

## **The Pronunciations, Derivations, and Meanings of a Selected List of Star Names**

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About eight years ago I thought that the time was appropriate to begin the collection of material for a new work on the constellations, which would include the results of the most recent scholarship, as well as data contained in manuscripts and works heretofore neglected by both American and English writers. I have continued my studies to the present time as assiduously as the demands of my profession have permitted. The present paper contains extracts from my notes which relate specifically to the star names in this list. The most difficult problem was to determine what to include and what to omit. Although the list is strictly a limited one, I have, in several instances, shown the wealth of material which exists, and which has not as yet been utilized by any writers on the constellations. Futhermore, I have never seen any American book on astronomy which includes the Arabic and Persian names of the stars in their original forms. I trust that I may be pardoned, therefore, for attempting, in a rather modest way, to remedy that omission.

The Committee of the American Astronomical Society on Preferred Spellings and Pronunciations published its Report in the August, 1942, issue of *POPULAR ASTRONOMY*,<sup>1</sup> and this Report contained, among other things, the pronunciations of fifty important star names. After the publication of this Report, and in response to requests from many members of the A.A.S. and others for the publication of a more extended list of star names and pronunciations, in accordance with the same general plan, together with a discussion of the derivations and meanings of all the names, this paper has been prepared.<sup>2</sup> Dr. Samuel G. Barton, of the Flower Astronomical Observatory, and I, who were two members of that Committee, have coöperated on the additional names and pronunciations, nearly all of which are also published in *A Guide to the Constellations*, Third Edition, by Samuel G. Barton and Wm. H. Barton, Jr. Although Dr. Barton is in no way responsible for the derivations and meanings, he has, nevertheless, made many excellent suggestions and several computations, which are incorporated herein, and for which I am very grateful.

A careful study of the following pages will reveal the falsity of some ideas concerning the astronomy of the Arabs which have been accepted for several hundred years. This is neither the time nor place to discuss them in detail, but I think that it is quite in order to call attention to them, especially in view of the fact that most of our star names are derived from the Arabic.

It has been said, time and again, that the Arabs used one star only to represent one living creature, but, on occasion, used more than one star to represent some inanimate object. This rule, we have been told, was the result of one of Muhammad's traditional prohibitions against depicting the human form, or any other living creature, either in paintings, in architecture, or in any other way. It must be remembered, however, that Arabian astronomy existed for several thousand years before the birth of Muhammad, and evidence still exists of the Sumerian influence on early Arabian star names, and, in particular, on the Arabian system of Lunar Mansions, a phase, and probably the first phase, of Sumerian astronomy which was either never transmitted to the Greeks or was never accepted by them.<sup>3</sup> I have given several instances of this influence. Then, too, the nomadic Arab paid little attention to any of the *ahadith* of the Prophet; in fact, the prohibition against painting or otherwise drawing "likenesses of God's creation," as well as the prohibition against the use of alcoholic drinks, "did no more prohibit than did the 18th Amendment to the Constitution of the United States."<sup>4</sup> We find, therefore, many representations of living creatures in indigenous Arabian astronomy, both before and after Muhammad. A few examples will be found in the following pages, and many more could be given.

Another misconception is that when the Arabs became acquainted with Greek astronomy, they altered some of the constellation figures to suit their own ideas. Nothing could be farther from the truth, for the Arabs made no changes whatever in the Greek constellations. The fault has lain with the commentators who were unable to distinguish between the astronomy of the Arabs and the astronomy of the Greeks. A glance at the discussion of the stars in Perseus will make this perfectly clear. Many writers on the constellations, up to the present time, have thought that the Arabs conceived the figure of Perseus as something quite different from the Greek representation. It is obvious now that the early names of the stars in Perseus did not refer to Perseus at all.

Another misunderstanding has always existed concerning "the fish" among the stars in Andromeda and Pisces, that is, the Arabian fish has always been considered the equivalent of the northern fish of the zodiacal constellation, but, because of ignorance of the Greek figure, or for some other reason, the Arabs became confused and extended the fish into Andromeda. It is now clear that it was not the Arabs who were confused, but the non-Arabian commentators who tried to equate the two figures. Another large fish, incidentally, was represented by the Arabs among the stars in Andromeda's feet and in the northwestern part of Perseus.

I have also, here and there, corrected some erroneous translations which I have seen in well-known books on the constellations, which were obviously the result of ignorance of the Arabic language.

If my derivations are compared with those which have already been published, it will be discovered that I have fortunately been able to present for the first time the true origin of ten or eleven star names. I might say, in this connection, that the entire paper is the result of original research, and every statement that I have made is based on documents which would be received as legal evidence in any court of competent jurisdiction. If such evidence was not available, I have frankly said so. Some of my conclusions, appearing here for the first time, may seem somewhat surprising, but the evidence for their correctness is overwhelming; and such conclusions speak loudly of the utter futility of guesswork in researches of this kind.

I have one regret in publishing this paper at the present time, and that is that I have not been able to determine definitely the origin of *Albireo*. I am satisfied in my own mind that I know the answer, but I have not been able, under present conditions, to secure the necessary documentary proof.

I have added to the discussion of each star, as a convenient reference, its magnitude and spectrum. The magnitudes are visual and are taken from the *Henry Draper Catalogue*<sup>5</sup> except for the variable stars which have been discovered since its publication, and for Proxima. The combined magnitude is given for the double stars, and the spectrum is that of the brighter component. The spectra are principally from Harvard, Mt. Wilson, Victoria, and Yerkes, and are the latest which have been published. BS refers to the Yale University Observatory's *Catalogue of Bright Stars*, Second Edition (1940). The stars marked with an asterisk are those contained in the Report of the Committee. I have added in some cases, in parentheses, the Semitic equivalent of the Sumerian name. The underlined letters and words, except the names of the constellations, would, of course, be italicized if the paper were being printed in the usual way and the font contained the necessary type.

I express my deep gratitude to Professor Solomon L. Skoss of Philadelphia for his friendly advice and encouragement, and for looking over and checking a part of the manuscript. I am also indebted to him for informing me of the system of transliteration adopted by the *Journal of the American Oriental Society*, which I have followed throughout the paper. If, however, any errors are discovered, the responsibility therefor is entirely my own.

I also wish to thank Miss Mildred Ross of the Grosvenor Reference Library of Buffalo, Miss Ruth Sparrow of the Research Library of the Buffalo Museum of Science, Miss Dorrit Hoffleit of the Harvard College Observatory, and the libraries of Cornell, Harvard, and Princeton Universities for the many courtesies which they have extended to me during the past six or seven years.

