φ	θ	φ	θ
<b>PERSEUS.</b>						
196	6	18 (Hev.) ι	II 253 ι	ι	ι	ι
218	Inf. 2	14 (Hev.) Camel.	IV 7	12 Hev. Camel.		34 Hev. Camel.
<b>AURIGA.</b>						
227	8	10 η	10 η	ζ	η	η
228	9	8 ζ	8 ζ	η		ζ
233	14	14	4		4	2
<b>OPHIUCHUS.</b>						
246	13	40 ξ	—	40	40	ξ
247	14	36 Λ	—	36		Λ
248	15	42 θ	—	θ	θ	θ
249	16	44 b	—	44	7 Behr.	b
250	17	51 c	—	51		51
251	18	{ <sup>52</sup> / <sub>2</sub> } Sagittarii	52	58		58
<b>AQUILA.</b>						
289	4	59 ξ	54 ο	ξ	ο	ο
290	5	50 γ	50 γ	ν	γ	γ

Differences of Identification—continued.

Baily's No.	Ptolemy's No.	Peters.	Baily.	Schjellerup.	Peirce.	Manitius.
<b>DELPHINUS.</b>						
308	8	3 η.....	3 η.....	ζ.....	.....	η
309	9	4 ζ.....	4 ζ.....	η.....	.....	ζ
<b>EQUULEUS.</b>						
311	1	8 α.....	8 α.....	—.....	.....	α
312	2	10 β.....	10 β.....	—.....	.....	β
313	3	5 γ.....	5 γ.....	—.....	.....	γ
314	4	7 δ.....	7 δ.....	—.....	.....	δ
<b>PEGASUS.</b>						
327	13	50 ρ.....	50 ρ.....	σ.....	.....	ρ
328	14	49 σ.....	49 σ.....	ρ.....	.....	σ
<b>ANDROMEDA.</b>						
355	21	49 Λ.....	49 Λ.....	Λ.....	.....	ξ
356	22	52 χ.....	52 χ.....	χ.....	.....	ω
357	23	1 ο.....	2.....	ο.....	ο.....	ο
<b>TAURUS.</b>						
401	22	69 υ <sup>1</sup> .....	69 υ <sup>1</sup> .....	υ.....	.....	υ <sup>2</sup>
403	24	37 Λ <sup>1</sup> .....	—.....	Λ.....	43.....	Λ
404	25	50 ω <sup>2</sup> .....	—.....	ω.....	ω.....	ω
409	30	19 ε.....	19.....	—.....	.....	16
410	31	23 δ.....	23.....	—.....	.....	17
411	32	{ 25 η.....	{ 27.....	—.....	.....	η
		{ 27 φ.....				
412	33	III 170.....	18.....	—.....	—.....	38 II.
415	Inf. 3	109 η.....	105.....	η.....	.....	η
417	Inf. 5	126.....	126.....	119.....	.....	130
418	Inf. 6	129.....	128.....	Σ730.....	129.....	129
419	Inf. 7	121.....	121.....	121.....	.....	118
<b>GEMINI.</b>						
432	9	58.....	76 c.....	b.....	52 Tauri.....	63
445	Inf. 4	85.....	85.....	85.....	.....	g
446	Inf. 5	81 g.....	81 g.....	g.....	.....	f
447	Inf. 6	74 f.....	74 f.....	f.....	.....	68
448	Inf. 7	16 ζ Cancrī.....	16 ζ Canc.....	—.....	.....	ζ Canc.
<b>CANCER.</b>						
458	Inf. 1	{ 62 ο <sup>1</sup> .....	{ 81 π <sup>1</sup> .....	π.....	π <sup>1</sup> .....	π
		{ 63 ο <sup>2</sup> .....				
460	Inf. 3	69 ν.....	69 ν.....	ξ.....	.....	ν
461	Inf. 4	77 ξ.....	77 ξ.....	ν.....	.....	ξ
<b>LEO.</b>						
482	21	—.....	71.....	72.....	.....	θ
483	22	70 θ.....	70 θ.....	θ.....	.....	η
486	25	84 τ.....	84 τ.....	ρ <sup>6</sup> .....	.....	τ
494	Inf. 6	15 c Comæ.....	—.....	15 Comæ.....	.....	15 Comæ.
495	Inf. 7	7 h Comæ.....	4 Comæ.....	12 Comæ.....	.....	7 Comæ.
496	Inf. 8	23 k Comæ.....	21 Comæ.....	21 Comæ.....	.....	23 Comæ.
<b>VIRGO.</b>						
504	8	46.....	46.....	k.....	46.....	k
512	16	74 l.....	74 l <sup>2</sup> .....	l.....	.....	l <sup>2</sup>
514	18	82 m.....	82 m.....	LL. 25396.....	82 m.....	m
515	19	68 i.....	68 i.....	I.L. 25086.....	.....	i
528	Inf. 6	89.....	73.....	89.....	89.....	89

*Differences of Identification—continued.*

Baily's No.	Ptolemy's No.	Peters.	Baily.	Schjellerup.	Peirce.	Manitius.
LIBRA.						
541	Inf. 5	43 $\kappa$ . . . . .	41 . . . . .	$\eta$ . . . . .		41
542	Inf. 6	O. Arg. 14782 . . . . .	43 $\kappa$ . . . . .	$\kappa$ . . . . .		$\kappa$
544	Inf. 8	39 . . . . .	39 . . . . .	3 Hev. Scorp . . . . .		2 H. Scorp.
545	Inf. 9	40 . . . . .	40 . . . . .	o Scorp . . . . .		o Scorp.
SCORPIUS.						
560	15	XVI 206 $\zeta^2$ . . . . .	$\zeta^2$ . . . . .	— . . . . .		$\zeta^1$
567	Inf. 1	$\gamma$ Telescopii . . . . .	— . . . . .	— . . . . .	65 Behr . . . . .	G
569	Inf. 3	3 Sagittarii . . . . .	44 Oph. or 3 Sag . . . . .	3 Sagittarii . . . . .	44 Oph . . . . .	43 Oph.
SAGITTARIUS.						
586	17	56 <i>f</i> . . . . .	56 <i>f</i> . . . . .	<i>f</i> . . . . .		57
594	25	XVIII 17 . . . . .	$\eta$ . . . . .	$\beta$ Telescopii . . . . .		$\eta$
595	26	XIX { 33 <sup>o</sup> $k^1$ . . . . . 333 $k^2$ . . . . . }	$\theta$ . . . . .	<i>m</i> Lac . . . . .		$\theta^1$
596	27	XIX 297 $\iota$ . . . . .	$\iota$ . . . . .	<i>e</i> Lac . . . . .		$\iota$
CAPRICORNUS.						
615	15	36 <i>b</i> . . . . .	35 . . . . .	<i>b</i> . . . . .		<i>b</i>
AQUARIUS.						
634	6	13 <i>v</i> . . . . .	13 <i>v</i> . . . . .	Fl. 7 . . . . .		<i>v</i>
645	17	38 <i>e</i> . . . . .	37 $e^1$ . . . . .	<i>e</i> . . . . .		<i>e</i>
649	21	68 $g^2$ . . . . .	59 <i>v</i> . . . . .	68 . . . . .		$g^2$
651	23	63 $\kappa$ ? . . . . .	67 ? . . . . .	67 . . . . .		$\kappa$
655	27	92 $\chi$ . . . . .	92 $\chi$ . . . . .	— . . . . .		$\chi$
656	28	91 $\psi^1$ . . . . .	91 $\psi^1$ . . . . .	— . . . . .		$\psi^1$
658	30	94 ? . . . . .	94 ? . . . . .	97 . . . . .		13 I H
659	31	102 $\omega^1$ . . . . .	102 $\omega^1$ . . . . .	— . . . . .		$\omega^1$
662	34	106 $i^1$ . . . . .	104 $\Lambda^2$ . . . . .	$i^1$ . . . . .		$i^1$
663	35	108 $i^2$ . . . . .	106 $i^1$ . . . . .	$i^2$ . . . . .		$i^2$
666	38	101 $b^4$ . . . . .	101 $b^4$ . . . . .	$b^3$ . . . . .		$b^2$
PISCES.						
704	31	81 $\psi^2$ . . . . .	81 $\psi^3$ . . . . .	$\psi^3$ . . . . .		$\chi$
707	34	84 $\chi$ . . . . .	84 $\chi$ . . . . .	$\chi$ . . . . .		99 H
CETUS.						
716	5	— . . . . .	78 <i>v</i> . . . . .	$\xi^2$ . . . . .		<i>v</i>
717	6	— . . . . .	73 $\xi^2$ . . . . .	$\mu$ . . . . .		$\mu$
728	17	19 $\varphi^2$ . . . . .	21 . . . . .	19 . . . . .	21 . . . . .	$\varphi^4$
729	18	O. 198 . . . . .	19 $\varphi^2$ . . . . .	23 . . . . .	$\varphi^2$ . . . . .	$\varphi^3$
730	19	17 $\varphi^1$ . . . . .	— . . . . .	17 . . . . .	28 Heis Ceti . . . . .	$\varphi^2$
731	20	O. 161 . . . . .	17 $\varphi^1$ . . . . .	18 . . . . .	$\varphi^1$ . . . . .	$\varphi^1$
ORION.						
742	9	72 $f^2$ . . . . .	72 $f^2$ . . . . .	$f^1$ . . . . .		$f^2$
743	10	69 $f^1$ . . . . .	69 $f^1$ . . . . .	$f^2$ . . . . .		$f^1$
744	11	54 $\chi^1$ . . . . .	57 $\chi^2$ . . . . .	$\chi^1$ . . . . .		$\chi^1$
745	12	62 $\chi^2$ . . . . .	64 $\chi^3$ . . . . .	$\chi^2$ . . . . .		$\chi^2$
748	15	33 $n^1$ . . . . .	33 $n^1$ . . . . .	$\psi$ . . . . .		$n^1$
749	16	30 $\psi^2$ . . . . .	30 $\psi^2$ . . . . .	25 . . . . .		$\psi$
752	19	9 $o^2$ . . . . .	6 <i>g</i> . . . . .	$o^2$ . . . . .		$o^2$
753	20	7 $\pi^1$ . . . . .	7 $\pi^4$ . . . . .	$\pi^1$ . . . . .		$\pi^1$
755	23	1 $\pi^3$ . . . . .	1 $\pi^3$ . . . . .	$\pi^4$ . . . . .		$\pi^4$
756	24	3 $\pi^4$ . . . . .	3 $\pi^3$ . . . . .	$\pi^5$ . . . . .		$\pi^5$
763	30	{ 42 } <i>c</i> . . . . . { 45 }	42 <i>c</i> . . . . .	<i>v</i> . . . . .	<i>e</i> . . . . .	<i>c</i>

Differences of Identification—continued.

Baily's No.	Ptolemy's No.	Peters.	Baily.	Schjellerup.	Peirce.	Manitius.
ERIDANUS.						
779	8	40 $\sigma^2$ . . . . .	40 $d$ . . . . .	$\sigma^2$ . . . . .	98 Heis. . . . .	$\sigma^2$
787	16	3 $\eta$ . . . . .	3 $\eta$ . . . . .	$\eta$ . . . . .		$\rho^3$
788	17	—	$\sigma$ . . . . .	LL. 4969 . . . . .		$\eta$
798	27	50 $v^{671}$ . . . . .	50 $v^6$ . . . . .	$v^1$ . . . . .		$v^1$
800	29	43 $v^{573}$ . . . . .	43 $v^5$ . . . . .	$v^3$ . . . . .		$d$
802	31	III 202 $v^3$ . . . . .	$v^3$ . . . . .	$i$ . . . . .	$v^6$ . . . . .	$v^5$
803	32	III 189 $v^2$ . . . . .	$v^2$ . . . . .	$g$ . . . . .	58 Behr . . . . .	$g$
804	33	III 149 $v^1$ . . . . .	$v^1$ . . . . .	$h$ . . . . .	$v^7$ . . . . .	$h$
805	34	{II 238 } $\theta$ . . . . .	$\theta$ . . . . .	$a$ . . . . .	$\theta$ . . . . .	$\theta$
		{II 239 }				
CANIS MAJOR.						
825	8	7 $v^2$ . . . . .	6 $v^1$ . . . . .	$v^2$ . . . . .		$v^2$
836	Inf. 1	22 Monocerotis . . . . .	19 Monoc. . . . .	22 Monoc. . . . .		19 Monoc.
837	Inf. 2	VI 9 $\theta$ Columb. . . . .	485 Lac. . . . .	$\theta$ Columb. . . . .		$\theta$ Columb.
838	Inf. 3	VI 65 $\kappa$ Columb. . . . .	497 Lac. . . . .	$\kappa$ Columb. . . . .		$\kappa$ Columb.
839	Inf. 4	VI 95 $\delta$ Columb. . . . .	510 Lac. . . . .	$\delta$ Columb. . . . .		$\delta$ Columb.
840	Inf. 5	VI 136 $\lambda$ Can. maj. . . . .	521 Lac. . . . .	$\lambda$ Can. maj. . . . .	$\lambda$ . . . . .	$\lambda$ Can. maj.
841	Inf. 6	V 238 $\mu$ Columb. . . . .	444 Lac. . . . .	$\mu$ Columb. . . . .	$\mu$ Columb. . . . .	$\mu$ Columb.
842	Inf. 7	V 276 $\lambda$ Columb. . . . .	453 Lac. . . . .	—	$\lambda$ Columb. . . . .	$\lambda$ Columb.
843	Inf. 8	V 297 $\gamma$ Columb. . . . .	465 Lac. . . . .	$\gamma$ Columb. . . . .	$\gamma$ Columb. . . . .	$\gamma$ Columb.
844	Inf. 9	V 267 $\beta$ Columb. . . . .	452 Lac. . . . .	$\beta$ Columb. . . . .	$\beta$ Columb. . . . .	$\beta$ Columb.
845	Inf. 10	V 196 $a$ Columb. . . . .	434 Lac. . . . .	$a$ Columb. . . . .		$a$ Columb.
846	Inf. 11	V 140 $\epsilon$ Columb. . . . .	419 Lac. . . . .	$\epsilon$ Columb. . . . .		$\epsilon$ Columb.
ARGO NAVIS.						
857	9	VII 200 I Pup. . . . .	$\sigma$ . . . . .	$\sigma$ . . . . .		17 H. Arg.
859	11	{VII 99 . . . . .	{ $v$ . . . . .	VII 137 . . . . .		3 H. Arg.
		{VII 108 . . . . .				
860	12	VII 68 $\pi$ Pup. . . . .	$\lambda$ . . . . .	$\pi$ . . . . .		$\pi$ Pup.
861	13	VII 172 $f$ Pup. . . . .	$f$ . . . . .	—	$f$ Pup. . . . .	$f$ Pup.
862	14	VII 186 { $d^1$ } Pup. . . . .	$\phi^1$ . . . . .	—	$d$ Pup. . . . .	$d^1$ Pup.
		{ $d^2$ }				
		{ $d^3$ }				
863	15	VII 214 $c$ Pup. . . . .	$\phi^2$ . . . . .	—	$c$ Pup. . . . .	$c$ Pup.
864	16	VII 254 $b$ Pup. . . . .	$\psi ? b$ . . . . .	—	$b$ Pup. . . . .	$b$ Pup.
865	17	VII 306 $\zeta$ Pup. . . . .	$\delta$ . . . . .	$\zeta$ . . . . .		$\zeta$ Pup.
866	18	VII 253 $a$ Pup. . . . .	$\omega^1$ . . . . .	$a$ . . . . .		—
867	19	Lac. 3128 . . . . .	$\omega^2$ . . . . .	—		—
868	20	VIII 21 $h^1$ Pup. . . . .	$\Lambda^1$ . . . . .	$r$ . . . . .		$h^1$ Pup.
869	21	VIII 35 $h^2$ Pup. . . . .	$\Lambda^2$ . . . . .	$q$ . . . . .		$h^2$ Pup.
870	22	Lac. 3580 . . . . .	$p^1$ . . . . .	—	$p^1$ 52 Behr. . . . .	$d$ Vel.
871	23	VIII 168 $d$ Vel. . . . .	$p^2$ . . . . .	—	$p^2$ $d$ Vel. . . . .	$a$ Vel.
872	24	VIII 139 $e$ Vel. . . . .	$p^3$ . . . . .	—	$p^3$ $e$ Vel. . . . .	$b$ Vel.
873	25	VIII 176 $a$ Vel. . . . .	$a$ . . . . .	—	$a$ Vel. . . . .	$D$ Vel.
874	26	VIII 155 $b$ Vel. . . . .	$b$ . . . . .	—	$b$ Vel. . . . .	$C$ Vel.
875	27	VIII 145 $\sigma^1$ { $\beta$ Pyx. } . . . . .	$\sigma^1$ . . . . .	—	$b$ Mali. . . . .	$\beta$ Pyx.
		{ $b$ Mal. }				
879	31	IX 1 $\lambda$ Vel. . . . .	$\epsilon$ . . . . .	$\lambda$ . . . . .		$\lambda$ Vel.
881	33	VII 135 $\sigma$ Pup. . . . .	$i$ . . . . .	$\sigma$ . . . . .		—
882	34	VII 235 $P$ Pup. . . . .	$r$ . . . . .	$P$ . . . . .		—
883	35	$\gamma$ Vel. . . . .	$\zeta$ . . . . .	$\gamma$ . . . . .		$\gamma$ Vel.
884	36	$\chi$ Car. . . . .	$\eta$ . . . . .	$\chi$ . . . . .		$\epsilon$ Car.
885	37	$\sigma$ Pup. . . . .	$q$ . . . . .	$\delta$ . . . . .	$\delta$ Arg. . . . .	$\delta$ Vel.
886	38	$\delta$ Vel. . . . .	$\theta$ . . . . .	$\kappa$ . . . . .		$\kappa$ Vel.
887	39	$f$ Car. . . . .	$v$ . . . . .	$\iota$ . . . . .		$\phi$ Vel.