Lastly, I wish to say that the publication of this paper at the present

ANDROMEDA (And)

$\alpha$  \*ALPHERATZ (äl-fē'räts), from the Arabic سرة الفرس, Surrat al-Faras, "the horse's navel," formerly common to And and Peg. 2<sup>m</sup>.15 Aon

$\beta$  \*MIRACH (mī'rāk), from the Arabic المراق, al-Marāqq, "the loins," a form very similar to that for  $\beta$  UMa. This, and other names, obviously derived from المئزر, al-Mi'zar, were simply taken from Ptolemy's description of the place of the star in the figure, and were never assigned to  $\beta$  by the Arabs.  $\beta$  was known chiefly as بطن الحوت, Baṭn al-Hūt, "the fish's belly," one of the names of the 28th and last Arabian Lunar Mansion. This fish, however, was not the northern fish of the zodiacal constellation Psc, which the Arabs called "the little fish," but a considerably larger one which they called al-Hūt, "the fish," and which comprised the following galaxy and stars: M 31,  $\nu$ ,  $\mu$ , and  $\beta$  And, BS 374, 91,  $\nu$ ,  $\phi$ ,  $\chi$ , and  $\psi$ ' Psc, and  $\eta$ ,  $\zeta$ ,  $\epsilon$ ,  $\delta$ ,  $\pi$ , BS 157, and 32 And. 2<sup>m</sup>.37 Moe

$\gamma$  \*ALMACH (äl'māk), from the Arabic عناق الارض, Anāq al-Arḍ, literally "the earth-kid," the animal called in Persia سياه گوش, Siyāh gosh, "the black ear," and in Arabia البريد, al-Barīd, "the badger, messenger, jackal, courier," etc., which attends upon the lion and guides him to his prey. 2<sup>m</sup>.20 K3

AQUARIUS (Aqr)

$\alpha$  SADALMELIK (sād'äl-mēl'ik), from the Arabic سعد الملك, Sa'd al-Malik, "the lucky star (or asterism) of the king," i.e., of <sup>d</sup> NĒRGAL, the Sumerian Sun-god of summer's heat and winter's cold, known in West Semitic religion as Melqart, Moloch, Malik, etc. The Sumerian name of Aquarius was <sup>mul</sup> GU-LA, "the great constellation," which was equivalent to dingir GU-LA, "the great god," as the stars represented the Sky-god AN (<sup>ilu</sup> A-nu) pouring the waters of eternal life, which he kept in the highest heaven, upon the earth, and which was referred to in Sumerian art by the spouting or overflowing vase. The Arabic title refers to  $\alpha$  and  $\circ$  Aqr. 3<sup>m</sup>.19 cG1

$\beta$  SADALSUUD (sād'äl-sū'ūd), from the Arabic سعد السعد, Sa'd as-Su'ūd, "the luckiest of the lucky stars (or asterisms)," the name of the 24th Arabian L.M., consisting of  $\beta$  and  $\xi$  Aqr, with 46 Cap sometimes being added. This title is an echo of the original Sumerian name of the star, <sup>mul</sup> NAM-MAH, "the star of powerful destiny." 3<sup>m</sup>.07 cG1

$\gamma$  SADACHBIA (sād-āk'bi-ā), from the Arabic سعد الاخبية , Sa'd al-Akhbiya, "the lucky star (or asterism) of the tents," the name of the 25th L.M., which consisted of  $\gamma$ ,  $\zeta$ ,  $\eta$ , and  $\pi$  Aqr. 3<sup>m</sup>97 Al

$\delta$  SKAT (skāt), from the Arabic الساق, as-Sāq, "the leg," that is, from the ankle to the knee. 3<sup>m</sup>51 Aln

$\epsilon$  ALBALI (āl-bā'lē), from the Arabic سعد البلع , Sa'd al-Bula', "the lucky star (or asterism) of the swallower," the name of the 23rd L.M., which consisted of  $\epsilon$ ,  $\mu$ , and  $\nu$  Aqr. 3<sup>m</sup>83 Aln

$\theta$  ANCHA (āng'kā), a mediaeval Latin medical term, also written anca and ancus, "the upper part of the femur," or, more commonly, "the hip." 4<sup>m</sup>32 G6

#### AQUILA (Aql)

$\alpha$  \*ALTAIR (āl-tār'), from the Arabic النسر الطائر , an-Nasr at-Tā'ir, "the flying eagle or vulture," originally derived, of course, from the Sumerian <sup>mul</sup> ID<sup>hu</sup> (kakkab Našru<sup>hu</sup>), "the constellation of the eagle," which was equated with <sup>d</sup> ZA-MÁ-MÁ, the great Sun-god of Kish, the most ancient capital of Sumer. Aql and Lyr were called by the Arabs an-Nasrain, النسرین , "the two eagles or vultures." 0<sup>m</sup>89 Aln

$\beta$  ALSHAIN (āl-shān'), from the substantive part of one of the Persian names of the constellation, شاهین تارازد , Shāhīni Tārāzad, "the plundering or ravishing falcon." 3<sup>m</sup>90 G8

$\gamma$  TARAZED (tār'ā-zēd), from the adjectival part of the Persian name. Aql and Lyr were called by the Persians درشاهین , Du Shāhīn, "the two falcons." 2<sup>m</sup>80 K4e

#### ARIES (Ari)

$\alpha$  \*HAMAL (hām'āl), from the Arabic الحمل , al-Hamal, "the full-grown lamb," a modified form of the Sumerian <sup>mul</sup> LU-LIM (kakkab Lulimu), "the constellation of the ram." 2<sup>m</sup>23 K1

$\beta$  SHERATAN (shēr'ā-tān), from the Arabic الشرطان , ash-Sharatāni, "the two signs," presumably of the New Year, when Ari marked the vernal equinox, but this is not necessarily the original meaning of the title. This, according to existing records, was the name of the first Arabian L.M., which generally consisted of  $\beta$  and  $\gamma$  Ari. Sometimes  $\alpha$  and  $\beta$  were regarded as constituting the L.M., and when  $\gamma$  was added, the three were called الاشرط , al-Ashrāt, "the signs." 2<sup>m</sup>72 A3

γ MESARTIM (měz'är-tim), from the Arabic المثرطم, al-Muthartim, "the extremely fat ram," the letter ث being generally transliterated s in the older dictionaries. 4<sup>m</sup>.04 Aop

#### AURIGA (Aur)

α \*CAPELLA (kā-pěl'á), from the Latin, "the little she-goat," the diminutive of capra, derived ultimately from one of the Sumerian names of the star, <sup>mul</sup> ÁŠ-KAR, "the goat star," and whence the most ancient Arabic name of the star, العيوق, al-'Ayyūq, "the goat," and the Greek name Α'ξ. 0<sup>m</sup>.21 G1

♁ MENKALINAN (měn-kāl'ī-nān), from the Arabic منكب ذوالعنان, Man-kib dhū al-'Inān, "the shoulder of the rein-holder." var Alnp

#### BOÖTES (Boo)

α \*ARCTURUS (ärk-tū'rūs), from the Greek of Hesiod, Ἄρκτοῦρος, "the bear-guard." This star, or possibly the constellation itself, was the northern <sup>mul</sup> SIB-ZI-AN-NA of the Sumerians, "the faithful shepherd of heaven," and, similarly, the Arabians' حارس السماء, Hāris as-Samā', "the keeper of heaven," and حارس الشمال, Hāris ash-Shamāl, "the keeper of the north." α was also called السماك الرامح, as-Simāk ar-Rāmih, "the armed or lance-bearing prop," one of the supports of heaven. The other prop was Spica. Compare with the functions of Shu, Atlas, Mithra, Veralden Tschuold, etc. 0<sup>m</sup>.24 Koe

♁ NEKKAR (něk'kär), from an erroneously pointed form of the Arabic البقار, al-Baqqār, "the drover or dealer in cattle." 3<sup>m</sup>.63 G5

γ SEGINUS (sě-jī'nūs), of uncertain derivation, but there is evidence tending to show that it is an astronomical erratic and a corrupt form of one of the Arabic names of Cep. 3<sup>m</sup>.00 A5n

ε IZAR (ī'zār), from the Arabic الازار, al-Izār, "the loin-cloth." Other more interesting titles were: منطقة العواء, Mintaqat al-'Awā', "the shouter's belt," تابع السماك, Tābi' as-Simāk, "the follower of the prop," راية السماك, Rāyat as-Simāk, "the flag or standard of the prop," and راية الفكة, Rāyat al-Fakka, "the flag or standard of the broken one." 2<sup>m</sup>.59 Ko

η \*MUPHRID (mūr'rid), from the Arabic مفرد الرامح, Mufrid ar-Rāmih, "the solitary (star) of the spear-holder or lancer." 2<sup>m</sup>.80 F7

μ ALKALUROPS (ăl'kă-lŭ'rōps), from the Greek Κάλαιουρος, "the shepherd's crook," with the Arabic article al prefixed. 4<sup>m</sup>.47 A7n

CANCER (Cnc)

α ACUBENS (ăk'ŭ-bĕnz), from the Arabic الزبان, az-Zubān, "the claw," the full title being زبان السرطان الجنوبي, Zubān as-Saraṭān al-Janūbī, "the southern claw of the crab." 4<sup>m</sup>.27 Fo

γ ASELLUS BOREALIS (ă-sĕl'ŭs bō'rĕ-ă'lĭs), from the Latin, "the northern little ass," the diminutive of asinus. 4<sup>m</sup>.73 Ao

δ ASELLUS AUSTRALIS (ă-sĕl'ŭs ôs-tră'lĭs), "the southern little ass." 4<sup>m</sup>.17 Ko

CANES VENATICI (CVn)

α COR CAROLI (kôr kăr'ô-lĭ), from the Latin, "Charles's heart." 2<sup>m</sup>.80 A1s

β CHARA (kă'ră), from the Greek Χάρμα, "joy." 4<sup>m</sup>.32 Go

CANIS MAJOR (CMA)

α\*SIRIUS (sĭr'ĭ ŭs), from the Greek of Hesiod Σείριος, "the scorching one." -1<sup>m</sup>.58 A2s

β MIRZAM (mĭr'zăm), from the Arabic المرزم, al-Mirzam, "the roarer," or, metaphorically, "the announcer or proclaimer." β CMA and β CM1 were known as المرزمان, al-Mirzamāni, "the two proclaimers," i.e., of the rising of Sirius and Procyon. 1<sup>m</sup>.99 cB1

ε ADHARA (ă-dă'ră), from the Arabic العذاري, al-Adhārā, "the virgins," referring to δ, ε, η, and ο<sup>2</sup> CMA. 1<sup>m</sup>.63 cB1

ζ FURUD (fŭ'rōōd), from an erroneously pointed form of the Arabic القرد, al-Qurūd, "the male apes," referring to ζ and λ CMA and γ, δ, θ, κ, λ, μ, and ξ Col. 3<sup>m</sup>.10 B5s

η ALUDRA (ăl-ŭd'ră), from the Arabic العذرة, al-Udhra, in the title عذرة الجوزاء, Udhrat al-Jauzā', "the virginity or maidenhood of Orion." The names of ε and η are derived from the myth in which Suhail married the virgin Orion, and the four stars which were mentioned above under ε were probably regarded as her attendants. Udhra is not the singular of Adhārā. 2<sup>m</sup>.43 cB7

CANIS MINOR (CM1)

α\*PROCYON (prō'sĭ-ōn), from the Greek Προκύων, "before the dog,"

i.e., the bright star which rises before Sirius. 0<sup>m</sup>.48 F3s

β GOMEISA (gō-mī'zā), from the Arabic الغيماء, al-Ghumaisā, "the weeping or blear-eyed one," properly one of the names of Procyon, and refers to the ancient Arabic myth concerning Sirius and Procyon, who were اختا سهيل, Ukhtā Suhail, "the two sisters of Canopus." 3<sup>m</sup>.09 B8ne

CAPRICORNUS (Cap)

α ALGEDI (āl-jē'dē), from the Arabic الجدى, al-Jadī, "the kid." 3<sup>m</sup>.77 G8

β DABIH (dā'bē), from the Arabic سعد الذابح, Sa'd adh-Dhābih, "the lucky star (or asterism) of the sacrificer or slaughterer," the name of the 22nd Arabian L.M., consisting of α and β Cap, and shows the influence of the Sumerian name of the star, <sup>mul</sup> SAK-SA-DI, "the star of the bright horn of slaughter." 3<sup>m</sup>.25 F8

γ NASHIRA (nā'shī-rā), from the Arabic سعد الناشرة, Sa'd an-Nāshira, "the lucky star (or asterism) of the verdant fields at the end of summer," referring to γ and δ Cap. 3<sup>m</sup>.20 F4

δ DENE ALGEDI (dēn'ēb āl-jē'dē), from the Arabic ذنب الجدى, Dhanab al-Jadī, "the kid's tail." 2<sup>m</sup>.98 A7s

CARINA (Car)

α \*CANOPUS (kā-nō'pūs), from the Greek Κάνωπος, a city of ancient Egypt, and, according to classical tradition, the name of the chief pilot of the fleet of Menelaus. -0<sup>m</sup>.86 Fo