*Differences of Identification—continued.*

Baily's No.	Ptolemy's No.	Peters.	Baily.	Schjellerup.	Peirce.	Manitius.
ARGO NAVIS—CONT.						
888	40	κ Vel.	<i>b</i>	<i>N</i>	<i>b κ</i>	<i>ν Car.</i>
889	41	N. Vel.	<i>c</i>	<i>φ</i>	<i>φ Arg.</i>	<i>θ Car.</i>
890	42	V 315 η Columb.	471 Lac	η Columb.		τ Pup.
891	43	VI 205 <i>ν</i> Pup.	<i>g</i>	<i>ν Arg.</i>	<i>g ν</i>	σ Pup.
893	45	τ Pup.	<i>h</i>	τ Pup.	<i>h τ</i>	τ Pup.
HYDRA.						
904	11	{LL. 18657 W 9 <sup>h</sup> 439}	28 Λ	—		29
906	13	38 κ	38 κ	<i>ν</i> <sup>1</sup>		κ
907	14	39 <i>ν</i> <sup>1</sup>	39 <i>ν</i> <sup>1</sup>	<i>ν</i> <sup>2</sup>		<i>ν</i> <sup>1</sup>
908	15	40 <i>ν</i> <sup>2</sup>	40 <i>ν</i> <sup>2</sup>	λ		λ <sup>2</sup>
919	Inf. 1	30 Monocerotis	<i>i</i>	30 Monoc.		30 Monoc.
920	Inf. 2	{24 Sextantis 15 <i>a</i> Sextantis}	—	15 Sextantis	15 Sextantis	δ Sextantis.
CRATER.						
924	4	27 ζ	27 ζ	η	ζ	ζ
925	5	14 ε	14 ε	θ		ε
926	6	30 η	30 η	ζ	η	η
927	7	21 θ	21 θ	ε		θ
CENTAURUS.						
941	7	XIII 99 <i>d</i>	1150 Lac. <i>ψ</i>	<i>d</i>		<i>d</i>
942	8	XIV 40 <i>ψ</i>	1205 Lac. <i>l</i>	<i>ψ</i>		<i>ψ</i>
943	9	XIV 55 <i>a</i>	1207 Lac. <i>o</i>	<i>a</i>		<i>a</i>
944	10	XIV 150 <i>c</i> <sup>1</sup>	1234 Lac. <i>π</i>	<i>c</i>		<i>c</i> <sup>1</sup>
945	11	XIV 141 <i>b</i>	1232 Lac. <i>ρ</i>	<i>b</i>		<i>c</i> <sup>0</sup>
946	12	XIII 197 <i>ν</i>	1165 Lac. <i>τ</i>	<i>ν</i>	τ ( <i>ν</i> )	<i>ν</i>
947	13	XIII 198 <i>μ</i>	1166 Lac. <i>ν</i>	<i>μ</i>	<i>ν</i> ( <i>μ</i> )	<i>μ</i>
948	14	XIII 246 <i>φ</i>	1182 Lac. <i>φ</i>	<i>φ</i>	<i>φ</i> ( <i>φ</i> )	<i>φ</i>
949	15	XIII 288 <i>χ</i>	1191 Lac. <i>m</i>	<i>χ</i>	<i>m</i> ( <i>χ</i> )	<i>χ</i>
950	16	XIV 109 η	1219 Lac. <i>κ</i>	η		η
951	17	XIV 216 κ	1255 Lac. <i>σ</i>	κ		κ
952	18	XIII 231 ζ	1177 Lac. λ	ζ	λ (ζ)	ζ
953	19	XIII 267 <i>ν</i> <sup>2</sup>	1184 Lac. <i>n</i>	<i>o</i>		<i>ν</i> <sup>1</sup>
954	20	XIII 249 <i>ν</i> <sup>1</sup>	1183 Lac. <i>χ</i>	—		<i>ν</i> <sup>2</sup>
955	21	<i>ω</i>	1148 Lac. <i>ω</i>	—		<i>ω</i>
956	22	<i>f</i>	1123 Lac. <i>o</i>	ξ	ξ	<i>f</i>
957	23	<i>γ</i>	1098 Lac. <i>μ</i>	<i>γ</i>		<i>γ</i>
958	24	<i>τ</i>	1093 Lac. <i>c</i>	<i>τ</i>		<i>ρ</i>
959	25	<i>σ</i>	1086 Lac. <i>p</i>	<i>σ</i>		δ
960	26	<i>δ</i>	1064 Lac. <i>β</i>	<i>δ</i>		—
961	27	<i>ρ</i>	1068 Lac. <i>e</i>	<i>ρ</i>		—
962	28	<i>M</i>	1155 Lac. <i>δ</i>	—		ε
963	29	<i>ε</i>	—	ε		γ Crucis.
964	30	<i>Q</i>	—	—		δ Crucis.
965	31	γ Crucis	1070 Lac. <i>ν</i>	γ Crucis		β Crucis.
966	32	β Crucis	1107 Lac. <i>ξ</i>	β Crucis		<i>a</i> Crucis.
967	33	δ Crucis	1025 Lac. <i>f</i>	δ Crucis	δ Crucis	λ
968	34	<i>a</i> Crucis	1082 Lac. <i>ζ</i>	<i>a</i> Crucis	<i>a</i> Crucis	—
970	36	β Cent	1185 Lac. <i>γ</i>	β Cent		β Cent.
971	37	μ Crucis	1107 Lac. <i>ε</i>	θ Cent	θ	—

Differences of Identification—continued.

Baily's No.	Ptolemy's No.	Peters.	Baily.	Schjellerup.	Peirce.	Manitius.
<b>LUPUS.</b>						
972	1	XIV 211 β . . . . .	1254 Lac. o . . . . .	β . . . . .		β
973	2	a . . . . .	1231 Lac. a . . . . .	a . . . . .		o
974	3	XV 31 δ . . . . .	1283 Lac. ξ . . . . .	δ . . . . .		γ
975	4	XV 98 γ . . . . .	1293 Lac. η . . . . .	γ . . . . .		δ
976	5	XV 35 ε . . . . .	1285 Lac. θ . . . . .	ε . . . . .		ε
977	6	λ . . . . .	1263 Lac. π . . . . .	λ . . . . .		π
978	7	XV 242 π . . . . .	1258 Lac. β . . . . .	π . . . . .		κ
979	8	μ . . . . .	1274 Lac. ξ . . . . .	μ . . . . .		μ
980	9	κ . . . . .	1266 Lac. ρ . . . . .	κ . . . . .		ν
981	10	ζ . . . . .	1265 Lac. σ . . . . .	ζ . . . . .		ζ
982	11	ρ ? . . . . .	1201 Lac. τ . . . . .	—		σ
983	12	ι . . . . .	1215 Lac. ι . . . . .	ι . . . . .		ρ
984	13	XIV { <sup>66</sup> τ <sup>1</sup> . <sup>67</sup> τ <sup>2</sup> . . . . .}	1209 Lac. κ . . . . .	τ . . . . .	κ (τ) . . . . .	a
985	14	XV 217 η . . . . .	1325 Lac. ν . . . . .	η . . . . .		η
986	15	XV 248 θ . . . . .	1335 Lac. μ . . . . .	θ . . . . .	μ (ξ) . . . . .	θ
987	16	XV 174 Fl. 5 χ . . . . .	3 γ . . . . .	λ . . . . .		ψ.
988	17	XV 204 ξ . . . . .	5 λ . . . . .		—	χ
989	18	XV 10 Fl. 1 i . . . . .	1 ε . . . . .	δ . . . . .	ε 30 Behr. . . . .	i
990	19	XV 22 Fl. 2 f . . . . .	2 δ . . . . .	—	δ 33 Behr. . . . .	f
<b>ARA.</b>						
991	1	XVII 125 σ . . . . .	γ . . . . .	σ . . . . .		σ
992	2	θ . . . . .	ε . . . . .	θ . . . . .		θ
993	3	a . . . . .	δ . . . . .	a . . . . .	δ (a) . . . . .	a
994	4	ε <sup>1</sup> . . . . .	a . . . . .	ε . . . . .		ε
995	5	γ . . . . .	β . . . . .	γ . . . . .	a (ε <sup>1</sup> ) . . . . .	γ
996	6	β . . . . .	η . . . . .	β . . . . .		β
997	7	ζ . . . . .	θ . . . . .	ζ . . . . .		ζ
<b>CORONA AUSTRALIS.</b>						
998	1	XVIII { <sup>73</sup> δ <sup>1</sup> . <sup>76</sup> δ <sup>2</sup> . } Tel.	a . . . . .	θ . . . . .		a Teles.
999	2	XVIII { <sup>166</sup> η <sup>1</sup> . <sup>169</sup> η <sup>2</sup> . . . . .}	ε . . . . .	η . . . . .		η
1000	3	Lac. 7909 . . . . .	ζ . . . . .	o . . . . .		—
1001	4	XVIII 250 ζ . . . . .	β . . . . .	ζ . . . . .		ζ
1002	5	XVIII 291 δ . . . . .	η . . . . .	δ . . . . .		δ
1003	6	XVIII 305 β . . . . .	θ . . . . .	β . . . . .		β . . . . .
1004	7	XVIII 300 a . . . . .	γ . . . . .	κ . . . . .	γ . . . . .	a
1005	8	XVIII 280 γ . . . . .	δ . . . . .	γ . . . . .		γ
1006	9	XVIII 230 ε . . . . .	μ . . . . .	—		ε
1007	10	XVIII 222 ν . . . . .	ν . . . . .	—		—
1008	11	XVIII 142 λ . . . . .	ι . . . . .	λ . . . . .		λ
1009	12	Lac. 7748 ξ Bode.	κ . . . . .	κ Bode . . . . .		κ
1010	13	XVIII 85 θ . . . . .	λ . . . . .	ξ Bode . . . . .		θ
<b>PISCIS AUSTRINUS.</b>						
1022	12	XXI 308 γ Gruis.	κ . . . . .	γ . . . . .		γ Gruis.
1023	Inf. 1	XX 307 a Mic. . . . .	1694 Lac. . . . .	λ Gruis . . . . .		a Mic.
1024	Inf. 2	XX 403 γ Mic. . . . .	1717 Lac. . . . .	μ Gruis . . . . .		γ Mic.
1025	Inf. 3	XXI 46 ε Mic. . . . .	—	δ Gruis . . . . .		ε Mic.
1026	Inf. 4	XX 445 . . . . .	1704 Lac. . . . .	β Gruis . . . . .		δ Mic.
1027	Inf. 5	XXI 12 . . . . .	—	a Gruis . . . . .		—
1028	Inf. 6	24 A Capric. . . . .	4 . . . . .	ι Gruis . . . . .	4 . . . . .	—

## THE STAR MAGNITUDES.

The magnitudes of the stars in the catalogue are those deduced as most probable from consideration of the Table of Star Magnitudes (pp. 122-143), besides many other authorities mentioned in the notes.

The magnitudes in the Greek codices generally agree very well. Comparing the two oldest Greek codices, Paris 2389 and Vatican 1594, twelve differences are found, of which Paris 2389 is correct in ten and Vatican 1594 in two cases. Comparing Vatican 1594 with Venice 313, only 4 differences are noted. Comparing Paris 2389 with the Arabic codex, British Museum Reg. 16, there are 35 differences, of which Paris 2389 is correct in 21 and B. M. Reg. 16 correct in 13 cases, with one case in which both are probably wrong. The Arabic codex, B. M. Reg. 16, is particularly valuable from the great care with which it has been written. In all series of stars of the same magnitude, the magnitudes of the first and last only are written—a method which avoids many mistakes.

The magnitudes adopted in the catalogue differ from those in Paris 2389 in the following 14 stars: Baily, Nos. 128, 129, 130, 154, 211, 352, 480, 509, 576, 736, 764, 765, 824, and 885.

It will be seen in Table VIII that Dr. Peters has adopted magnitudes for some stars which differ from all manuscripts of the *Almagest* yet examined, and for which no authority can be found. In a note on one of his collations, he says that he has "inserted the *revised* magnitudes of the Paris Codex 2389, besides several notes on the stars in my copy of Baily's *Ptolemy*" (Mems. R. A. S., Vol. XIII), but unfortunately this volume can not be found.

The magnitudes in Ptolemy's catalogue have been fully discussed by Prof. E. C. Pickering in H. A., Vol. XIV, Part II. In this memoir he has reduced Ptolemy's magnitudes to the photometric scale of the Harvard Photometry, and arrives at the accompanying photometric values:

Ptolemy magnitude.	Photometric magnitude.	Ptolemy magnitude.	Photometric magnitude.
1	0.5	3-4	3.8
1-2	1.2	4-3	3.8
2-1	1.2	4	4.4
2	2.1	4-5	4.6
2-3	2.6	5-4	4.7
3-2	2.7	5	5.0
3	3.3	6	5.4

In the following table of whole magnitudes 2 to 6 (Table VII), a rather larger number of stars is employed and the magnitudes are based on the Harvard Revised Photometry. The corresponding figures from H. A., Vol. XIV, are appended in italics. It will be seen that the results do not suggest any material difference from those obtained by Professor Pickering in the above investigation.

TABLE VII.

Ptolemy magni- tude.	No. of stars.				Mean magnitudes.			
	North.	Zodiac.	South.	All.	North.	Zodiac.	South.	All.
2	11	6	12	29	2.20	2.10	2.14	2.14
	12	6	7	25	2.04	1.95	2.23	2.07
3	63	52	46	161	3.22	3.24	3.35	3.27
	58	44	34	136	3.28	3.31	3.36	3.31
4	121	100	111	332	4.32	4.45	4.30	4.36
	119	105	75	299	4.33	4.48	4.32	4.38
5	48	95	38	181	4.84	5.08	4.64	4.85
	40	82	16	138	4.81	5.04	4.82	4.95
6	13	24	8	45	5.27	5.36	5.22	5.28
	9	25	4	38	5.46	5.38	5.18	5.38

In Table VIII the first column gives the number of the star in Baily's Ptolemy; the second column the name of the star; the third gives the magnitudes assigned by Dr. Peters, an asterisk (\*) indicating those which differ from the magnitudes adopted in the catalogue; the next three columns give the magnitudes in the Greek codices, Paris 2389, Vatican 1594, and Venice 313; the following column gives the magnitudes adopted by Manitius from the several Greek manuscripts he examined; then follow the magnitudes in three Arabic codices, British Museum Reg. 16, British Museum 7475, and Bodleian 369; and in the last column is given the magnitudes in the Harvard Revised Photometry; for double stars the combined magnitude is given.

The Notes on pp. 144-150 give the variants from the adopted magnitudes, in the Greek codices, Paris 2389, Vatican 1594, Vatican 1038, Venice manuscripts 302, 310, 312, and 313, and Laurentian 48; the Latin codex Laurentian 6, and the three Arabic codices, British Museum Reg. 16 and 7475, and Bodleian 369. The magnitudes in the Latin manuscripts of Gerard of Cremona (Laurentian 45 and British Museum, Sloane 2795) show so many discordances that they are passed over, except in a few instances. Baily has omitted the qualifying words *μείζων* and *ελάσσων*, consequently the variants in his edition refer only to magnitudes not so qualified in the catalogue.

TABLE VIII.

Star Magnitudes.