β MIAPLACIDUS (mī'ā-plās'ī-dūs), from the Arabic المياه, al-Miyāh, "the waters," and the Latin placidus, "quiet, still," i.e., the still waters in which the ship Argo is resting. 1<sup>m</sup>.20 Ao

ι ASPIDISKE (ās'pī-dīs'kē), from the Greek Ἀσπιδίσκη, "the little shield or boss," the diminutive of Ἀσπίς. 2<sup>m</sup>.25 Fo

CASSIOPEIA (Cas)

α \*SCHEDAR (shēd'ār), from the Arabic الصدر, as-Ṣadr, "the breast." var G7e

β CAPH (kāf), from the Arabic الكف الخضب, al-Kaff al-Khadīb, "the stained hand," and refers to an ancient figure of the Arabs called كف الثريا اليمين المبسوطة, Kaff ath-Thurayyā al-Yamīn al-Mabsūṭe, "the outstretched right hand of the Pleiades," which consisted of a



shoulder, arm, and hand, and extended from the Pleiades, through Per, to the stars in Cas, which represented a hand with the ends of the fingers stained in the oriental manner (anāmīl makhdūba). What remains of the left hand will be found in Cet. 2<sup>m</sup>.42 F2

δ RUCHBAH (rūk'ḥā), from the Arabic رُكْبَةُ الزَّائِجَاتِ الكُرْسِيِّ, Rukbat adh-Dhāt al-Kursī, "the knee of the lady of the chair." var A3n

#### CENTAURUS (Cen)

α RIGIL KENTAURUS (rī'jīl kēn-tô'rūs), from the Arabic رَجُلُ القنطورس, Rijl al-Qantūris, "the centaur's foot." 0<sup>m</sup>.06 G4

PROXIMA (prök'sī-mā), from the Latin, "the nearest" (star). 11<sup>m</sup>.3 m

#### CEPHEUS (Cep)

α ALDERAMIN (āl-dēr'ā-mīn), from the Arabic الذراع اليمين, adh-Dhirā' al-Yamīn, "the right forearm." This will be the brightest star near the pole from about 6500 to 8300, the successor to Alfirk and the predecessor of BS 7955. 2<sup>m</sup>.60 A3n

β ALFIRK (āl'fūrḱ), from the Arabic كَوَاكِبُ الفِرْقِ, Kawākib al-Firg, "the stars of the flock," referring chiefly to α, β, and γ Cep. This will be the brightest star near the pole from about 5100 to 6500. var B1s

γ ERRAI (ēr-rā'ē), from the Arabic الراعي, ar-Rā'ī, "the shepherd." This will be the brightest star near the pole from about 3100 to 5100, the successor to Polaris and the predecessor of Alfirk. 3<sup>m</sup>.42 K1e

ξ KURHAH (kūr'hā), from the Arabic القرحة, al-Qurḥa, "the blaze or small star on the forehead of a horse." 4<sup>m</sup>.40 A3

#### CETUS (Cet)

α \*MENKAR (mēn'kār), from the Arabic المنخر, al-Minkhar, "the nostril." The ancient Arabs called α, γ, δ, λ, μ, and ξ<sup>2</sup>, the six stars in the head, الكفّ الجذماء, al-Kaff al-Jadhmā', "the amputated hand," i.e., of the Pleiades, only the stump of the wrist being left. This was so called because of the small size of the asterism as compared with the hand in Cas, and also because of the shorter series of stars connecting it with the Pleiades. 2<sup>m</sup>.82 M2

β \*DENEK KAITOS (dēn'ēb kā'tōs), from the Arabic ذنب القيطس الجنوبي, Dhanab al-Qīṭas al-Janūbī, (the star in) "the southern branch of the sea-

monster's tail." The more ancient name, however, was الضفدع الثاني, ad-Difda' ath-Thānī, "the second frog," Fomalhaut being the first. 2<sup>m</sup>24 G6

ζ BATEN KAITOS (bāt'ēn kā'tōs), from the Arabic بطن القيطس, Baṭn al-Qiṭas, "the sea-monster's belly." The Arabs called ζ, η, θ, τ, and υ, النعامات, an-Na'amāt, "the ostriches." 3<sup>m</sup>92 Ko

ο \*MIRA (mī'rā), from the Latin title of a work by Hevelius, Historiola Mirae Stellae, "A Short History of the Wonderful Star." var M6e

#### COLUMBA (Col)

α PHACT (fākt), from the Arabic الفاختة, al-Fākhta or al-Fākhta, "the ring-dove," a name originally applied by some Arabians to Cyg, but which later wandered to this star when Col became a constellation.

2<sup>m</sup>75 B8ne

♁ WAZN (wāz'n), from the Arabic الوزن, al-Wazn, "the weight," one of the stars referred to in a well-known legend of the Arabs, which revolved around the rising of Canopus.

3<sup>m</sup>22 Ko

#### CORONA BOREALIS (CrB)

α \*ALPHECCA (āl-fēk'ā), from the Arabic الفكة, al-Fakka, "the broken or fractured one" (the word does not mean "dish" or "bowl"), the earliest name of the constellation among the Arabs, and refers to the incomplete or broken circle of stars, which fact gave rise to the following names of the constellation: تصعة الساكين, Qaṣ'at al-Masākin, "the bowl of the beggars," and تصعة الصعاليك, Qaṣ'at as-Sa'ālik, "the bowl of the poor or indigent." The Persians had similar names for the constellation.

var Aln

♁ NUSAKAN (nū'sā-kān), from the Arabic النسقان, an-Nasaqāni, "the two series or lines" (of stars), applied to this star through an erroneous description by Fīrūzābādī in his al-Qāmūs. The name refers to the northern and southern series of stars, النسق الشامي, an-Nasaq ash-Sha'mī, and النسق اليماني, an-Nasaq al-Yamānī, which began near this star and ran through Her, Lyr, Ser, and Oph, and formed two sides of الروضة, ar-Rauda, "the garden or meadow." 3<sup>m</sup>72 A7s

#### CORVUS (Crv)

α ALCHIBA (āl-kē'bā), from the Arabic الخباج, al-Khibā', "the tent," one of the early names of the constellation. 4<sup>m</sup>18 F2

γ GIENAH (jē'nā), from the Arabic جناح الغراب الابن, Janāh al-

Ghurāb al-Aiman, "the right wing of the raven."      2<sup>m</sup>78    B8

δ ALGORAB (āl-gō'rāb), from the Arabic الغراب, al-Ghurāb, "the raven." The principal stars of Crv were also called عرش السماك الاعزل, 'Arsh as-Simāk al-A'zal, "the throne of the unarmed prop," i.e., Spica.      3<sup>m</sup>11    Aon

CRATER (Crt)

α ALKES (āl'kēz), from the Arabic الكأس, al-Ka's, "the cup," especially one filled with wine.      4<sup>m</sup>20    K1

CRUX (Cru)

α ACRUX (ā'krüks), a modern name coined from α Crucis, the designation of the star in the Bayer system.      1<sup>m</sup>05    Bln

CYGNUS (Cyg)

α \*DENEb (dēn'ēb), from the Arabic ذنب الدجاجة, Dhanab ad-Dajāja, "the hen's tail."      1<sup>m</sup>33    cA2e

β \*ALBIREO (āl-bīr'ē-ō), of unknown derivation. Ideler's suggestion is not accepted.      3<sup>m</sup>10    Ko

γ SADR (sād'r), from the Arabic صدر الدجاجة, Sadr ad-Dajāja, "the hen's breast."      2<sup>m</sup>32    cF7

DRACO (Dra)

α \*THUBAN (thōō'bān), from the Arabic الثعبان, ath-Thu'bān, "the serpent or dragon," which was the brightest star near the pole from about 3700 to 1500 B.C., the successor to Edasich and the predecessor of Kochab.      3<sup>m</sup>64    Aop

β RASTABAN (rās'tā-bān), from the Arabic رأس الثعبان, Ra's ath-Thu'bān, "the serpent's head." β, γ, ν, and ξ form the head of our Draco, and, collectively, were called by the ancient Arabs العوائد, al-'Awā'idh, "the aged camels."      2<sup>m</sup>99    cG2e

γ ELTANIN (ēl-tā'nīn), from the Arabic رأس التنين, Ra's at-Tinnīn, "the dragon's head."      2<sup>m</sup>42    K5e

δ ALTAIS (āl'tās), from the Arabic التيس, at-Tais, "the he-goat."      3<sup>m</sup>24    G8

ι EDASICH (ēd'ā-sīk), from the Arabic الذئب, adh-Dhīkh, "the hairy male hyena."      3<sup>m</sup>47    K3

λ GIAUSAR (jō'zār), from the Persian جوزهر, Jauzahr, "the dragon's

head and tail," and called by the Arabs العقْدَتَانِ, al-'Uqdatāni, "the two knots," referring to the nodes of the Moon's orbit which were regarded as "the poison places." 4<sup>m</sup>06 Mo

μ ALRAKIS (āl-rā'kīs), from the Arabic الرَّاكِصِ, ar-Rāqis, "the dancer or leaper," which wandered here from Her. The original desert name, differently pointed, was الرَّاغِصِ, ar-Rāfid, "the freely pasturing camel," thus completing the group of camels in the head of Dra. 5<sup>m</sup>06 F6

ξ GRUMIUM (grōō'mī-ūm), a faulty transcription of the Greek γεφελ-ον, "the under jaw" (of the dragon). β, γ, and ξ Dra, with ι Her, constituted the Arabian asterism الصَّليبُ الوَّاقِعُ, as-Salīb al-Wāqī', "the falling cross." 3<sup>m</sup>90 K3

#### EQUULEUS (Equ)

α KITALPHA (kī-tāl'fā), from the Arabic قِطْعَةُ الفرسِ, Qit'at al-Far-as, "the part or section of the horse." 4<sup>m</sup>14 F6

#### ERIDANUS (Eri)

α \*ACHERNAR (ā'kēr-nār), from the Arabic آخِرُ النهرِ, Ākhir an-Nahr, "the end of the river," originally applied to θ Eri. 0<sup>m</sup>60 B9n

β CURSA (kūr'sā), from the Arabic كُرْسِيُّ الجُورَاءِ المُقَدَّمِ, Kursī al-Jauzā' al-Mugaddam, "the foremost chair of Orion," consisting of β, λ, and ψ Eri and τ Ori. 2<sup>m</sup>92 A2n

γ ZAURAK (zô'rāk), from the Arabic نَائِرُ الزورقِ, Nā'ir az-Zaurag, "the bright (star) of the boat," this name having wandered here from α Phoenicis, α, β, γ, κ, μ, and ν Phe having been called az-Zaurag, "the boat," a rather striking asterism. 3<sup>m</sup>19 Mo

η AZHA (áz'ā), from the Arabic اُدْحَى النعامِ, Udhī an-Na'am, "the hatching place of the ostrich," but, because of an error by a copyist, I find that the letter د in the St. Petersburg and Copenhagen MSS. of as-Sūfī was written ز in two places in the partial, and often erroneous, copy which was used by Hyde and Ideler. اُدْحَى is neither Arabic nor Persian. The title refers to the curving line of stars in the western part of Eri, running from ζ to τ<sup>5</sup> Eri, and which included ε and π Cet. 4<sup>m</sup>05 K2

θ ACAMAR (ā'kā-mār), another form of Achernar. 3<sup>m</sup>06 A2

ο' BEID (bīd), from the Arabic البَيْضِ, al-Baid, "the eggs," originally designating the stars about the hatching place. 4<sup>m</sup>14 F1

ο<sup>2</sup> KEID (kīd), from the Arabic القَيْضِ, al-Qaid, "the fragment of an

egg-shell," also referring to each star in this vicinity. 4<sup>m</sup>.48 Ko

GEMINI (Gem)

α \*CASTOR (kās'tēr), the Latin form of the Greek Καστωρ, one of the twin sons of Zeus, who were called the Dioscuri. 1<sup>m</sup>.58 A2s

β \*POLLUX (pōl'ūks), the Latin form of the Greek Πολυδευκης, the other twin son of Zeus. The well-known Sumerian name of Gemini was mul MAŠ-TAB-BA-GAL-GAL, "the constellation of the great twins."

1<sup>m</sup>.21 G8

γ ALHENA (āl-hēn'ā), from the Arabic الهنعة, al-Han'a, "the brand-mark," the name of the 6th Arabian L.M., which consisted generally of γ and ξ Gem; sometimes, however, η, μ, and ν were added. These five stars, together with ε, 13, and 15 Mon were regarded as قوس الجوزاء, Qaus al-Jauzā', "Orion's bow," and this is one of the reasons for the confusion which exists among writers who apply the word Jauzā' to the stars in Gem.

1<sup>m</sup>.93 A3s

δ WASAT (wā'sāt), from the Arabic وسط السماء, Wasat as-Samā', "the middle of the sky," i.e., the ecliptic, δ being only about 11' 7" south of it (1940.0).