Baily's No.	Name.	Peters.	Greek.				Arabic.			Harv. R. P.
			Paris 2389.	Vatican 1594.	Venice 313.	Manitius printed.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	
URSA MINOR.										
1	1 $\alpha$ .....	3	3	3	3	3	3	3	3	2.1
2	23 $\delta$ .....	4	4	4	4	4	4	4	4	4.4
3	22 $\epsilon$ .....	4	4	4	4	4	4	4	4	4.4
4	16 $\zeta$ .....	4	4	4	4	4	4	4	4	4.3
5	21 $\eta$ .....	4	4	4	4	4	4	4	4	5.0
6	7 $\beta$ .....	2	2	2	2	2	2	2	2	2.2
7	13 $\gamma$ .....	3*	2	2	2	2	2	2	2	3.1
8	5 $\Lambda$ .....	4	4	4	4	4	4	4	4	4.4
URSA MAJOR.										
9	1 $\alpha$ .....	4	4	4	4	4	4	4	4	3.5
10	2 $\Lambda$ .....	5	5	5	5	5	5	5	5	5.4
11	4 $\pi^2$ .....	5	5	5	5	5	5	5	5	4.8
12	8 $\rho$ .....	5	5	5	5	5	5	5	5	5.0
13	13 $\sigma^2$ .....	5	5	5	5	5	5	5	5	4.9
14	24 $d$ .....	5	5	5	5	5	5	5	5	4.6
15	14 $\tau$ .....	4-5*	4	4	4	4	4	4	4	4.7
16	23 $h$ .....	4	4	4	4	4	4	4	4	3.7
17	29 $v$ .....	4	4	4	4	4	4	4	4	3.9
18	30 $\phi$ .....	4-5	4-5	4	4	4-5	4-5	4-5	4-5	4.5
19	25 $\theta$ .....	3	3	3	3	3	3	3	3	3.3
20	9 $\iota$ .....	3-4*	3	3	3	3	3	3	3	3.1
21	12 $\kappa$ .....	3-4*	3	3	3	3	3	3	3	3.7
22	18 $e$ .....	4	4	4	4	4	4	4	4	4.9
23	15 $f$ .....	4	4	4	4	4	4	4	4	4.5
24	50 $\alpha$ .....	2	2	2	2	2	2	2	2	1.9
25	48 $\beta$ .....	2	2	2	2	2	2	2	2	2.4
26	69 $\delta$ .....	3	3	3	3	3	3	3	3	3.4
27	64 $\gamma$ .....	2	2	2	2	2	2	2	2	2.5
28	33 $\lambda$ .....	3-4*	3	3	3	3	3	3	3	3.5
29	34 $\mu$ .....	3-4*	3	3	3	3	3	2	3	3.2
30	52 $\psi$ .....	4-3	4-3	4-3	4-3	4-3	4-3	3	4-3	3.1
31	54 $\nu$ .....	3-4*	3	3	3	3	3	3	3	3.7
32	53 $\xi$ .....	3-4*	3	3	3	3	3	3	3	4.6
33	77 $\epsilon$ .....	2	2	2	2	2	2	2	2	1.7
34	79 $\zeta$ .....	2	2	2	2	2	2	2	2	2.4
35	85 $\eta$ .....	2	2	2	2	2	2	3	2	1.9
36	12 Can. Ven.....	3	3	3	3	3	3	3	3	3.0
37	8 Can. Ven.....	5	5	5	5	5	5	5	5	4.3
38	40 Lyncis.....	4	4	4	4	4	4	4	4	3.3
39	38 Lyncis.....	4	4	4	4	4	4	4	4	3.8
40	10 Leo min.....	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	4.6
41	IX 115.....	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	5.0
42	VIII 245.....	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	4.7
43	31 Lyncis.....	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	$\alpha\mu$	4.4
DRACO.										
44	21 $\mu$ .....	4	4	4	4	4	4	4	4	5.8
45	{24} $\nu$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4.2

Star Magnitudes—continued.

Baily's No.	Name.	Peters.	Greek.				Arabic.			Harv. R. P.
			Paris 2389.	Vatican 1594.	Venice 313.	Manitius printed.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	
DRACO—continued.										
46	23 β.....	3-4*	3	3	3	3	3	3	3	3.0
47	32 ξ.....	4	4	4	4	4	4	4	4	3.9
48	33 γ.....	3	3	3	3	3	3	3	3	2.4
49	39 b.....	4	4	4	4	4	4	4	4	4.8
50	46 c.....	4	4	4	4	4	4	4	4	5.1
51	45 d.....	4	4	4	4	4	4	4	4	4.9
52	47 o.....	4	4	4	4	4	4	4	4	4.8
53	58 π.....	4	4	4	4	4	4	4	4	4.6
54	57 δ.....	4	4	4	4	4	4	4	4	3.2
55	63 ε.....	4-5*	4	4	4	4	4	4	4	4.0
56	67 ρ.....	4	4	4	4	4	4	4	4	4.7
57	61 σ.....	5-6*	5	5	5	5	5	5	5	4.8
58	52 υ.....	5-6*	5	5	5	5	5	5	5	4.9
59	60 τ.....	5-6*	5	5	5	5	5	5	5	4.6
60	31 ψ.....	4	4	4	4	4	4	4	4	4.9
61	44 χ.....	4	4	4	4	4	4	4	4	3.7
62	43 φ.....	4-5*	4	4	4	4	4	4	4	4.2
63	27 f.....	6	6	6	6	6	6	6	6	5.2
64	28 ω.....	6	6	6	6	6	6	6	6	4.9
65	18 g.....	5	5	5	5	5	6	5	5	5.0
66	19 h.....	5	5	5	5	5	5	5	5	4.8
67	22 ζ.....	3	3	3	3	3	3	3	3	3.2
68	14 η.....	3	3	3	3	3	3	3	3	2.9
69	13 θ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4.1
70	12 ι.....	3-2*	3	3	3	3	3-2?	3	3	3.5
71	10 i.....	4	4	4	4	3	3	3	3	4.8
72	11 α.....	3-4*	3	3	3	3	4, 3?	3	3	3.6
73	5 κ.....	3-4*	3	3	3	3	3	3	3	3.9
74	1 λ.....	3-4*	3	3	3	3	3	3	3	4.1
CEPHEUS.										
75	1 κ.....	4	4	4	4	4	3	4	4	4.4
76	35 γ.....	4	4	4	4	4	4	4	4	3.4
77	8 β.....	4	4	4	4	4	4	4	4	3.3
78	5 α.....	3	3	3	3	3	3	3	3	2.6
79	3 η.....	4	4	4	4	4	4	4	4	3.6
80	2 θ.....	4	4	4	4	4	3	4	4	4.3
81	17 ξ.....	5	5	5	5	5	5	5	5	4.4
82	32 ι.....	4-3	4-3	4-3	4-3	4-3	(?)	4-3	4-3	3.7
83	23 ε.....	5	5	5	5	5	5	5	5	4.2
84	21 ζ.....	4	4	4	4	4	(?)	4	4	3.6
85	22 λ.....	5	5	5	5	5	5	5	5	5.2
86	μ.....	5	5	5	5	5	5	5	5	4-5 v
87	27 δ.....	4-5*	4	4	4	4	4	4	4	3.7-4.6 v
BOOTES.										
88	17 κ.....	5	5	5	5	5	5	5	5	4.6
89	21 ι.....	5	5	5	5	5	5	5	5	4.8
90	23 θ.....	5	5	5	5	5	5	5	5	4.1
91	19 λ.....	5	5	5	5	5	5	5	5	4.3
92	27 γ.....	3	3	3	3	3	3	3	3	3.0
93	42 β.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.6
94	49 δ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.5
95	51 μ.....	4	4	4	4	4	6	4	4	4.5

## Star Magnitudes—continued.

Baily's No.	Name.	Peters.	Greek.				Arabic.			Harv. R. P.
			Paris 2389.	Vatican 1594.	Venice 313.	Manitius printed.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	
BOOTES—continued.										
96	{ 52 $\nu^1$ ..... } { 53 $\nu^2$ ..... }	4	4	4	4	4	4	4	4	4.3
97	2 $\eta$ Coronæ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	5.6
98	1 $\theta$ Coronæ.....	5	5	5	5	5	5	5	5	5.6
99	45 $c$ .....	5	5	5	5	5	5	5	5	5.0
100	43 $\psi$ .....	5	5	5	5	5	5	5	5	4.7
101	46 $b$ .....	5	5	5	5	5	5	5	5	5.7
102	41 $\omega$ .....	5	5	5	5	5	5	5	5	4.9
103	36 $\epsilon$ .....	3	3	3	3	3	3	3	3	2.7
104	28 $\sigma$ .....	4	4	4	4	4	4	4	4	4.5
105	25 $\rho$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.8
106	30 $\zeta$ .....	3	3	3	3	3	3	3	3	4.4
107	8 $\eta$ .....	3	3	3	3	3	3	3	3	2.8
108	4 $\tau$ .....	4	4	4	4	4	4	3	4	4.5
109	5 $\nu$ .....	4	4	4	4	4	4	4	4	4.3
110	16 $a$ .....	1	1	1	1	1	1	om.	1	0.2
CORONA BOREALIS.										
111	5 $a$ .....	2-1	2-1	2-1	2-1	2-1	2-1	5-4	2-1	2.3
112	3 $\beta$ .....	4-5*	4-3	4-3	4-3	4-3	4-3	5-4	4-3	3.7
113	4 $\theta$ .....	5	5	5	5	5	5	5	5	4.2
114	9 $\pi$ .....	6	6	6	5	6	6	6	6	5.6
115	8 $\gamma$ .....	4	4	4	4	4	4	4	4	3.9
116	10 $\delta$ .....	4	4	4	4	4	4	4	4	4.7
117	13 $\epsilon$ .....	4	4	4	4	4	4	4	4	4.2
118	14 $\iota$ .....	4	4	4	4	4	4	4	4	4.9
HERCULES.										
119	64 $a$ .....	3	3	3	3	3	3	3	3	3.5
120	27 $\beta$ .....	3	3	3	3	3	3	3	3	2.8
121	20 $\gamma$ .....	3	3	3	3	3	3	3	3	3.8
122	7 $\kappa$ .....	4-5*	4	4	4	4	4	3	4	5.3
123	65 $\delta$ .....	3	3	4	4	3	3	3	3	3.2
124	76 $\lambda$ .....	4-3	4-3	4-3	4-3	4-3	4-3	3	4-3	4.5
125	86 $\mu$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.5
126	103 $\theta$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.8
127	94 $\nu$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4.5
128	92 $\xi$ .....	4*	4	4	4	4	4-3	4-3	4-3	3.8
129	40 $\zeta$ .....	4*	4	4	4	3	3	4-3	3	3.0
130	58 $\epsilon$ .....	5-6*	5	5	5	5	4-3	4-3	4-3	3.9
131	59 $d$ .....	5	5	5	5	5	5	5	5	5.3
132	61 $c$ .....	5	3	3	3	3	5	5	5	5.4
133	67 $\pi$ .....	4	4	4	4	4	3	3	3	3.4
134	69 $e$ .....	4	4	4	4	4	4	4	4	4.8
135	75 $\rho$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4.5
136	91 $\theta$ .....	4	4	4	4	4	4	4	4	4.0
137	85 $\iota$ .....	4	4	4	4	4	4	4	4	3.8
138	74.....	6	6	6	6	6	6	6	6	5.8
139	77 $x$ .....	6	6	6	6	6	6	6	6	5.8
140	82 $y$ .....	6	6	6	6	6	6-5	6	6-5	5.5
141	44 $\eta$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.6
142	35 $\sigma$ .....	4	4	4	4	4	4-3	4	4-3	4.2
143	22 $\tau$ .....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.9
144	11 $\varphi$ .....	4	4	4	4	4	4	6	4	4.3

















Star Magnitudes—continued.

Baily's No.	Name.	Peters.	Greek.				Arabic.			Harv. R. P.
			Paris 2389.	Vatican 1594.	Venice 313.	Manitius printed.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	
VIRGO—continued.										
525	49.....	5	5	5	5	5	5	5	5	5.3
526	53.....	6	6	6	6	6	6	5	6	5.1
527	61.....	5	5	5	5	5	5	5	5	4.3
528	89.....	6	6	6	6	6	6	6	6	5.1
LIBRA.										
529	9 α.....	2	2	2	2	2	2	2	2	2.9
530	7 μ.....	5	5	5	5	5	5	5	5	5.4
531	27 β.....	2	2	2	2	2	2	2	2	2.7
532	19 δ.....	5	5	5	5	5	5	5	5	4.8
533	24 ε.....	4	4	4	4	4	4	4	4	4.7
534	21 ν.....	4	4	4	4	4	4	4	4	5.3
535	38 γ.....	4	4	4	4	4	4	4	4	4.0
536	46 θ.....	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4.3
537	37.....	5	5	5	5	5	5	5	5	4.8
538	48 ψ.....	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4.7
539	51 = ξ Scorp.....	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4.8
540	45 λ.....	6	6	6	6	6	6	6	6	5.1
541	43 κ.....	5	5	5	5	5	5	6	5	5.0
542	O. Arg. 14782.....	4	4	4	4	4	4	4	4	Var.
543	20 = γ Scorp.....	3	3	3	3	3	3	3	3	3.4
544	39.....	4	4	4	4	4	4	4	4	3.8
545	40.....	4	4	4	4	4	4	4	4	3.8
SCORPIUS.										
546	8 β.....	3	3	3	3	3	3	3	3	2.9
547	7 δ.....	3	3	3	3	3	3	3	3	2.5
548	6 π.....	3	3	3	3	3	3	3	3	3.0
549	5 ρ.....	3	3	3	3	3	3	3	3	4.0
550	14 ν.....	4	4	4	4	4	4	4	4	4.3
551	{ 9 ω <sup>1</sup> ..... 10 ω <sup>2</sup> ..... }	4	4	4	4	4	4	4	4	3.6
552	20 σ.....	3	3	3	3	3	3	3	3	3.1
553	21 α.....	2	2	2	2	2	2	2	2	1.2
554	23 τ.....	3	3	3	3	3	3	3	3	2.9
555	13 ε <sup>2</sup> .....	5	5	5	5	5	5	5	5	4.7
556	XVI 31 d.....	5	5	5	5	5	5	5	5	4.9
557	26 ε.....	3	3	3	3	3	3	3	3	2.4
558	{ XVI 189 μ <sup>1</sup> ..... XVI 193 μ <sup>2</sup> ..... }	3	3	3	3	3	3	4	3	2.6
559	XVI 198 ζ <sup>1</sup> .....	4	4	4	4	4	4	4	4	4.9
560	XVI 206 ζ <sup>2</sup> .....	4	4	4	4	4	4	4	4	3.7
561	XVI 302 η.....	3	3	3	3	3	3	3	3	3.4
562	XVII 138 θ.....	3	3	3	3	3	3	3	3	2.0
563	XVII 210 ι <sup>1</sup> .....	3	3	3	3	3	3	3	3	3.1
564	XVII 174 κ.....	3	3	3	3	3	3	3	3	2.5
565	35 λ.....	3	3	3	3	.....	3	3	3	1.7
566	34 ν.....	4	4	4	4	.....	4	4	4	2.8
567	XVII 229 γ Teles... Neb.	Neb.	Neb.	Neb.	Neb.	Neb.	Neb.	Neb.	Neb.	—
568	45 d Oph.....	5-4	5-4	5-4	5-4	5	5-4	5-4	5-4	4.4
569	3 Sagittarii.....	5	5	5	5	5	5	(?)	5	4.3















Star Magnitudes—continued.