3<sup>m</sup>.51 A8n

ε MEBSUTA (mēb-sū'tā), from the Arabic ذراع الاسد المبسوطة, Dhirā' al-Asad al-Mabsūta, "the outstretched paw of the lion," i.e., the lion of the Arabs. They designated this paw, however, by α and β Gem which constituted the 7th L.M., and which they called simply adh-Dhirā'.

3<sup>m</sup>.18 cG8

ζ MEKBUDA (mēk-bū'dā), from the Arabic ذراع الاسد المقبوضة, Dhirā' al-Asad al-Maqbūda, "the folded paw of the lion," the Arabs designating this paw by α and β CMi.

var cGlv

η PROPUS (prō'pūs), from the Greek πρόπους in Ptolemy's description of the star, "the projecting foot" (of the foremost twin). var M3

HERCULES (Her)

α \*RASALGETHI (rās'āl-jē'thē), from the Arabic رأس الجاثي, Ra's al-Jāthī, "the kneeler's head," from the name of the constellation, جاثي على ركبتيه, Jāthī 'alā Rukbatāihi, "the kneeler on both his knees."

var M5'

β KORNEPHOROS (kōr-nēf'ō-rōs), from the Greek Κορνυφόρος, "the club-bearer." This was one of the stars in an-Nasag ash-Sha'mī.

2<sup>m</sup>.81 G5HYDRA (Hya)

α \*ALPHARD (āl'fārd), from the Arabic فرد الشجاع, Fard ash-Shu-jā', "the solitary (star) of the serpent." 2<sup>m</sup>.16 K5

LEO (Leo)

α \*REGULUS (rēg'ū-lūs), from the Latin, "the prince," the diminutive of rex. The Sumerian name of the star was <sup>mul</sup> LUGAL (kakkab Šar-ru), "the star of the king," whence the Arabian المالكي, al-Mālikī, "the royal (star)." 1<sup>m</sup>.34 B9n

β \*DENEbola (dē-nēb'ō-lā), from the Arabic ذنب الاسد, Dhanab al-Asad, "the lion's tail." 2<sup>m</sup>.23 A4n

γ ALGIEBA (āl-jē'bā), from the Arabic الجبهة, al-Jabha, "the forehead" (of the Arabian lion), sometimes written جبهة الاسد, Jabhat al-Asad, the name of the 10th Arabian L.M., which consisted of α, γ, ζ, and η Leo. 2<sup>m</sup>.30 K1

δ ZOSMA (zōz'mā), from the Greek ζώσμα, "the loin-cloth." 2<sup>m</sup>.58 A2n

ζ ADHAFERA (ā-dā'fē-rā), from the Arabic الضفيرة, ad-Dafīra, "the plaited or twisted hair," originally designating the stars included within the triangle formed by γ, 4, and 21 Com. 3<sup>m</sup>.65 Fo

θ CHERTAN (chēr'tān), from the Arabic الخرتان, al-Kharātāni, "the two small ribs," an alternate title of زبرة الاسد, Zubrat al-Asad, "the lion's mane or shoulder," the name of the 11th L.M., which consisted of δ and θ Leo. 3<sup>m</sup>.41 A4s

λ ALTERF (āl'tērf), from the Arabic الطرف, aṭ-Tarf, "the eye or glance" (of the Arabian lion), the name of the 9th L.M., consisting of κ Cnc (sometimes incorrectly given as ε Cnc) and λ Leo. 4<sup>m</sup>.48 K5

μ RASALAS (rās'ā-lās), from the Arabic رأس الاسد الشمالى, Ra's al-Asad ash-Shamālī, (the star in) "the northern part of the lion's head." 4<sup>m</sup>.10 K3

LEPUS (Lep)

α ARNEB (ār'nēb), from the Arabic الارنب, al-Arnab, "the hare." 2<sup>m</sup>.69 cF3

β NIHAL (nī'āl), from the Arabic النبال, an-Nihāl, "the camels quenching their thirst," referring to α, β, γ, and δ Lep. These stars were also called كرسى الجوزاء المؤخر, Kursī al-Jauzā' al-Mu'akh-

khar, "the hindmost chair of Orion," to distinguish it from the one in Eri. 2<sup>m</sup>.96 G1

LIBRA (Lib)

α ZUBENELGENUBI (zōp-bĕn'ĕl-jĕ-nū'bĕ), from the Arabic الزبان الجنوبي, az-Zubān al-Janūbī, "the southern claw" (of the scorpion). 2<sup>m</sup>.90 Fln

β ZUBENESCHAMALI (zōo-bĕn'ĕs-shā-mā'lĕ), from the Arabic الزبان الشمالي, az-Zubān ash-Shamālī, "the northern claw." α and β Lib constituted the 16th Arabian L.M., which was called الزبانيان, az-Zubāniyānī, "the two claws." This title alone shows the great antiquity of the Arabian Lunar Mansions. 2<sup>m</sup>.74 B8

LYRA (Lyr)

α \*VEGA (vē'gā), from the Arabic النسر الواقع, an-Nasr al-Wāqī', "the falling eagle or vulture." 0<sup>m</sup>.14 Als

β SHELIAC (shĕl'yāk), from the Persian شلياق, Shalyāq, "the tortoise," derived from the Greek Χέλυς, the little tortoise from which Hermes constructed the first stringed musical instrument, and which was the earliest Greek name of the constellation. var cB9 + B5ep

γ SULAFAT (sū'lā-fāt), from the Arabic السلحفاة, as-Sulahfāt, "the tortoise." β and γ were the two easternmost stars in an-Nasaq ash-Sha'mī. 3<sup>m</sup>.30 B9sp

OPHIUCHUS (Oph)

α \*RASALHAGUE (rās'āl-hā'gwĕ), from the Arabic رأس الحواء, Ra's al-Ĥawwā', "the head of the serpent collector," sometimes translated "serpent charmer." 2<sup>m</sup>.14 Aon

β CEBALRAI (sĕb'āl-rā'ĕ), from the Arabic كلب الراعي, Kalb ar-Rā'ī, "the shepherd's dog." 2<sup>m</sup>.94 K1

δ YED PRIOR (yĕd prī'ĕr), from the Arabic اليد, al-Yad, and the Latin, "the foremost (star) in the hand." δ, ε, η, and ζ Oph were stars in an-Nasaq al-Yamānī. 3<sup>m</sup>.03 Mo

ε YED POSTERIOR (yĕd pōs-tĕr'ī-ĕr), "the hindmost (star) in the hand." 3<sup>m</sup>.34 G7