Baily's No.	Name.	Peters.	Greek.				Arabic.			Harv. R. P.
			Paris 2389.	Vatican 1594.	Venice 313.	Manitius printed.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	
HYDRA—continued.										
906	38 κ.....	4	4	4	4	4	4	3	4	5.0
907	39 υ <sup>1</sup> .....	4	4	4	4	4	4	4	4	4.3
908	40 υ <sup>2</sup> .....	4	4	4	4	4	4	4	4	4.7
909	42 μ.....	3-4*	3	3	3	3	3	3	3	4.1
910	φ (2 Crat.).....	4	4	4	4	4	4	4	4	5.1
911	ν (4 Crat.).....	3	3	3	3	3	3	3	3	3.3
912	(11 β Crat.).....	4-3	4-3	4-3	4-3	4-3	4	4	4	4.5
913	χ <sup>1</sup> (9 Crat.).....	4	4	4	4	4	4	4	4	5.1
914	ξ (19 Crat.).....	4	4	4	4	4	4	4	4	3.7
915	ο (25 Crat.).....	4	4	4	4	4	4	4	4	4.9
916	β (28 Crat.).....	3	3	3	3	3	3	3	3	4.4
917	46 γ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.3
918	49 π.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.5
919	30 Monoc.....	3	3	3	3	3	3	3	3	3.9
920	24 Sextantis.....	3	3	3	3	3	3	3	3	6.7
	15 α Sextantis.....									
CRATER.										
921	7 α.....	4	4	4	4	4	4	4	4	4.2
922	15 γ.....	4	4	4	4	4	4	6	4	4.1
923	12 δ.....	4-5*	4	4	4	4	4	4	4	3.8
924	27 ζ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4.9
925	14 ε.....	4	4	4	4	4	4	4-3	4	5.1
926	30 η.....	4-5	4-5	4-5	4-5	4-5	4-3	4	4-3	5.2
927	21 θ.....	4	4	4	4	4	4	4	4	4.8
CORVUS.										
928	1 α.....	3	3	3	3	3	3	3	3	4.2
929	2 ε.....	3	3	3	3	3	3	3	3	3.2
930	5 ζ.....	5	5	5	5	5	5	5	5	5.3
931	4 γ.....	3	3	3	3	3	3	3	3	2.8
932	7 δ.....	3	3	3	3	3	3	3	3	3.1
933	8 η.....	4	4	4	4	4	4	4	4	4.4
934	9 β.....	3	3	3	3	3	3	3	3	2.8
CENTAURUS.										
935	2 g.....	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	4.4
936	4 h.....	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	4.8
937	1 i.....	4-5*	4-3	4-3	4-3	4-3	4-3	5-4	4-3	4.4
938	3 k.....	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	4.7
939	XIII 53 ι.....	3	3	3	3	3	3	3	3	2.9
940	5 θ.....	3	3	3	3	3	3	3	3	2.3
941	XIII 99 d.....	4	4	4	4	4	4	4	4	4.0
942	XIV 40 ψ.....	4	4	4	4	4	4	4	4	4.2
943	XIV 55 a.....	4	4	4	4	4	4	4	4	4.5
944	XIV 150 c <sup>1</sup> .....	4	4	4	4	4	4	4	4	4.1
945	XIV 141 b.....	4	4	4	4-5	4	4	4	4	4.1
946	XIII 197 ν.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.5
947	XIII 198 μ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3.3
948	XIII 246 φ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4.0
949	XIII 288 χ.....	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4.5
950	XIV 109 η.....	3	3	3	3	3	3	3	4-3	2.6
951	XIV 216 κ.....	4	4	4-3	4	4	4	4	4	3.3
952	XIII 231 ζ.....	3-2	3-2	3	3-2	3-2	3-2	3-2	3-2	3.1





NOTES ON THE STAR MAGNITUDES.

Baily's No.	Star.	Notes.
	URSA MINOR.	
7	7. 13 $\gamma$	All manuscripts give mag. 2. Peters adopts mag. 3, found only in Sûfi.
	URSA MAJOR.	
15	7. 14 $\tau$	All manuscripts have mag. 4. No authority for Peters' mag. 4-5. Vat. 1594, Vat. 1038, Ven. 310, Ven. 313, and Laur. 48 have mag. 4. The adopted mag. 4-5 is from Paris 2389, Ven. 302, Ven. 312, Vat. Reg. 90, Laur. 6, and all the Arabs.
18	10. 30 $\varphi$	
20	12. 9 $\iota$	All manuscripts have mag. 3. No authority for Peters' mag. 3-4.
21	13. 12 $\kappa$	All manuscripts have mag. 3. No authority for mag. 3-4.
28	20. 33 $\lambda$	All manuscripts have mag. 3. No authority for mag. 3-4.
29	21. 34 $\mu$	B. M. 7475, mag. 2; all others mag. 3. No authority for mag. 3-4.
30	22. 52 $\psi$	
31	23. 54 $\nu$	} All manuscripts have mag. 3. No authority for mag. 3-4.
32	24. 53 $\xi$	
35	27. 85 $\eta$	
	DRACO.	
46	3. 23 $\beta$	All manuscripts have mag. 3. No authority for mag. 3-4.
55	12. 63 $\epsilon$	All manuscripts have mag. 4. No authority for mag. 4-5. Sûfi has 4-3. Schjellerup gives Ptolemy's mag. 4-3, but the authority is unknown.
57	14. 61 $\sigma$	} All manuscripts have mag. 5. Peters assigns mag. 5-6 to these stars the authority for which is unknown. Sûfi gives mag. 5-4.
58	15. 52 $\upsilon$	
59	16. 60 $\tau$	All manuscripts have mag. 4. No authority for mag. 4-5.
62	19. 43 $\varphi$	
63	20. 27 $f$	B. M. 7475, mag. 4.
65	22. 18 $g$	B. M. 7475, mag. 6.
69	26. 13 $\theta$	B. M. 7475, mag. 3-2.
70	27. 12 $\iota$	Most manuscripts have mag. 3. Magnitude 3-2 adopted by Peters is found in Laur. 45 (Gerard of Cremona). Magnitude in B. M. 7475 is doubtful; the scribe gives both 3-2 and 4-3.
71	28. 10 $i$	Bod. 369 and B. M. Reg. 16, mag. 3.
72	29. 11 $a$	} All manuscripts give mag. 3. B. M. 7475 gives both 3 and 4. Peters adopted mag. 3-4, which is found only in Sûfi.
73	30. 5 $\kappa$	
74	31. 1 $\lambda$	
	CEPHEUS.	
80	6. 2 $\theta$	B. M. 7475, mag. 3.
87	Inf. 2. 27 $\delta$	All manuscripts have mag. 4. No authority for mag. 4-5.
	BOOTES.	
95	8. 51 $\mu$	B. M. 7475, mag. 6.
108	21. 4 $\tau$	B. M. 7475, mag. 3.
	COR. BOR.	
111	1. 5 $\alpha$	} B. M. 7475 has the singular error of mag. 5-4 for both stars.
112	2. 3 $\beta$	
114	4. 9 $\pi$	
		Ven. 313 and Laur. 48, mag. 5.

## Notes on the Star Magnitudes—continued.

Baily's No.	Star.	Notes.
HERCULES.		
122	4. 7 $\kappa$	B. M. 7475, mag. 3; all other manuscripts mag. 4. No authority for mag. 4-5.
123	5. 65 $\delta$	Vat. 1594, Vat. 1038, Venice manuscripts 313, 312, and 310, and Laur. 48, mag. 4.
124	6. 76 $\lambda$	B. M. 7475, mag. 3.
128	10. 92 $\xi$	All the Greek manuscripts have mag. 4, and the Arabs, B. M. 7475, Bod. 369, B. M. Reg. 16, Laur. 45, and Sloane 2795, mag. 4-3, which is adopted.
129	11. 40 $\zeta$	All the Greeks and Baily, mag. 4; B. M. 7475, mag. 4-3; Bod. 369 and B. M. Reg. 16, mag. 3.
130	12. 58 $\epsilon$	All Greek manuscripts and Baily have mag. 5; B. M. 7475, Bod. 369, B. M. Reg. 16, and Laur. 45, mag. 4-3, which is better than mag. 5-6 adopted by Peters, for which no authority is known.
132	14. 61 $\sigma$	All the Greeks and Baily have mag. 3; the Arabs mag. 5, which is adopted by Peters and accords with the star.
133	15. 67 $\pi$	All the Greeks have mag. 4, which is adopted; the Arabs mag. 3.
140	22. 82 $\gamma$	Bod. 369 and B. M. Reg. 16, mag. 6-5.
142	24. 35 $\sigma$	Bod. 369 and B. M. Reg. 16, mag. 4-3.
144	26. 11 $\varphi$	} B. M. 7475 makes these stars mag. 6.
145	27. 6 $\nu$	
146	28. 1 $\chi$	
147	29. $\left\{ \begin{array}{l} \nu^1 \\ \nu^2 \end{array} \right.$	
LYRA.		
150	2. $\left\{ \begin{array}{l} 4 \epsilon^1 \\ 5 \epsilon^2 \end{array} \right.$	} B. M. 7475, mag. 4.
151	3. $\left\{ \begin{array}{l} 6 \zeta^1 \\ 7 \zeta^2 \end{array} \right.$	
154	6. 21 $\theta$	The Greeks and B. M. 7475 have mag. 4; Bod. 369 and B. M. Reg. 16 are the only authorities for mag. 4-5, adopted.
156	8. 9 $\nu^2$	B. M. 7475, mag. 4; Ven. 302, mag. 4-3.
157	9. 14 $\gamma$	B. M. 7475, mag. 3-4.
158	10. 15 $\lambda$	B. M. 7475, mag. 4.
CYGNUS.		
167	9. 1 $\kappa$	B. M. 7475, mag. 4.
169	11. 54 $\lambda$	Ven. 313 and B. M. 7475, mag. 4.
170	12. 64 $\zeta$	B. M. 7475, mag. 2.
172	14. 62 $\xi$	B. M. 7475, Laur. 45 (Gerard of Cremona), mag. 4.
173	15. $\left\{ \begin{array}{l} 30 o^1 \\ 31 o^1 \end{array} \right.$	} All manuscripts give mag. 4 to these stars. Peters assigns 4-5 to both, but the authority is not known.
174	16. 32 $o^2$	
CASSIOPEIA.		
180	3. 24 $\eta$	B. M. 7475, mag. 3.
185	8. 33 $\theta$	B. M. 7475, mag. 3.
188	11. 15 $\kappa$	B. M. 7475, mag. 4.
PERSEUS.		
192	2. 15 $\eta$	Vat. 1038, mag. 3.
196	6. 18 H $\iota$	All manuscripts give mag. 4. Authority unknown for Peters' mag. 4-3.
198	8. 35 $\sigma$	B. M. 7475, mag. 3.

## Notes on the Star Magnitudes—continued:

Baily's No.	Star.	Notes.
PERSEUS—cont.		
211	21. 58 <i>e</i>	Bod. 369 and B. M. Reg. 16, mag. 5-4.
215	25. 38 <i>o</i>	B. M. 7475, mag. 3-2; Bod. 369, mag. 3.
216	26. 44 <i>z</i>	Bod. 369, mag. 3-4.
AURIGA.		
228	9. 8 <i>z</i>	B. M. 7475, Laur. 45, Sloane 2795, mag. 4-5.
230	11. 23 <i>γ</i>	B. M. 7475, Bod. 369, B. M. Reg. 16, mag. 3-4. This is the same star as No. 400, but the magnitudes given in most cases to the latter do not accord with No. 230.
OPHIUCHUS.		
234	1. 55 <i>α</i>	B. M. 7475 and all manuscripts of Gerard of Cremona, mag. 3.
238	5. 27 <i>κ</i>	} B. M. 7475, mag. 3.
239	6. 10 <i>λ</i>	
240	7. 1 <i>δ</i>	All Greek manuscripts give mag. 3; B. M. 7475, mag. 4; Bod. 369 and B. M. Reg. 16, mag. 4-5. No authority is found for 3-4 assigned by Peters.
241	8. 2 <i>ε</i>	B. M. 7475, mag. 4-5.
243	10. 64 <i>ν</i>	B. M. 7475, mag. 4.
244	11. 69 <i>τ</i>	B. M. 7475, mag. 4-3.
245	12. 35 <i>η</i>	B. M. 7475, mag. 4.
246	13. 40 <i>ξ</i>	All authorities, Greek and Arabic, agree mag. 4-3. Peters gives 4-5, which is the same as Sûfi. In his rough draft of catalogue Peters gives 4-3.
247	14. 36 <i>Λ</i>	Ven. 313, Vat. 1038, mag. 4-3; Bod. 369, mag. 4-5; Laur. 6, mag. 4.
248	15. 42 <i>θ</i>	All authorities give mag. 4-3. No authority known for Peters' mag. 4-5; in rough draft, 4-3.
249	16. 44 <i>β</i>	B. M. 7475, mag. 4-3.
SERPENS.		
271	9. 24 <i>α</i>	B. M. 7475, mag. 4.
273	11. 32 <i>μ</i>	B. M. 7475, mag. 3.
274	12. 3 <i>ν</i> Oph.	B. M. 7475, mag. 4.
AQUILA.		
288	3. 53 <i>α</i>	Ven. 313, Laur. 48, Vat. 1594, Vat. 1038, Ven. 310, mag. 2.
289	4. 59 <i>ξ</i>	Vat. 1038, mag. 3; Bod. 369 and B. M. Reg. 16, mag. 3-2.
290	5. 50 <i>γ</i>	Vat. 1038, mag. 3-4.
DELPHINUS.		
302	2. 5 <i>ι</i>	All Greek authorities, mag. 4-5; the Arabs have mag. 4; Peters gives mag. 4-3.
303	3. 7 <i>κ</i>	Vat. 1038, mag. 4-5.
304	4. 6 <i>β</i>	Vat. 1038, mag. 3.
308	8. 3 <i>η</i>	Bod. 369, mag. 6-7.
PEGASUS.		
319	5. 62 <i>τ</i>	B. M. 7475, mag. 3.
325	11. 42 <i>z</i>	Bod. 369, mag. 4.
326	12. 46 <i>ξ</i>	Vat. 1038, mag. 3.
331	17. 8 <i>ε</i>	B. M. 7475, mag. 4-3.
334	20. 10 <i>κ</i>	Vat. 1594, Vat. 1038, Ven. 313, Ven. 310, Laur. 48, mag. 4; B. M. 7475, mag. 3-2.

## Notes on the Star Magnitudes—continued.

Baily's No.	Star.	Notes.
ANDROMEDA.		
345	11. 38 $\eta$	Bod. 369, B. M. Reg. 16, Laur. 45, Sloane 2795, mag. 3.
347	13. 37 $\mu$	B. M. 7475, Laur. 45, Sloane 2795, mag. 3.
350	16. $\varphi$ Pers.	B. M. 7475, Bod. 369, B. M. Reg. 16, Laur. 45, mag. 4-3.
351	17. $\nu$ Pers.	Bod. 369, B. M. Reg. 16, mag. 4.
352	18. 50 $\nu$	The Greek manuscripts and B. M. 7475 have mag. 4; Bod. 369 and B. M. Reg. 16, mag. 4-3. No authority found for Peters' mag. 4-5.
TRIANGULUM.		
358	1. 2 $\alpha$	B. M. 7475, mag. 4.
ARIES.		
375	Inf. 1. 13 $\alpha$	B. M. 7475, mag. 3.
TAURUS.		
390	11. 54 $\gamma$	B. M. 7475, Laur. 45, mag. 4-5.
394	15. 74 $\epsilon$	Bod. 369, Laur. 48, mag. 3.
396	17. 104 $m$	Vat. 1594, Vat. 1038, Ven. 313, Ven. 310, Laur. 48, Laur. 54, mag. 4.
400	21. 112 $\beta$	Laur. 48, Ven. 310, mag. 3-2; Bod. 369, mag. 5; Laur. 45, mag. 4.
404	25. 50 $\omega^2$	Bod. 369, mag. 5.
GEMINI.		
440	17. 24 $\gamma$	Baily gives mag. 3.
441	18. 31 $\xi$	B. M. 7475, Laur. 45, mag. 4-3.
443	Inf. 2. $\kappa$ Aur.	B. M. 7475, mag. 4.
444	Inf. 3. 36 $d$	All Greek and Arabic manuscripts have mag. 5. No authority for Peters' mag. 5-6.
445	Inf. 4. 85	B. M. 7475, mag. 3-4.
CANCER.		
453	5. 47 $\delta$	B. M. 7475, mag. 4.
LEO.		
465	4. 17 $\epsilon$	B. M. 7475, Laur. 45, mag. 3.
466	5. 36 $\zeta$	Bod. 369, mag. 2.
480	19. 60 $b$	All Arabs and Laur. 6 have mag. 5; the Greeks and Baily, mag. 6.
481	20. 68 $\delta$	B. M. 7475, Laur. 45, mag. 2.
483	22. 70 $\theta$	Bod. 369, mag. 5.
487	26. 91 $\nu$	B. M. 7475, mag. 4.
494	.....	See Notes on the Catalogue of Stars.
VIRGO.		
506	10. 43 $\delta$	B. M. 7475, mag. 4.
509	13. 47 $\epsilon$	Paris 2389, Vat. 1594, Vat. 1038, Ven. 313, Ven. 312, Ven. 302 Ven. 310, and Laur. 48, have mag. 5-4, and this has been adopted by Peters. B. M. 7475 and Sloane 2795, and Laur. 45, mag. 3; Bod. 369 and B. M. Reg. 16, mag. 3-2. Sûfi describes the star as of mag. 3 and adds: "Ptolémée la dit des moindres; that means mag. 3-4. Manitius has adopted mag. 3-2, which is more correct for $\epsilon$ Virginis than 5-4. Baily gives mag. 5.
510	14. 67 $\alpha$	All authorities give mag. 1. Peters has adopted mag. 1-2 as given by Sûfi.
511	15. 79 $\zeta$	Bod. 369, mag. 3-2.
514	18. 82 $m$	Laur. 6, mag. 4-3.
520	24. 105 $\varphi$	All authorities have mag. 4. Peters adopts mag. 4-5 as in Sûfi.

*Notes on the Star Magnitudes—continued.*

Baily's No.	Star.	Notes.
VIRGO—continued.		
522	26. 107 $\mu$	All the Greeks have mag. 3; B. M. 7475, Bod. 369, Laur. 45 have mag. 4; Manitius gives mag. 4; Peters adopts mag. 3-4; Sûfi has mag. 4-3.
526	Inf. 4. 53	B. M. 7475, mag. 5.
SCORPIUS.		
558	13. $\begin{cases} \mu^1 \\ \mu^2 \end{cases}$	} B. M. 7475, Laur. 45, Sloane 2795, mag. 4. All authorities agree. Manitius has mag. 5.
568	Inf. 2. 45 <i>d</i> Oph.	
SAGITTARIUS.		
574	5. $\begin{cases} \mu^1 \\ \mu^2 \end{cases}$	} B. M. 7475, mag. 3. Paris 2389, Vat. 1594, Ven. 313, and Manitius have mag. 4; B. M. 7475, mag. 3-2; Bod. 369, and B. M. Reg. 16, mag. 4-3. No authority for Peters' mag. 4-5.
576	7. 27 $\varphi$	
588	19. $\begin{cases} 51 h^1 \\ 52 h^2 \end{cases}$	} B. M. 7475, Laur. 45, and Sloane 2795, mag. 5. Laur. 48, mag. 3-4.
594	25. XVIII. 17	
CAPRICORNUS.		
602	2. 8 $\nu$	Bod. 369, mag. 5.
607	7. 11 $\rho$	Bod. 369, mag. 5.
608	8. 7 $\sigma$	Ven. 312, mag. 6.
611	11. 16 $\psi$	B. M. 7475, Laur. 45, Sloane 2795, mag. 6.
AQUARIUS.		
632	4. 22 $\beta$	Gerard of Cremona in three manuscripts, mag. 2. Ven. 313, Ven. 312, Vat. 1038, Laur. 45, Sloane 2795, mag. 4.
673	Inf. 3. 7 Ceti.	
PISCES.		
674	1. 4 $\beta$	Vat. 1594, Vat. 1038, Ven. 313, Ven. 312, Ven. 310, Laur. 48, and Manitius, mag. 4. The mag. 4-3, adopted, is from Paris 2389, Ven. 302, Laur. 6, Laur. 45, B. M. 7475, and Bod. 369. Ven. 313, mag. 5.
700	27. 67 <i>k</i>	
CETUS.		
726	15. 45 $\theta$	Laur. 45, Sloane 2795, mag. 2.
727	16. 31 $\eta$	Baily gives mag. 5 for which Grynæus is the only authority.
730	19. 17 $\varphi^1$	Vat. 1594, Vat. 1038, Ven. 313, Ven. 310, Laur. 48, Laur. 45, and B. M. 7475, mag. 5.
731	20. O. 161	All manuscripts have mag. 5, except Paris 2389, Ven. 302, Ven. 312, B. M. Reg. 16, and Bod. 369, mag. 5-4.
732	21. 8 $\iota$	Vat. 1594, Vat. 1038, Ven. 313, Ven. 310, Laur. 48, Laur. 45, have mag. 3; Laur. 6, 5-6; B. M. 7475, mag. 4.
733	22. 16 $\beta$	All Greek and Latin authorities have mag. 3. Bod. 369 and B. M. Reg. 16 have mag. 3-4; and B. M. 7475, mag. 3-2, which is the only authority found for the magnitude adopted by Peters.

## Notes on the Star Magnitudes—continued.

Baily's No.	Star.	Notes.
ORION.		
736	3. 24 $\gamma$	All authorities have mag. 2, except the Arabs, Laur. 45, B. M. 7475, Bod. 369, and B. M. Reg. 16, which have 2-1.
742	9. 72 $f^2$	B. M. 7475, mag. 4.
763	30. $\begin{cases} 42 c \\ 45 c \end{cases}$	} Ven. 312 and Laur. 45, mag. 4-5.
764	31. $\begin{cases} 41 \theta^1 \\ 43 \theta^2 \end{cases}$	} Paris 2389, Ven. 313, Ven. 312, Vat. 1038, Laur. 6, and B. M. 7475, mag. 3.
765	32. 44 $\iota$	Paris 2389, Ven. 312, Vat. 1038, and Laur. 6, mag. 3-4.
769	36. 20 $\tau$	B. M. 7475, mag. 4.
771	38. 53 $\kappa$	B. M. 7475 and Laur. 45, mag. 3.
ERIDANUS.		
772	1. 69 $\lambda$	Vat. 1038, Laur. 45, and B. M. 7475, mag. 4.
790	19. 2 $\tau^2$	B. M. 7475, mag. 3.
802	31. III 202	} In B. M. 7475 the magnitudes of these stars are omitted, but in the place of each magnitude is written the Arabic letter Kaf. This might be taken for the initial of the word Kabir, which is the Arabic for $\mu\epsilon\iota\zeta\omega\nu$ , but in this manuscript the $\mu\epsilon\iota\zeta\omega\nu$ and $\epsilon\lambda\acute{\alpha}\sigma\sigma\omega\nu$ are invariably represented by the letters Mim and Lam. See description of B. M. 7475.
803	32. III 189	
804	33. III 149	
805	34. $\theta$	See Notes to the Catalogue of Stars.
CANIS MAJOR.		
818	1. 9 $a$	Bod. 3374, mag. 4.
819	2. 14 $\theta$	B. M. 7475, mag. 3.
824	7. 8 $\nu^3$	The Greeks and Baily give mag. 6; all the Arabs and Manitius have mag. 5.
828	11. 5 $\xi^2$	B. M. 7475, mag. 4.
830	13. 16 $o^1$	Vat. 1038, mag. 5-6.
831	14. 25 $\delta$	Vat. 1038 and B. M. 7475, mag. 3.
835	18. 31 $\eta$	B. M. 7475, mag. 4-5.
ARGO NAVIS.		
854	6. VII 175	B. M. 7475 and manuscripts of Gerard of Cremona, mag. 4.
860	12. $\pi$ Pup.	} Laur. 48, mag. 4.
861	13. $f$ Pup.	
863	15. $c$ Pup.	All authorities, mag. 4. No authority found for Peters' mag. 4-5.
874	26. $b$ Vel.	Vat. 1038, Laur. 45, and B. M. 7475, mag. 4.
876	28. $a$ Pyx.	All authorities (except Gerard of Cremona, mag. 4) agree in mag. 3. No authority is found for Peters' mag. 3-4.
885	37. $o$ Pup.	Mag. 2 adopted by Peters and Baily, is confirmed by Paris 2389, Vat. 1594 and Ven. 313, and the printed editions of Grynæus and Trapezuntius; all others, including Manitius, mag. 3.
888	40. $\kappa$ Vel.	All authorities have mag. 3. No authority found for Peters' mag. 3-4. Aboul Hhassan, who derived his magnitudes from Sûfi, gives 4-3.
893	45. $\tau$ Pup.	B. M. 7475, mag. 2.
HYDRA.		
909	16. 42 $\mu$	All authorities have mag. 3. Peters' mag. 3-4 is the same as Sûfi.
912	19. II $\beta$ Crat.	The Arabs have mag. 4; Sûfi also.

*Notes on the Star Magnitudes—continued.*

Baily's No.	Star.	Notes.
CRATER.		
923	3. 12 $\delta$	All authorities, mag. 4. No authority found for Peters' mag. 4-5. B. M. 7475, mag. 4-3. Vat. 1038, Laur. 48, Laur. 45, and B. M. 7475, mag. 4; Bod. 369 and B. M. Reg. 16, mag. 4-3.
925	5. 14 $\epsilon$	
926	6. 30 $\eta$	
CENTAURUS.		
937	3. 1 <i>i</i>	Paris 2389, Vat. 1594, Ven. 313, Bod. 369, B. M. Reg. 16, and Manitius, mag. 4-3; B. M. 7475, mag. 5-4. No authority found for Peters' mag. 4-5. In rough draft of catalogue he gives mag. 4-3.
945	11. <i>b</i>	Ven. 313, mag. 4-5.
950	16. $\eta$	Bod. 369, mag. 4-3.
951	17. $\kappa$	Vat. 1594, Vat. 1038, Ven. 310, Laur. 48, mag. 4-3.
952	18. $\xi$	Vat. 1594, Ven. 302, Vat. 1038, Ven. 310, and Laur. 48, mag. 3.
967	33. $\delta$ Crucis	} Grynæus transposes the magnitudes of these stars which Baily has erroneously copied.
968	34. <i>a</i> Crucis	
LUPUS.		
985	14. $\eta$	Laur. 45 and B. M. 7475, mag. 4-3.
COR. AUST.		
1006	9. $\epsilon$	B. M. 7475, mag. 4.
PIS. AUST.		
1015	5. 18 $\epsilon$	Laur. 45 and B. M. 7475, mag. 4.
1025	Inf. 3. $\epsilon$ Mic.	Laur. 45, Bod. 369 and B. M. Reg. 16, mag. 3.
1028	Inf. 6. 24 A Cap.	Baily gives mag. 3 from Grynæus; no other authority known.

## TABLE IX.

### *Collations of Manuscripts.*

The Table of Collations gives the variants in longitude and latitude from Baily's Ptolemy in the following 26 manuscripts of the Almagest:

*Greek:* Paris 2389, 2390, 2391, and 2394; Venice 302, 303, 310, 311, 312, and 313; Vatican 1594, 1038, and Reg. 90; Laurentian 1, 47, and 48; Bodleian 3374, and Vienna 14.

*Latin:* Laurentian 6 and 45; Vienna 24, and British Museum Sloane 2795.

*Arabic:* British Museum 7475 and Reg. 16; Bodleian 369, and Laurentian 156.

For the purpose of comparison, readings agreeing with Baily are given in doubtful cases, and in those which instance peculiar mistakes of the copyist.

All Baily's readings which differ from the Catalogue are given in the Notes to the Catalogue.





## Collations of Manuscripts—Longitudes—continued.

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. 1.	Laur. 47.	Vat. 1594.
66	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	10 20	10 20	10 20	10 20	10 20	13 40	10 20	13 40	10 20	10 20	10 20	10 20	10 20
70	.....	.....	.....	12 20	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	.....	.....	.....	.....	.....	8 20	.....	.....	.....	.....	.....	.....	.....
74	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	9 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0
77	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	{ 7 40 } { 7 20 }	.....
78	.....	.....	.....	16 20	.....	16 20	.....	.....	.....	.....	.....	.....	.....
80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
81	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
82	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
86	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
89	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
90	9 40	9 40	9 40	9 20	9 40	9 20	9 40	9 40	9 40	9 40	9 40	9 40	9 40
92	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
94	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
97	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
99	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
102	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
103	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
104	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
110	.....	27 { 20 } 40 }	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
114	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
115	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
116	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
117	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
120	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
121	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
122	.....	28 0	.....	.....	13 40	.....	22 0	.....	20 0	.....	20 0	20 0	20 0
125	.....	27 40	.....	.....	.....	.....	20 40	.....	20 40	.....	20 40	20 40	20 40
126	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
129	6 40	6 40	.....	6 40	.....	6 30	6 40	.....	.....	3 50	6 40	6 40	6 40
130	16 0	.....	16 0	16 0	.....	16 0	.....	.....	16 0	.....	.....	.....	.....
131	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
133	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
134	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
135	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
136	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6 20	.....	.....
137	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
139	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
140	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
141	.....	.....	.....	o 40	.....	.....	.....	.....	.....	.....	.....	.....	.....
143	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
144	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
145	.....	16 0	.....	16 0	.....	16 0	16 0	16 0	.....	.....	16 0	16 0	16 0
146	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
150	.....	.....	.....	.....	.....	23 20	.....	23 0	.....	.....	.....	.....	.....
151	.....	.....	.....	23 0	.....	23 0	.....	23 0	.....	.....	.....	.....	.....





*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
152	o /	o /	o /	o /	o /	o /	28 40	28 40	o /	28 40	28 40	o /	o /
155		21 20		21 20									
156													
157		21 20		21 10									
158	21 0	24 20	21 0	24 10	21 0								21 0
160													
163													
164	19 40												
167		16 20		16 20	12 40	16 40			16 0		16 0		10 40
169							4 50	6 50			4 50		
172		11 30		11 30									
173											1 30		
175												2 10	
176		13 40		13 40					13 40		13 40	13 40	
177		13 30		13 30									
179				20 20									
180	10 20		10 20		10 20		13 5	13 5	10 20		10 20	10 20	10 20
182		20 20		20 20			20 20	20 20		20 20			
183							{27 0}				26 0		
185							{26 0}						
186								14 40	17 40	14 40	16 40		
187		2 30		2 30				4 20					
189											7 30		
190	3 40		3 40					20 20	3 20	20 20	(?)		
191						26 40	27 40	27 40					20 40
193		1 40											
194											26 30		
204											26 40		
206								24 50					
207					10 20								10 20
211													
212												16 50	
213										8 8			
214													
218	15 15		15 15										
219											25 40		
221													
226													
228							22 19	22 18					
229								29 50					
230						25 40							25 50
231										27 0			
233							30 40	30 40					
234	21 50					24 50							21 50
238		14 20		14 20						14 47			
239	18 20		18 20		18 20	8 20							18 20
243						6 20							
244							4 20	4 20			4 20		
245													
246	26 40	23 40	26 40					23 40	23 20	23 40	23 20	23 20	







*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
323		26 20											
324											26 0		
325		18 30		18 30									
328													
329	9 10	9 20	9 10					5 15		9 20		9 10	
330													
332		23 20		23 20							28 40		
333		17 20		17 20							16 40		
334													
336						26 20							
337													
338			22 40								28 20		
339		24 20		24 20									
340									25 40		25 40		
341	15 40		15 40		5 40	19 40							5 40
349		12 50											
350				17 12									
351													
354				16 0		10 18	12 12	12 12					10 6
356						11 10		16 10					
360		16 20						16 30	16 20		16 20		
364		12 0											
369								22 50		23 50	28 50		
371					17 0	27 0					26 0		17 0
374	19 0												
375											11 40		
376	24 40	21 20	24 40	21 20	24 40								24 40
378										59 40			
379						19 10							19 6
382		21 40	{24 20 24 40}	21 40				24 40	24 40	26 40	24 40		
383	21 20		21 20										21 20
384													
385		10 40											
386		6 20		6 20									
387										4 0	8 0		
388				2 10						12 0			
389				10 20						18 0	18 0		
390		12 40									9 40		
391													
392		23 0											
394	12 50	11 50	12 30					11 50	11 50	11 50	11 50		
395		17 10	17 30			17 30		17 20	17 10	17 10	17 10		
396									23 0		28 0	23 0	
397						20 0							
398						27 40					26 40		
399													
400													
401											6 0		
402													
404													
406						8 50		8 50					



*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
408	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
409											7 10		
410	2 20	2 30	2 10					3 30	2 30	2 30			
411			2 20									8 40	
412							2 40	2 40					
413						25 20							
415	21 0	26 0	21 0				{21 0 25 0}	25 0	24 0	24 0	24 0		
416		24 0											
419											26 0		
422													
423										2 20			
424										28 20			
425		26 10		26 10					27 40				
426								26 40					
429													
432		23 10											
433								23 10	23 10	23 10			
434			18 15	18 15				33 0					
435			21 20	21 20					21 40	21 40	21 40	21 40	
436	21 40		21 40					28 15	18 15	18 15	18 15	18 15	
438	8 30	8 10	8 30						21 40		21 40	21 40	21 40
439	16 0		16 0		16 0	16 0		8 10		8 10		8 30	
442			4 0										16 0
444		15 30		15 30					15 20	15 10	15 10		
445													21 20
446		26 40		26 40									
448	0 40	3 0	0 40	3 0				5 40	0 40	0 40	0 40	0 40	0 40
449					13 0								
450											2 40		
452	13 0	13 0	13 0	13 0	13 0								13 0
454							{16 30 26 30}						
455	5 20												
457									7 30		7 30		
458	19 10	19 40	19 10				{19 40 29 40}	19 40	15 10	19 40	15 10	19 10	
459		21 30		21 30			21 40	21 40	21 40	21 40	21 40	21 40	
460										14 5			
462		18 0		18 0									
463		21 40		21 40							24 10		
464		21 20		21 20									
465													
466											0 40		
467									2 40	2 10	2 10		
468													
472											26 20		
473		24 30		24 30			{24 10 29 10}		24 20				
474											26 20		