η SABIK (sā'bĭk), from the Arabic السابق الثاني, as-Sābiq ath-Thānī, "the second winner or conqueror," located in the right knee of Oph, ζ being السابق الأول, as-Sābiq al-Awwal, "the first winner or conqueror," situated in the left knee. These names refer to the "tramp-

ling" of the "huge monster," Scorpius, with "both his feet." To translate sābiq here in the sense of "preceding," as all previous commentators have done, is to deprive the star name of any meaning. 2<sup>m</sup>.63 A2s

λ MARFIK (mār'fīk), from the Arabic المرفق, al-Marfiq or al-Mirfaq, "the elbow." 3<sup>m</sup>.85 A1n

#### ORION (Ori)

α \*BETELGEUSE (bēt'ĕl-jūz). The evidence is inconclusive as to the first syllable since several derivations are possible, but the name is probably from the Arabic ابط الجوزاء, Ibt al-Jauzā', literally, "the armpit of the white-belted sheep," a comparatively late title, for it combines the location of the star in the classical figure with the earliest Arabic name of the constellation. This ancient figure, however, may have consisted originally of the belt stars and γ, κ, and λ, for the earliest name of both α and β was راعي الجوزاء, Rā'i al-Jauzā', "the shepherd of the white-belted sheep." Later al-Jauzā' lost its original significance and became synonymous with the Greek Orion. This constellation was the southern <sup>mul</sup> SIB-ZI-AN-NA of the Sumerians, which was equated with <sup>d</sup> DUMU-ZI, the well-known Tammuz of the West Semitic cults, "the faithful son," referring to "the greatest of all ancient myths."

var M2

β \*RIGEL (rī'jĕl), from the Arabic رجل الجوزاء اليسرى, Rijl al-Jauzā' al-Yusrā', "Orion's left foot," formerly common to Ori and Eri.

0<sup>m</sup>.34 cB8e

γ \*BELLATRIX (bĕ-lā'triks), from the Latin, "the female warrior."

1<sup>m</sup>.70 B2s

δ MINTAKA (mīn'tā-kā), from the Arabic منطقة الجوزاء, Mintaqat al-Jauzā', "Orion's belt or girdle."

var B1n

ε ALNILAM (āl-nī'lām), from the Arabic النظام, an-Nizām, "the string of pearls," a title which referred to the three belt stars collectively. 1<sup>m</sup>.75 B0

ζ ALNITAK (āl-nī'tāk), from the Arabic النطاق, an-Nitāq, "the belt."

1<sup>m</sup>.91 Bone

κ SAIPH (sāf), from the Arabic سيف الجبار, Saif al-Jabbār, "the sword of the powerful one," originally designated by θ, υ, and 42 Ori.

2<sup>m</sup>.20 cB0

λ MEISSA (mī'sā), from the Arabic الميسان, al-Maisān, "the glitter-



ing or sparkling star," originally applied by the Arabs to  $\gamma$  Gem in the 6th L.M.  $\lambda$ ,  $\phi$ , and  $\phi^2$  Ori formed the 5th Arabian L.M., which was called الهقعة, al-Haq'a, "the circle of hairs," and some early commentators confused the two because of the similarity of names and because the name Jauzā' was frequently used to designate the stars in Gem. The brightest stars in Orion, however, were very appropriately called, in the plural, المياسين, al-Mayāsīn. 3<sup>m</sup>49 O8s

#### PEGASUS (Peg)

$\alpha$ \*MARKAB (mār'kāb), from the Arabic مركب, Markab, "riding, or anything on which one is carried," e.g., a horse, chariot, camel, litter, or ship. 2<sup>m</sup>57 Ao

$\beta$ \*SCHEAT (shē'āt), a corrupt transliteration of the Arabic الساق, as-Sa'g, "the leg," frequently used in the catalogues. 2<sup>m</sup>61 M2

$\gamma$ \*ALGENIB (āl-jē'nīb), from the Arabic الجانب, al-Jānīb, "the side." 2<sup>m</sup>87 B2s

$\epsilon$  ENIF (ēn'īf), from the Arabic انف الفرس, Anf al-Faras, "the horse's nose." 2<sup>m</sup>54 cKo

$\zeta$  HOMAM (hō'mām), from the Arabic سعد الهمام, Sa'd al-Humām, "the lucky star (or asterism) of the great king or hero," referring to  $\zeta$  and  $\xi$  Peg. 3<sup>m</sup>61 B8

$\eta$  MATAR (mā'tār), from the Arabic سعد المطر, Sa'd al-Matar, "the lucky star (or asterism) of the rain," referring to  $\eta$  and  $\omicron$  Peg. 3<sup>m</sup>10 G2

$\theta$  BIHAM (bī'ām), from the Arabic سعد النهام, Sa'd al-Bihām, "the lucky star (or asterism) of the flock of lambs, kids, and camels' colts," referring to  $\theta$  and  $\nu$  Peg. These stars were sometimes called سعد النهائم, Sa'd al-Bahā'im, "the lucky star (or asterism) of the wild beasts." 3<sup>m</sup>70 A2

$\mu$  SADALBARI (sād'āl-bā'rē), from the Arabic سعد البارع, Sa'd al-Bārī', "the lucky star (or asterism) of the one excelling in knowledge and virtue," referring to  $\lambda$  and  $\mu$  Peg. Differently pointed, this asterism was also called سعد النارع, Sa'd an-Nāzī', "the lucky star (or asterism) of the camel longing for its usual pasture." 3<sup>m</sup>67 G6

#### PERSEUS (Per)

$\alpha$ \*MIRFAK (mīr'fāk), from the Arabic مرفق الثريا, Mirfaq ath-Thuray-

$\gamma$ , "the elbow of the Pleiades ('the moderately rich' cluster)," referring to the ancient figure of "the outstretched right hand of the Pleiades," mentioned above under Cas. A late Arabian title for the star was جنب برشاوش, Jamb Barshāush, "the side of Perseus," from which we derive Algenib, the other well-known name of  $\alpha$ . 1<sup>m</sup>.90 cF4

$\beta$ \*ALGOL (āl'göl), from the Arabic رأس الغول, Ra's al-Ghūl, "the demon's head." var B9

$\zeta$  ATIK (ā'tīk), from the Arabic عاتق الثريا, Ātiq ath-Thurayyā, "the shoulder blade of the Pleiades," referring to both  $\zeta$  and  $\omicron$  Per. 2<sup>m</sup>.91 cB1