*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Viennx Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
478	.....	13 0	.....	13 0	.....	.....	13 0	14 0	.....	13 10	.....	.....	.....
479	12 10	12 30	12 10	12 30	.....	.....	.....	12 20	.....	12 20	.....	12 10	.....
481	.....	14 30	.....	14 30	.....	.....	.....	.....	.....	.....	.....	.....	.....
484	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
485	.....	21 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
486	.....	21 40	.....	21 40	.....	.....	21 40	21 40	.....	21 40	.....	.....	.....
487	.....	.....	.....	.....	.....	.....	20 30	20 30	.....	.....	26 30	.....	.....
488	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
489	.....	.....	.....	.....	.....	.....	.....	.....	0 10	.....	.....	0 10	.....
491	.....	8 30	.....	8 30	.....	.....	16 30	6 30	.....	.....	14 30	.....	.....
492	.....	18 0	.....	18 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
493	.....	17 10	.....	17 10	.....	.....	.....	.....	.....	.....	.....	.....	.....
494	.....	.....	.....	.....	.....	.....	.....	.....	.....	24 30	.....	.....	28 50
695	.....	.....	21 20	.....	.....	.....	24 30	24 30	.....	.....	.....	.....	.....
497	25 20	26 20	25 20	26 20	.....	.....	26 20	26 20	26 20	26 20	26 20	26 20	.....
498	27 0	.....	27 0	27 0	.....	.....	{27 0}	.....	.....	.....	26 0	27 0	.....
499	.....	3 0	.....	3 0	.....	.....	{26 0}	.....	.....	.....	.....	.....	.....
500	.....	0 30	.....	0 30	.....	.....	.....	.....	.....	.....	.....	.....	.....
501	.....	.....	.....	.....	.....	.....	.....	19 0	.....	.....	.....	.....	.....
503	.....	.....	.....	.....	.....	.....	.....	8. 10	.....	.....	.....	.....	.....
504	.....	17 30	.....	17 30	.....	.....	.....	.....	.....	.....	.....	.....	.....
505	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
506	.....	.....	24 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
508	16 0	12 10	16 0	12 10	16 0	.....	.....	.....	16 0	.....	16 0	16 0	16 0
511	.....	24 40	.....	24 40	.....	.....	.....	.....	.....	.....	.....	.....	.....
513	27 15	27 0	27 15	.....	.....	.....	.....	27 0	27 0	27 0	26 0	.....	.....
516	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
518	.....	6 40	.....	6 40	.....	.....	6 40	6 40	6 40	6 40	6 40	.....	.....
520	.....	8 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
522	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
523	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
524	.....	15 0	.....	15 0	.....	.....	.....	.....	.....	12 0	.....	.....	.....
525	.....	27 30	.....	.....	.....	.....	.....	.....	.....	.....	.....	22 15	.....
526	.....	28 30	.....	27 30	.....	.....	.....	.....	.....	.....	.....	.....	.....
527	.....	5 0	.....	28 30	.....	.....	.....	.....	.....	28 0	.....	.....	.....
528	.....	.....	.....	.....	5 0	.....	.....	.....	5 0	5 0	5 0	.....	.....
529	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
531	.....	21 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
532	.....	17 40	.....	.....	17 40	.....	27 40	27 40	17 40	27 40	16 40	.....	.....
533	20 15	.....	20 15	21 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
534	.....	21 0	.....	.....	.....	.....	.....	.....	.....	.....	24 20	.....	.....
535	.....	.....	.....	.....	.....	.....	27 30	27 30	.....	27 30	26 50	.....	.....
539	.....	1 20	.....	1 20	.....	.....	.....	.....	.....	2 30	.....	.....	.....
540	.....	.....	.....	.....	.....	.....	2 30	2 30	.....	2 30	.....	.....	.....
541	.....	0 40	.....	0 40	.....	.....	.....	.....	.....	.....	.....	.....	.....
542	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
543	.....	.....	.....	.....	.....	.....	.....	.....	.....	28 0	28 0	.....	.....
544	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
545	.....	2 0	.....	.....	.....	2 2	.....	2 0	2 10	2 0	.....	.....	.....
546	.....	.....	.....	.....	.....	.....	.....	.....	.....	5 20	.....	.....	.....

*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. 1.	Laur. 47.	Vat. 1594.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
547													
549													
550													
551													
552													
560						26 0		26 0			26 0		
561													
562													
563													
565													
569	25 30		25 30	25 30							25 30	25 30	
570	9 30	9 30	9 30	9 30	9 30	9 30	9 30		5 30	9 30	9 30	9 30	9 30
582													
583											21 20		
584	{25 20 25 40}		25 20								25 20	25 20	
585													
586													
587			22 40								22 40	22 40	
588								24 30					
589								20 40					
590													
591								16 40					
592													
593								17 40					
594										16 40			
595													
596	23 50	23 50	23 50	23 50	23 50	23 50	23 50	23 50	10 50	23 50	23 50	23 50	
597	27 20	27 20	27 20		27 20	27 20	27 20	27 20	27 20	27 20	27 20	27 20	
598						22 50							
599													
601													
602				7 40									
603													
604			9 0	9 0	9 0	9 0	9 0	5 0	9 0	9 0	9 0	9 0	
605													
606													
608	6 10												
611	11 40	11 40	11 40								11 40	11 40	11 40
612	10 50	10 50	10 50	11 20							10 50	10 50	10 50
613													16 40
614	26 0	26 0	26 0	26 0	26 0	26 0	26 0	26 0	26 0	26 0	26 0	26 0	26 0
615				23 0		23 0		23 0	23 20		23 0		
616													
617													
618													
619													
620													
621	{23 30 23 20}	23 50	20 50		20 50	23 50	23 50	22 20		23 50	23 50	23 50	23 50
622													
623	{21 50 24 50}	21 50	21 50	21 50	21 50	21 50	21 50	25 30	21 50	21 50	21 50	21 50	21 50

*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
547										6 40			
549										4 0			
550													
551							7 20	7 20		7 20			
552		10 50											
560		26 0		26 0									
561										28 10	28 10		
562								20 10					
563				0 30									
565											26 30		
569	25 30		25 30	25 30				29 30	29 30	29 30			
570	9 30		9 30		9 30								9 30
582									22 40		22 40	22 40	
583							22 7	22 7		22 7	22 6		
584	25 20	25 40	25 20					25 40	25 40	25 40	25 40		
585		29 40		29 40				19 30					
586											26 40		
587	22 40	21 40	22 40	22 40				22 20	22 20	22 20			
588		24 20		24 20									
589													
590		17 20									16 40		
591								17 20					
592										17 45			
593													
594													16 40
595											26 20		
596	23 50	28 50	23 50	28 50			26 50	26 50	26 50	26 50	26 50	26 50	
597	27 20	27 40	27 20				28 50	20 50	27 40	27 40	26 40		
598							{28 40}						
							{27 40}	27 40					
599							28 30	28 30		28 30			
601										4 20			
602											4 40		
603		7 40		7 40									
604	9 0	5 0	9 0	5 0				8 0	5 0	9 0	5 0	5 0	
605		5 0	9 40	0 0				8 0					
606			8 0										
608		6 40		6 40			7 10	7 10					
611	11 40		10 50	11 40		11 40							
612	10 50	15 20		15 20		10 50							
613			11 40	16 40									10 50
614	26 0	1 10		1 10	26 0								26 0
615			16 40						23 0		28 0	23 0	
616		18 30	26 0	18 30			{18 40}						
							{19 40}						
617			20 20										
618			18 40										
619			16 40										
620			21 0		20 0								20 0
621	23 50		23 50		20 50	23 50					28 20		20 40
622								26 20		26 0			
623	21 50	21 50		21 50	21 50					26 50		21 50	21 50

*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. I.	Laur. 47.	Vat. 1594.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
624													
625													
626	{28 40 20 40}		20 40	28 20	20 40				27 40	28 40			
627		28 20		27 20			27 20		27 40	27 20	27 20	27 20	27 20
628				27 20									
630													
631													
632													
633							27 40					27 40	
634				17 20									
636				14 20									
637								2 30					
638		11 20											11 20
639				12 40				12 40					
640													
643													
644								4 40					
645													
646								11 20					
648								4 20					
649								8 40					
650													
651								15 40					
652													
654													
655													
657													
658													
659													
660													
661		{11 50 21 40}									11 50		
662													
663													
667													
668													
669													
670													
672								29 20					
675	{21 10 24 10}	21 10	21 10		21 10		21 10	21 10		21 10	21 10	21 10	21 10
676													
678								0 20					
679		20 10											
680											20 0	20 0	20 0
682													
683													
684													
685			20 10	20 10		26 0					20 10	20 10	
686											23 0		
687	{22 30 22 20}		22 30	22 30		22 50		17 40	{22 30 22 20}		22 30	22 30	
688	{23 0 23 20}		23 20	23 20				22 40	23 20	23 20	23 20	23 20	

*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
624													
625													
626					20 40					28 40	28 40		
627	27 20		27 20								26 40		27 20
628													
630					5 20								
631		5 20		5 20									
632			26 50							27 30			
633											26 20		
634													
636			11 40										
637											9 10		
638	11 20												
639													
640													13 0
643								8 7					
644													
645		6 10					2 10	2 10					
646													
648													
649										3 20			
650											6 50		
651							10 0	10 0					
652													14 15
654		10 30											
655							20 20	20 20		20 20			
657							19 30	19 30		19 30			
658							20 55	19 55					
659		21 40					12 40	12 40	22 40	22 40	22 40		
660											26 10		
661													
662							22 40	22 40		22 40			
663									23 15		28 15	23 15	
667							11 55	11 55		11 30			11 30
668		12 40					12 40	12 40	12 40	12 40	12 40		
669		16 10		16 10									
670							0 0	0 0					
672													
675	21 10		21 10		21 10								21 10
676								26 10					
678													
679	20 0		20 0										
680		1 40	26 40	2 40						29 0			
682		14 0		14 0						11 10			
683										13 30			
684										17 0			
685	20 10	20 30	20 10					20 30	20 30	20 20	20 30	20 30	
686		20 20								23 20	28 0		
687	22 30		22 30	22 20			22 20	22 20	22 20		22 20	22 20	
688	23 20	20 20	23 20						23 0	23 40	28 0	23 0	



*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
689	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /
690	28 20	28 40						28 40	28 40	28 30	28 40		
691										26 30			
693										5 30			
695	0 40	0 20	0 40					0 20	0 20	5 20	0 20		
696										5 30			
699													
700											26 40		
701											26 0		
702													
703				26 20			26 20	26 20		26 20			
704											26 40		
705	{ 2 10 2 30 }				2 40				2 10	2 10	2 10		2 40
706							29 30	20 30		29 30			
708		1 20		1 20									
709		2 15											
710													
711		4 20		4 20									
714		21 40											
715								10 40					
716	16 20	16 0	16 20	16 0	16 0			10 30	10 10	10 10	10 10		16 0
717				12 0				12 10					
718		7 40	{ 7 40 7 20 }	7 40			7 40	7 40	7 40	7 40	7 40	7 40	
719							2 0	2 40		2 0			
720							2 20	2 0		2 20			
721								6 20					
722								7 40	7 40		7 40		
723		23 0		23 0									
724										28 0	28 0		
728							11 40	11 40					
730								11 20	9 40		9 40		
732		4 20		4 20				4 20	4 20	4 20		4 20	
733	5 0		5 0										
734							{ 27 0 26 0 }	32 0		26 0			
736							20 20	20 20		20 20			
738													
739											20 20		
741										4 0			
743										4 40			7 40
745	4 40	1 20	4 40	1 20			4 20	4 20	2 20	4 20	7 20	2 20	
746		27 30		27 30			27 30	27 30	27 30	27 30	26 30	27 30	
748										24 0			
749	21 10	21 10	21 10	21 10	21 10					24 20			21 10
750		21 0		21 0						20 10			
751										19 30			
752										18 50			
754										15 20			



*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
755								14 30		14 20			
756										14 20			
757										15 10			
758										16 50			
759				24 20						25 50			
760										27 40	26 20		
761										28 0			
762										23 40	28 50		
763	26 50						26 50	26 50		27 10			26 50
764	26 20		26 20							26 50			26 20
765											26 0		
766											26 40		
767	26 30	26 10	26 30					26 10	26 10	26 10	26 10	27 10	
768	20 50		20 50	12 50	20 50								20 50
770											28 20		
772		18 0		18 0									
773		18 30		18 20									
775	11 40	11 40		11 40	11 40								11 40
776											13 40		
777	16 0	16 0	16 0	16 0	10 10			10 10	10 10	10 10	10 10		
778		4 20		4 20									
779		5 30			5 30			5 30	5 30	5 30	5 30		
780								2 1		2 30			
781											26 0		
782		21 40		21 40			24 40	24 40	24 40	24 40	24 40	24 40	
783		21 20		21 20									
784							22 10	22 10					
785								12 10					
786	11 50	11 30	11 50	11 30									
787													15 10
788												10 30	
789				5 30									
791											3 50		
792										13 30			
793										17 50			
796								12 10		22 0			
797		21 40		21 40					24 20		24 20	24 20	
798										0 10			
800		28 20								20 10			
802		10 20											
803		11 45		11 45									
804							41 50						
805		7 10		7 10	7 30								
806		19 40						19 40	19 40	19 40			
807											39 50		
809	29 20		29 20					29 20					
810								29 10					
811											26 10		
812	25 20		25 20				25 30	25 30		25 30			
813		21 50		21 50					24 20	24 50	24 20	24 20	



*Collations of Manuscripts—Longitudes—continued.*

Baily's No.	Laur. 48.	Vienna 14.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
814		4 0		4 0						1 10			
816										5 0			
817							11 40						
822	25 20	25 20	25 20	25 20	25 20		25 20	25 20	25 20	25 20	25 20	25 20	25 20
824								17 10					
826								12 0					
827		14 20				14 20		19 40					
829		21 40	21 40	21 40									
832		23 20									28 40		
833													
840													14 6
842		0 0		0 0									
844	20 0		20 0										
848	29 30	29 10	29 30						29 10	29 10	29 10		
849		13 0		13 0					13 0		13 0	13 0	
850													
851			18 50										
852													
856												5 20	
860		4 10	4 10						4 10		4 10	4 10	
861		16 0		16 0		16 0			16 0		16 0	16 0	16 10
864		16 0		16 0								15 30	16 40
865	21 0												
867		21 20		21 20						21 0			
868		23 0						23 0	23 0	23 0	28 0		
869	24 10		24 10					23 20					
870		5 20											
871								5 10					
873													
874													
877											23 0		22 0
878													
879		14 10						15 10	14 10	14 10	14 10		
886							21 25	21 25					
889													
890							2 0	2 0		2 0			
891	26 10		26 10							4 10			
892													
893	22 0												
894			14 20										
895							15 20	15 20					
896							15 30	15 30					
898	17 30	17 30	17 30	17 30			17 30	17 30			16 35		
899	23 20	23 0	23 30	23 0	23 0								23 0
900		23 0		23 0							28 20		
901		28 30		28 30									
902		9 40		9 40									
903											23 50		
904													
906													
907					8 0						3 40		
909								17 0					

## Collations of Manuscripts—Longitudes—continued.

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. 1.	Laur. 47.	Vat. 1594.
910	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
911	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
912	{ 4 20 1 30 }	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
913	2 20	4 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 20	4 20
914	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
915	11 30	.....	11 30	11 30	11 30	11 30	.....	.....	11 30	.....	.....	.....	.....
919	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
921	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
922	.....	.....	.....	.....	.....	.....	.....	2 10	.....	.....	.....	.....	.....
924	.....	.....	.....	.....	.....	.....	.....	7 40	.....	.....	.....	.....	.....
926	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
927	{ 1 10 1 20 }	1 40	{ 1 10 1 20 }	13 10	.....	.....	1 40	.....	1 40	1 40	1 40	.....	1 40
928	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
931	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
932	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
933	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
934	.....	.....	.....	.....	.....	21 0	.....	.....	.....	.....	.....	.....	.....
936	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
939	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6 0	.....	.....
941	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
942	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
943	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
944	.....	.....	.....	.....	.....	.....	.....	22 40	.....	.....	.....	.....	.....
946	.....	.....	.....	.....	.....	.....	.....	13 40	.....	.....	.....	.....	.....
947	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
951	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
954	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
955	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
956	.....	.....	.....	.....	.....	.....	.....	2 0	.....	.....	.....	.....	.....
959	.....	.....	.....	.....	.....	.....	.....	2 0	.....	.....	.....	.....	.....
960	.....	.....	.....	2 20	.....	.....	.....	.....	.....	.....	.....	.....	.....
962	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
963	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
964	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
966	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
967	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
969	.....	.....	8 20	8 20	.....	.....	.....	.....	.....	.....	8 20	8 20	.....
970	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
971	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
972	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
973	.....	.....	.....	.....	{ 25 30 25 10 }	.....	.....	.....	.....	.....	25 20	.....	.....
974	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
975	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
976	.....	.....	.....	.....	3 10	3 10	.....	3 40	.....	.....	.....	.....	.....
978	o 40	.....	o 40	o 40	o 40	o 40	.....	.....	.....	o 40	o 40	o 40	o 40
979	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
980	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
982	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
983	21 50	21 50	.....	24 50	21 50	21 50	21 50	21 50	21 50	21 50	.....	.....	21 50
984	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
985	.....	.....	.....	.....	.....	.....	20 0	.....	.....	.....	.....	8 30	.....







## PTOLEMY'S CATALOGUE OF STARS.

*Collations of Manuscripts—Latitudes.*

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. 1.	Laur. 47.	Vat. 1594.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
1	.....	60 10	.....	.....	.....	.....	60 10	60 10	.....	60 10	60 10	.....	60 10
2	.....	.....	.....	.....	.....	.....	70 15	.....	.....	.....	.....	.....	.....
3	.....	{74 20 70 20}	.....	.....	.....	.....	70 20	.....	.....	.....	.....	.....	70 20
4	.....	.....	.....	.....	.....	75 20	.....	75 20	.....	.....	.....	.....	.....
5	.....	.....	.....	.....	.....	77 20	.....	77 20	.....	.....	.....	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	72 10	.....	.....	.....	.....	.....
7	.....	.....	.....	.....	.....	.....	.....	74 12	.....	.....	.....	.....	.....
8	.....	.....	.....	.....	.....	72 10	.....	.....	.....	.....	.....	.....	.....
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....	.....	.....	.....	.....	.....	.....	43 30	.....	.....	.....	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	44 0	.....	.....	.....	.....	.....
18	44 0	44 0	.....	.....	44 0	44 0	44 0	44 0	44 0	44 0	44 0	.....	44 0
19	.....	.....	.....	.....	.....	.....	.....	.....	39 0	.....	.....	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	29 0	.....	.....	.....	.....	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	30 10	.....	30 10	.....	30 10	.....	30 10	.....	.....	30 10	.....	30 10	30 10
23	30 20	30 20	30 20	.....	30 20	.....	30 20	.....	.....	30 20	.....	30 20	30 20
25	.....	.....	.....	.....	.....	.....	44 10	.....	44 10	.....	.....	.....	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	.....	.....	.....	.....	56 30	.....	.....	.....	.....	.....	.....	.....	.....
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	.....	.....	.....	57 30	.....	.....	23 30	53 10	.....	.....	.....	.....	23 30
34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	22 {40 30}	22 30	.....	.....	.....	.....	22 0	22 30	22 0	.....	22 30	22 30	22 30
42	23 0	.....	23 0	.....	.....	.....	.....	.....	.....	20 20	.....	.....	20 20
43	.....	.....	.....	.....	.....	.....	.....	.....	22 1	.....	.....	.....	.....
44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	.....	.....	.....	83 0	.....	83 0	.....	.....	.....	.....	.....	.....	.....
48	.....	.....	85 30	.....	85 30	.....	.....	.....	.....	.....	.....	.....	.....
49	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	.....	.....	.....	83 0	.....	83 15	.....	83 0	.....	.....	.....	.....	.....
52	81 10	.....	.....	.....	.....	84 10	.....	84 10	.....	.....	.....	.....	.....
53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	77 50	.....	.....	.....	.....	.....	.....	.....
56	.....	.....	.....	.....	.....	78 50	.....	.....	.....	.....	.....	.....	.....
58	81 20	.....	81 20	.....	.....	.....	.....	.....	.....	.....	81 20	.....	.....
59	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	84 0	.....	.....
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80 30	.....	.....
62	.....	.....	.....	.....	.....	.....	84 30	.....	84 30	.....	.....	.....	.....
63	87 30	87 30	.....	87 30	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	.....	.....	.....	86 20	.....	86 0	.....	86 30	.....	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	80 20	80 20	80 20	80 20	80 20	.....	80 20	.....	80 20	80 20	80 20	84 15 80 20	80 20

*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Laur. 48.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
1	60 10	60 10	.....	.....	.....	.....	300 0	.....	.....	.....	.....	60 10
2	70 15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0 15
3	70 20	70 20	.....	.....	.....	.....	74 0	74 0	74 0	74 0	74 0	0 20
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	74 40
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	.....	72 30	.....	.....	.....
7	.....	.....	.....	.....	.....	.....	.....	.....	74 30	.....	.....	.....
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	.....	.....	39 20	.....	.....	.....	.....	.....	39 30	.....	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47 6
14	.....	.....	.....	30 10	.....	.....	.....	.....	.....	.....	.....	.....
15	.....	.....	.....	30 20	.....	.....	.....	.....	.....	.....	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	44 24	.....	.....	.....
18	.....	44 0	44 0	.....	.....	44 0	44 0	45 0	44 0	45 0	44 0	44 0
19	.....	.....	.....	56 20	.....	.....	.....	.....	34 0	.....	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	29 6	.....	.....	.....
21	.....	.....	.....	.....	.....	.....	28 30	.....	.....	.....	.....	.....
22	30 10	30 10	.....	30 10	.....	.....	.....	.....	.....	36 20	.....	30 10
23	30 20	30 20	.....	30 20	.....	.....	33 30	30 20	30 0	30 20	.....	30 20
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	.....	.....	.....	.....	.....	11 0	.....	.....	.....	.....	.....	.....
27	.....	.....	.....	56 30	.....	.....	.....	.....	47 30	.....	.....	.....
28	.....	.....	.....	.....	.....	29 30	29 30	.....	.....	.....	.....	.....
30	.....	.....	.....	.....	.....	.....	39 15	.....	30 15	.....	.....	.....
32	.....	.....	.....	.....	.....	.....	.....	35 0	.....	.....	.....	.....
33	.....	23 30	.....	.....	.....	13 30	13 30	.....	.....	.....	.....	.....
34	.....	.....	.....	.....	.....	15 40	15 40	.....	.....	.....	.....	.....
35	.....	.....	.....	.....	.....	14 0	14 0	.....	.....	.....	.....	.....
36	.....	.....	.....	.....	.....	.....	.....	.....	39 35	39 44	.....	.....
37	.....	.....	.....	.....	.....	.....	.....	.....	41 22	.....	.....	.....
38	.....	.....	.....	.....	.....	17 35	17 35	.....	.....	.....	.....	.....
40	.....	.....	.....	.....	.....	.....	.....	.....	22 0	.....	.....	.....
41	22 30	22 30	.....	25 { <sup>40</sup> / <sub>30</sub> }	22 40	22 45	22 45	22 45	22 45	22 45	.....	22 30
42	.....	.....	.....	.....	.....	.....	20 20	.....	20 20	.....	23 0	20 20
43	.....	.....	.....	.....	.....	.....	23 15	.....	.....	.....	.....	.....
44	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	.....	.....	.....	.....	.....	.....	.....	.....	78 50	.....	.....	.....
46	.....	.....	75 20	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	.....	.....	.....	.....	.....	75 20	.....	.....	.....	.....	.....	.....
48	.....	.....	.....	85 30	.....	.....	.....	.....	.....	.....	.....	.....
49	.....	.....	.....	.....	.....	.....	.....	.....	82 30	.....	.....	.....
51	.....	.....	83 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	.....	.....	81 20	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	81 20	.....	.....	.....	.....	.....	81 15	81 40	81 40	81 40	.....	.....
59	.....	.....	.....	.....	.....	.....	.....	.....	82 15	.....	.....	.....
60	.....	.....	.....	.....	.....	83 30	83 30	.....	83 30	.....	.....	.....
61	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	.....	.....	.....	.....	.....	.....	.....	.....	84 30	.....	.....	.....
63	.....	.....	.....	.....	.....	.....	.....	.....	87 50	.....	.....	.....
64	.....	.....	.....	.....	.....	.....	.....	.....	.....	87 50	.....	.....
65	.....	.....	.....	.....	.....	81 55	81 55	.....	.....	.....	.....	.....
66	80 20	80 20	80 20	80 20	.....	.....	.....	.....	53 0	.....	.....	80 20



*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Laur. 48.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
67	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
68									54 50			
69						{ 74 40 79 40 }	70 40					
71						{ 64 40 69 40 }	305 40					
73			64 15			61 35	301 35					
74						86 55	306 55					
76							304 15					
80							79 0		72 0			
81							305 30					
82							302 30					
83			64 0			60 55	300 55		65 0			64 0
84						61 55	301 55					
85						61 30	301 30					
86			60 15				304 0					
87			59 50									
88												
89							58 10					
90							60 40	47 10		47 10		
91		51 40	51 40									
92										49 31		
93						13 50	13 50				53 30	
94						18 40						
95						13 35	53 50	53 45			53 45	
96						17 30	47 30					
97	46 30	46 30		46 30	56 30							48 30
98												
99			41 20			41 20		41 20	41 20	41 20	41 20	41 30
101									42 50			
102	43 0	43 0	43 0	43 0								43 0
103	44 0	44 0	44 0	44 0				40 15				44 0
104		44 40										
106												
109			25 15							25 30		
110												
111					41 30							
112	46 30						46 10	46 10	46 10	46 10		47 30
114												
115											45 45	
116								44 45			44 45	
117												
118												
119								30 30				
121			46 0									
122		36 10										
124	42 30											
125						12 0			42 0			
126						12 50						
127						34 0						
128						13 0						
129	50 40	50 40		50 40		16 10	54 10	53 10	56 10	53 30		50 40
130						13 30			58 30			
131						16 20	16 10	56 10	59 14	56 10		
132						18 30	18 30		60 30			



*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Laur. 48.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
133	59 20	59 20				19 50						
134	63 0	63 0		63 0			300 20					63 0
135							301 15					
136							301 0					60 0
138			74 0						75 0			
139												70 15
140							72 0	72 0	72 0	72 0		
141	64 0	64 0	64 0	64 0			300 15		60 35			64 0
142										53 0		
145							304 15		64 19			
154							300 20					
155				55 10		16 13	16 10			57 10		55 10
158					54 50			54 20	57 10			54 44
159			49 20				49 20	49 20	49 20	49 20		
160	56 30	56 30							7 30			
161						14 30						
162						56 20	56 20					
165							309 40		69 20			
166												
167												
168							59 30					
169												
171						15 10	15 10					
172						17 0	17 0		37 0			
173							304 0					
174							304 30					
175				63 45			303 45	63 45	63 45	63 45		
177									9 40			41 40
178												
180									17 50	46 50		
183			47 15									
184									45 20			
185									50 20			
186									40 0			
188			50 40									
189			51 10				52 40					
191							40 35		40 35			
192												
193					31 30			37 30	37 30			
195			31 30		31 30							
196												
198							27 30		27 30	26 50		
199										26 40		
200										26 20		
201							24 0	27 0		26 0		
202										28 0		
205									20 15			
206							28 15		28 15			28 40
208							25 10					
209							26 35					
211						{ 23 45 } { 28 45 }	28 45					
212	24 50	24 50		24 50								24 50
213							19 55					19 4







*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Laur. 48.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /
285							38 40	38 40	38 40	38 40		
287										26 10	26 10	
288							39 10					
290										31 10		
291										31 10		
292			29 40							38 40		
293			26 40				26 40	26 40	26 40		26 40	
294			36 40				26 20					
295		24 40										
296							30 10					
297									24 0			
300										38 10		
301										29 0		
302												
303			27 15				26 41		27 15	26 15		
304		36 0					26 41			12 0		
305			36 50									
306		33 0								12 0		
308			31 0		31 0		34 15		34 0			34 4
309		34 30										
313											22 30	
315												
316							22 30			12 10		
319			29 30									
322									17 30	37 30		
327											16 0	
329			16 30									
331	2 30	2 30		2 30			41 30					2 30
332							39 10			44 0		
333	44 15						36 15					34 50
335												
336										26 0		
337										28 0		
339			33 20							38 30		
341			44 0									
345							15 7			15 30		
346							26 20	26 20	26 20	26 20		
349							33 0					
350							27 20			16 20		
351			35 20				35 20	35 20	39 20	35 20	35 20	
353							20 0					
356										30 30		
357	41 0	41 0		41 0								
358									19 30			
360									19 17			
365								6 40				
368									4 30			
369			4 40									
370								2 39				
371												
372							1 10	1 10	1 10			
373												
374								4 15				



*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Laur. 48.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
375				10 0			10 0	10 0	10 0	10 0		
376	10 0	10 0	16 0	10 30								10 30
377											2 40	
378		14 10					10 40					
379			13 40									
381												7 4
382			7 30									
384												
386												
387												
389							13 20	10 20	10 0	10 20	10 20	
390			9 50		5 15					5 15		
391							4 35					
392							0 50					
394												
395												
396												
398										6 30		
399	4 0	4 0	4 0	4 0			4 0	- 4 30	+ 4 0	4 0	4 0	4 0
400			5 20				0 0					
401					7 0		4 30		5 30			
402	4 0	4 0		4 0			4 0	0 15	4 0	0 15		4 0
403							1 40					
404					1 0			+ 1 0	+ 1 0		+ 1 0	
405										6 0		
406			7 10				7 10	7 10	7 10	7 10	7 10	
407												
408												
410							4 40			8 40		
411	3 20		3 20	3 20			5 20		5 20	8 20		3 20
412							5 5					
413							16 30					
415									1 0			
416									1 0			
417												
418			7 20									
419			2 40					+ 0 40	2 40		0 40	
420												
424							9 40	9 40	9 40	9 40		
426										11 0		
427									50 20	4 20		17 20
429	1 50											1 50
430							3 40					
431	6 40								3 40			
432									3 0	3 0	3 0	
433											- 1 30	
434							5 30					
435							2 30					
436	{ 6 10 0 40 }	0 40						6 0	6 0	6 0		0 30
438												
440										4 30		

*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. 1.	Laur. 47.	Vat. 1594.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
441													
443								-5 50					
446													
447		1 30					1 30	1 30		1 30	1 30	1 30	1 30
448	2 40							2 20					
449		3 0				3 0	3 0	3 0	0 20	0 20	3 0	3 0	3 0
450											2 40		
451											1 0		
452		-2 40						2 20			{ 2 40 } 1 0		
453		-0 10											
454		-5 30						5 10					
455		+11 50											
456		+1 0						-1 0					
457						+7 30		+7 30					
460	4 50	14 50			4 50	4 50	4 50		4 50	4 50	14 45		
461	7 15	7 15			7 45	7 15	7 15		7 15	7 15			
466													
467													
468													
469													
470													
471	4 0	4 0			4 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0
474													
476	6 0	6 0		6 0	6 0	6 0	6 0	6 0		6 0	6 0	6 0	
477	0 15												
478													
479													
480													
481													
482						12 10							
485													
486													
487	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12	3 12
489													
491													
495				25 30									
496													
497				1 15									
498													
501	6 0	6 0	6 0	6 0				6 20	{ 0 10 } 0 30		6 0		
502													
503		{ 2 50 } 1 40									{ 2 50 } 1 40		
504		{ 2 50 } 8 30						2 30			{ 2 50 } 8 30		
506								18 30					
507								13 30					
508								11 10					
509	20 10	20 10	20 10	20 10	20 10	26 0	20 10	15 10	20 10	20 10	20 10	20 10	20 10
510								+2 40					
511								8 20					
512								8 0					
513		6 0		6 0	6 0	6 0		13 0		27 15			
514								4 10					



## Collations of Manuscripts—Latitudes—continued.

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. 1.	Laur. 47.	Vat. 1594.
515	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
516								1 10					
518								7 10					
519								2 20					
520								11 20					
522	o 50	9 50	o 50	o 50	o 50	o 50			o 50				
524													
525													
526													
527													
528								7 30					
530													
531													
533													
534								4 15					
535		14 45									14 45		
536													
537		9 40											
538								6 20					
540													
541								3 0				3 0	3 0
544													
545	o 40		o 40	o 20?	o 40	o 40			9 40				
546		-1 20											
549													
551													
552	3 45												
553								4 12					
555													
556								8 40					
557							10 30	14 20					
558								19 0					
559								18 20					
564													
569	1 10												
570													
571													
572	{10 50 20 20}	20 20	20 20	20 20	20 20	23 0	20 20	20 20		20 20	23 0	20 20	{10 50 20 20}
573			{1 30 10 50}		10 50			1 50					
574													
576								3 45	5 30				
577													
582													
585						5 20							
587								0 50					
592													
594													
595													
596	26 0	26 0	26 0		26 0	26 0	26 0	26 0	26 0	26 0	26 0	26 0	{20 20 26 0}
597													
601													
602													
603								5 20					











## PTOLEMY'S CATALOGUE OF STARS.

*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Par. 2389.	Par. 2390.	Par. 2391.	Par. 2394.	Ven. 302.	Ven. 303.	Ven. 310.	Ven. 311.	Ven. 312.	Ven. 313.	Laur. 1.	Laur. 47.	Vat. 1594.
	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /
768													
769		34 0		34 0				34 0			34 0		
770													
771													
772													
774													
775								28 30					
776													
777													
778													
779	27 0	27 0											27 0
780													
781								32 30			31 50		
786													
787	23 30	23 30	23 20	23 30	23 30	23 30	23 30	23 30	23 30	23 30	23 30	23 30	23 30
789													
790											34 20		
792													
794													
796													
797													
798	53 20	53 20	53 20	53 20	53 20	53 20	53 20	53 0	53 20	53 20	53 20	53 20	53 20
799								54 45					
800													
801								53 30					
802													
803								13 30					
804													
805													
806													
807													
808										31 10			
809													
810								35 15					
812													
813	44 20		41 20	43 15	41 20								
814													
815								45 20					
816													
818								36 10					
819													
821													
823						42 20							
826													
829													
830													
832													
833													
834													
836													
837													
838		58 0					58 0			58 0	58 0	58 0	58 0
840													
841													
842													
843					59 50	59 50	59 50		59 50	59 50			59 45

*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Laur. 48.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
768							30 30			31 10		
769												
770												
771									33 50			
772				31 30					31 30			31 30
774			29 20				19 50					
775												
776							29 10					
777									29 50			
778												
779				27 0			27 0	27 0	27 0	26 0		
780			27 20							26 50		
781												
786			28 50									
787	23 30	23 30	23 30	23 30			23 30	23 50	23 50	23 50	23 50	23 30
789							33 10					
790					31 50							
792										38 44		
794							41 30					
796			43 30									
797												
798	53 20	53 0		53 20				50 20	50 20	50 20		
799		51 30					11 45			11 45		
800			53 20				13 50			13 50		
801							13 10			13 10		
802			50 20				13 0			13 0		
803							13 30			13 30		
804			52 30				12 0	52 30			52 30	
805							13 30		53 50	13 30		
806			15 0									
807									36 50			
808								36 40				
809							26 40					
810							39 40		39 40			
812			41 50									
813			41 20	41 20			44 0					41 20
814			41 10					45 15		45 15	45 15	
815												
816												32 20
818												
819			35 30									
821			35 45									37 50
823												
826									45 20			
829							46 0					
830										46 0		
832									51 50			
833										55 30		
834				54 45								54 45
836										25 10		
837							41 30		61 30			
838	58 0											51 45
840							55 30					
841										55 10		
842			57 10						59 30	59 30		
843								59 30	59 30	59 30		



*Collations of Manuscripts—Latitudes—continued.*

Baily's No.	Laur. 48.	Vat. 1038.	Vat. Reg. 90.	Bod. 3374.	Laur. 6.	Laur. 45.	B. M. S. 2795.	B. M. Reg. 16.	B. M. 7475.	Bod. 369.	Laur. 156.	Vienna Trap. 24.
	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /
844							59 30					
845			57 50									
846		59 50							59 50			
847										17 0		
851	44 0	44 0	45 30									
852			46 10									
853								40 30		40 30	47 30	
855			45 30	49 45	49 30		49 30	49 30	49 30	49 30		49 50
856							49 30	49 30	49 30	49 30		
858			49 30									
859	43 0	43 0	50 20									
860	48 40	48 40										
861	45 30	45 30					55 30	55 30	55 30	55 30		
862	48 40	48 40										
863		47 15										
864												57 50
865							58 20	58 20	58 20	58 20		
866							40 0					
868	56 20	56 20		56 20								
869			57 0				57 0	57 0	57 10	57 0	57 0	
871							50 40					
873							40 0					
874							41 15					
875	51 40	51 40	51 50				51 30	51 30	51 30	51 30		
876			49 20				40 0					
877							53 20	43 30				
879	51 30	51 30		51 30			54 30		54 30	54 30		51 30
881							43 0					
882							44 30		65 30			
883							43 50					63 30
886							45 50		62 50			
887							47 20			67 20		
889				62 15			42 15	62 15		62 15		
891												
892							29 0					
893							21 50		75 50			
894								15 10				
895							11 30	13 10		13 10		
896		14 30							11 50			
897			11 45				14 45	14 45	14 45	17 45		
898							12 0	12 0	12 0	12 0		
900												12 40
901							20 20					
902			11 50					11 50				
907				26 15								26 15
908	26 15	26 15		26 15	26 15		23 35	23 15	23 15	28 15		
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*Collations of Manuscripts—Latitudes—continued.*

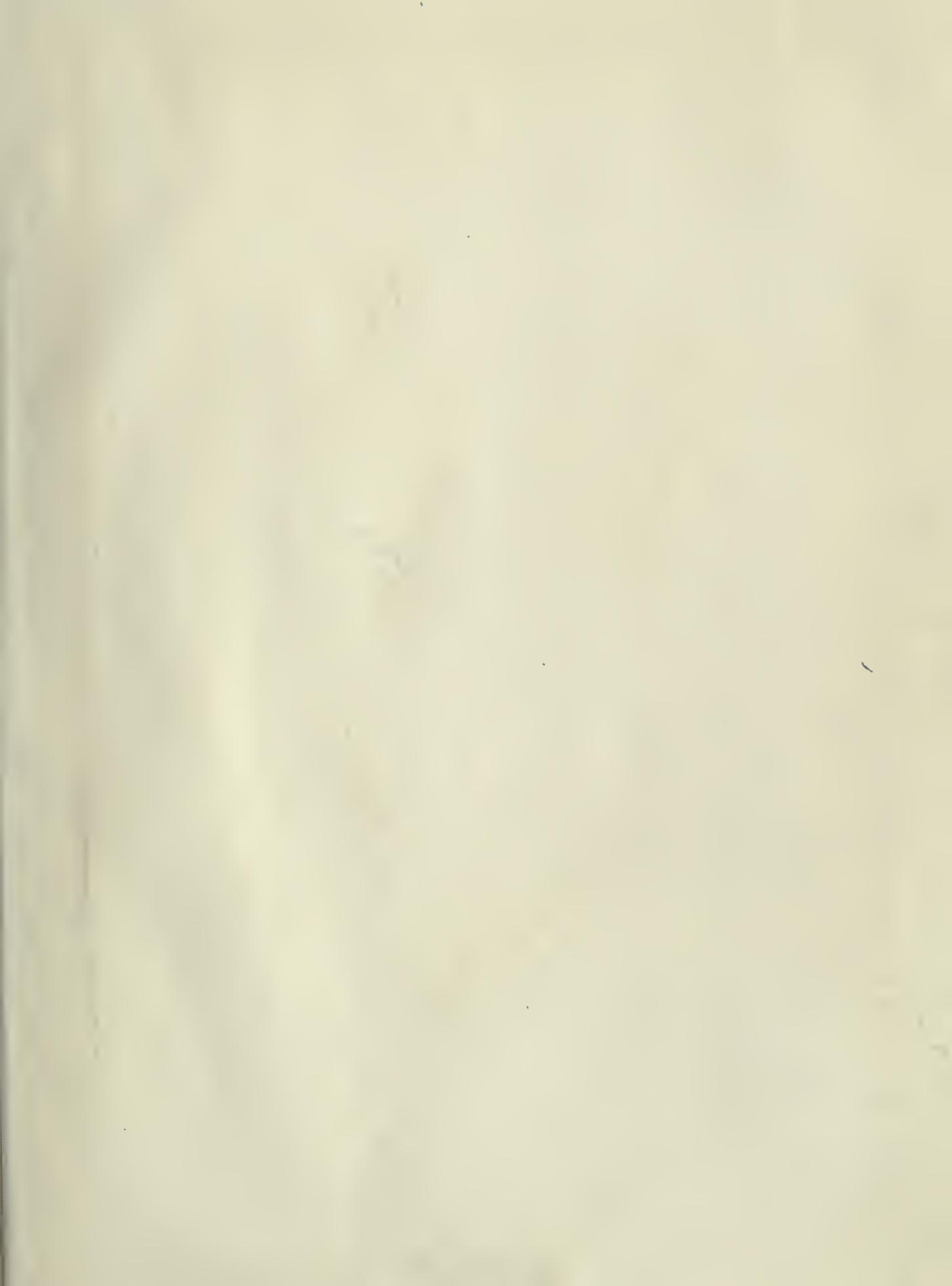
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	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /	o /
913	36 0	36 0	36 0	36 0								
914				31 20								
915							14 10					
916							11 20					
917	33 40			33 40			0 40		33 40	33 40		33 40
918	37 20			17 20			13 40		17 40	36 40		17 20
919									28 15	28 15		
920			16 20									
921			23 15						28 0	28 0		
922									19 50			29 30
923										13 0		
925												
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927			11 30									
928												
929										39 40		
930										38 20		
931			11 50									
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935												
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937												
939							25 25	22 40				
940	20 30	20 30		20 30								20 30
941							17 30			26 30		
942												
943	22 20											
944												
946							10 20					
947												
948										23 0		
949			26 45									
950							25 25					
951												
952	23 30											
954	33 0	33 0		33 0								33 0
955	31 50	31 50	31 40	31 0			34 50	34 50	34 50	34 50		31 50
956							36 40		36 40	36 40		
958	43 0	43 0	43 0	43 0								43 0
959					44 0							
960			46 12									
962	42 45	42 45		42 45								42 45
963			43 30									
964												
965												
966												
969				44 10					41 10	41 10	41 10	44 10
971												
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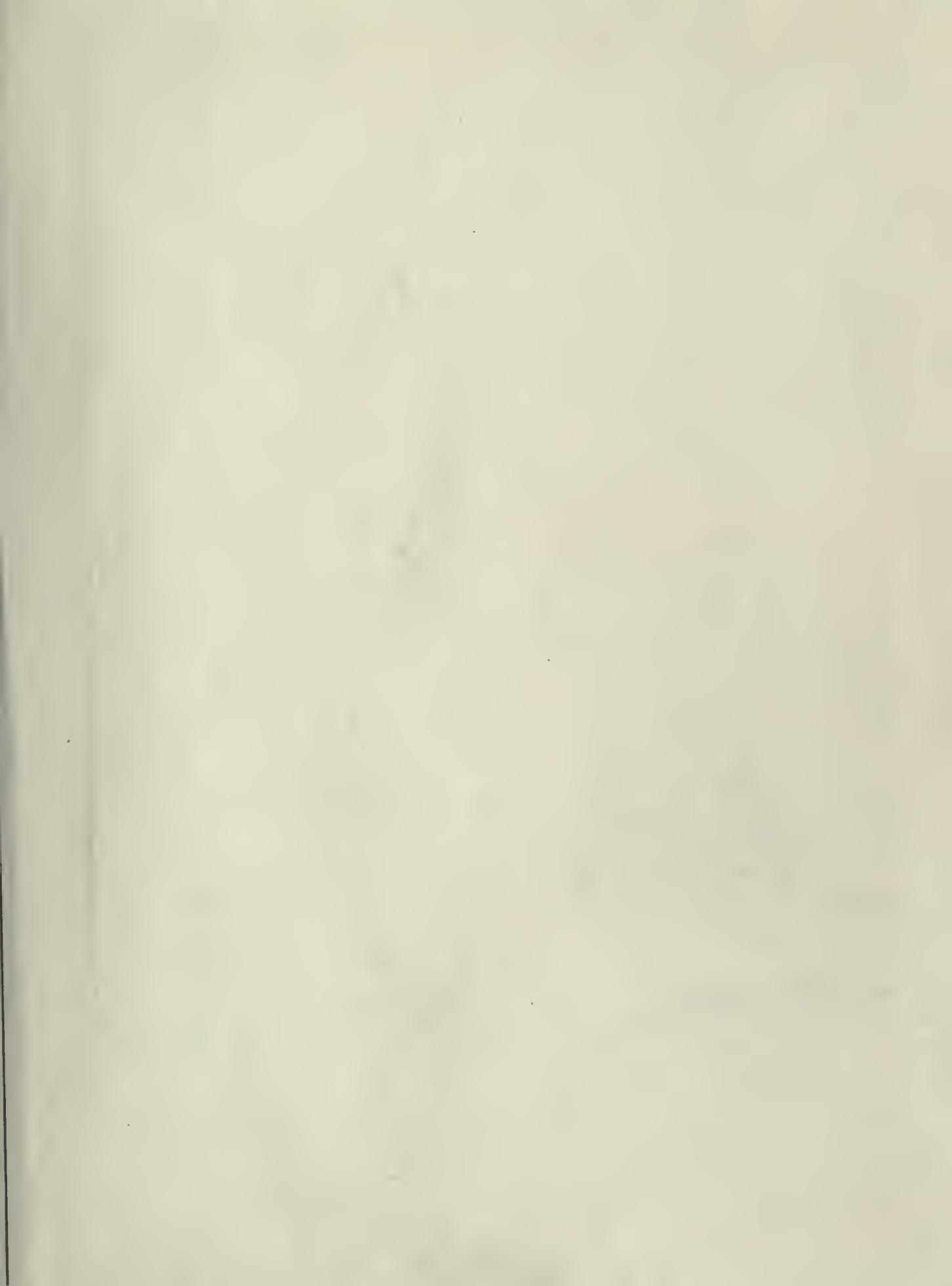
*Collations of Manuscripts—Latitudes—continued.*

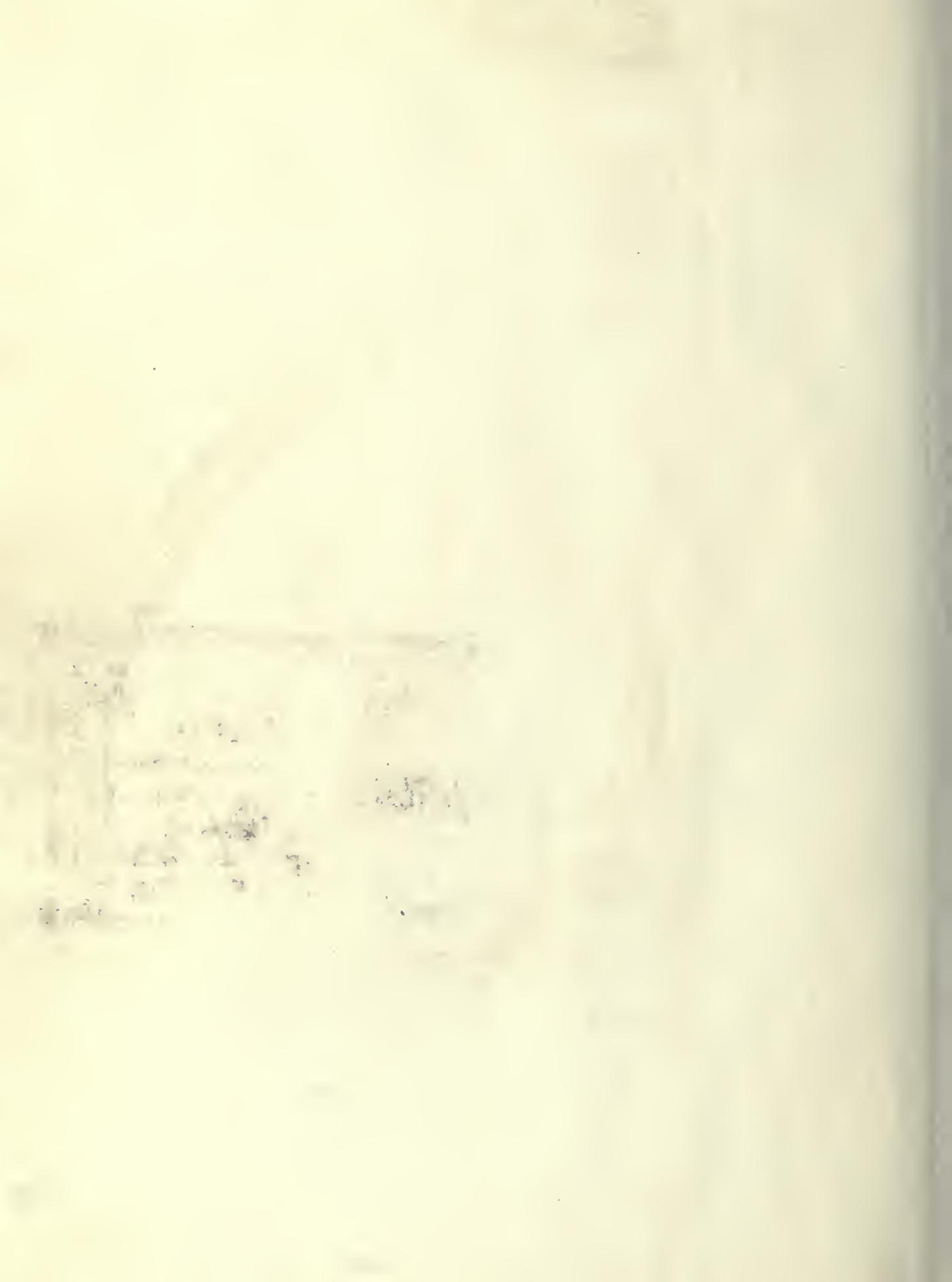
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	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /	° /
980	36 0	36 0	1 10	36 0			30 0		30 0			36 0
981												
982												
983							1 30	30 30	1 30	30 30		
985										16 0		
986	10 20	10 20										
987							18 30		18 30			
988			14 50									
989			11 45				11 30	11 30	11 30	11 30		
991												
992							20 45					
993												
994		1 20	1 20	1 20	33 0		30 20	30 20	30 20	30 20		1 20
996			33 50									
997		31 15	31 15				34 0	34 0	34 0	37 0		
998	24 30	24 30		24 30								24 30
999												
1000	23 0	23 0	23 0	23 0			20 20	20 20	20 20	20 20		23 0
1006							15 10					
1007			11 50							14 55		
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1012												
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1028			11 50				19 50	17 50		17 50		











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