$\xi$  MENKIB (mēn'kīb), from the Arabic منكب الثريا, Mankib ath-Thurayyā, "the shoulder of the Pleiades." To complete this ancient Arabic figure:  $\eta$  and  $\chi$  were البعصم, al-Mi'sam, "the wrist,"  $\eta$  and  $\gamma$  were الساعد, as-Sā'id, "the forearm,"  $\sigma$  was المأبض, al-Ma'bid, "the bend of the arm,"  $\psi$  was ابرة المرفق, Ibrat al-Mirfaq, "the tip of the elbow," and  $\delta$ ,  $\nu$ , and  $\epsilon$  were العضد, al-'Adid, "the upper arm," - all of ath-Thurayyā. 4<sup>m</sup>.05 07ne

#### PISCES (Psc)

$\alpha$  ALRESCHA (āl-rē'shā), from the Arabic الرشاء, ar-Rashā', "the rope or cord," originally one of the names of  $\beta$  And as a member of the 28th Arabian L.M., and referred to the rope attached to the bucket formed by  $\alpha$ ,  $\beta$ , and  $\gamma$  Peg and  $\alpha$  And, which was called الدلو, ad-Dalw, and did not refer in any way to the cord or thread binding the two fishes in Psc. 3<sup>m</sup>.94 A2n

#### PISCIS AUSTRINUS (PsA)

$\alpha$ \*FOMALHAUT (fō'māl-ô't), from the Arabic فم الحوت الجنوبي, Fum al-Hūt al-Janūbī, "the mouth of the southern fish." The indigenous names, however, were الضفدع الأول, ad-Difda' al-Awwal, "the first frog," and الظليم, az-Zalīm, "the male ostrich." 1<sup>m</sup>.29 A2s

#### SAGITTARIUS (Sgr)

$\alpha$  RUKBAT (rūk'bāt), from the Arabic ركبة الرامي, Rukbat ar-Rāmī, "the archer's knee." 4<sup>m</sup>.11 B9n

$\beta$  ARKAB (ār'kāb), from the Arabic عرقوب الرامي, Urqūb ar-Rāmī, "the archer's tendon Achilles." 4<sup>m</sup>.24 B8

$\gamma$  ALNASL (āl-nāz'l), from the Arabic النصل, an-Naṣl, "the point of the arrow."  $\gamma$ ,  $\delta$ ,  $\epsilon$ , and  $\eta$  Sgr constituted an Arabian asterism called

النعائم الواردة, an-Na'ā'im al-Wārida, "the approaching ostriches." One ancient tradition, however, saw in these stars only one ostrich, and one ostrich in the stars mentioned below under ζ. 3<sup>m</sup>.07 Ko

δ KAUS MEDIA (kôš mē'dī-â), from the Arabic القوس, al-Qaus, and the Latin, "the middle part of the bow." 2<sup>m</sup>.84 K2

ε KAUS AUSTRALIS (kôš ôs-trā'līs), "the southern part of the bow." 1<sup>m</sup>.95 Ao

ζ ASCELLA (â-sĕl'â), a mediaeval Latin term, frequently written axilla in the catalogues, "the armpit." ζ, φ, σ, and τ Sgr formed another Arabian asterism called النعائم المادرة, an-Na'ā'im as-Sādira, "the departing ostriches." 2<sup>m</sup>.71 A4n

λ KAUS BOREALIS (kôš bō'rē-ā'līs), "the northern part of the bow." 2<sup>m</sup>.94 K1

σ NUNKI (nŭn'kē), from the name of the 30th Sumerian L.M., <sup>mul</sup> GU-SIR-A-AB-BA : <sup>mul</sup> NUN<sup>ki</sup>, "the asterism of the yoke of the sea : the asterism of the holy city," i.e., Eridu on the Persian Gulf, sacred to <sup>d</sup> EN-KI (ilu Ê-a), the god who dwelt in "the sweet waters." 2<sup>m</sup>.14 B3n

#### SCORPIUS (Sco)

α \*ANTARES (ân-tā'rēz), from the Greek Ἄντάρης, "the rival of Mars" (Ἄρης).

1<sup>m</sup>.22 M1

β GRAFFIAS (grāf'i-ās), from the Greek γράφιας, "the crab."

2<sup>m</sup>.76 Bon

λ SHAULA (shô'lâ), from the Arabic الشولة, ash-Shaula, "the cocked-up part of the scorpion's tail." This is the name of the 19th Arabian L.M., which consisted of λ and υ Sco. 1<sup>m</sup>.71 B2n

υ LESATH (lĕs'ăth), from the Arabic اللسعة, al-Las'a, "the scorpion's sting." The names of λ and υ are echoes of one of the Sumerian names of the constellation and the name of the 27th L.M., <sup>mul</sup> GIR-TAB (<sup>kakkab</sup> Aqrabu), "the constellation (or asterism) of the scorpion." These two stars were individually called <sup>d</sup> ŠAR-ÛR and <sup>d</sup> SAR-GAZ, the names of two well-known Star-gods. 2<sup>m</sup>.80 B3

#### SERPENS (Ser)

α UNUKALHAI (ū'nŭk-ăl-hā'ē), from the Arabic عنق الحية, Unuq al-Hayya, "the serpent's neck." This was one of the stars in an-Nasaq al-Yamānī. 2<sup>m</sup>.75 K2

θ ALYA (ǎl'yâ), probably an abridged transliteration of al-Hayya,  
"the serpent." 4<sup>m</sup>.10 A5

TAURUS (Tau)

α \*ALDEBARAN (ǎl-dëb'ä-rän), from the Arabic الذبران, ad-Dabarān,  
"the follower," i.e., of the Pleiades; this is also the name of the 4th  
Arabian L.M., which consisted of α, γ, δ, ε, θ', and θ<sup>2</sup> Tau, the  
brightest stars in the Hyades. 1<sup>m</sup>.06 K5

β \*ELNATH (ǎl'näth), from the Arabic الناطح, an-Nāṭih, "the one  
butting with horns," formerly common to Tau and Aur; it was also one of  
the names of α Ari. 1<sup>m</sup>.78 B8

η \*ALCYONE (ǎl-sī'ō-nē), from the Greek Ἀλκυόνη. 2<sup>m</sup>.96 B5ne

16 CELAENO (sē-lē'nō), from the Greek Κελαϊνώ. 5<sup>m</sup>.43 B7n

17 ELECTRA (ē-lĕk'trā), from the Greek Ἠλέκτρα. 3<sup>m</sup>.81 B5ne

19 TAYGETA (tā-ĭj'ē-tā), from the Greek Τηϋγάτη. 4<sup>m</sup>.37 B7n

20 MAIA (mā'yâ), from the Greek Μαΐα. 4<sup>m</sup>.02 B9s

21 STEROPHE (stēr'ō-pē), from the Greek Στερόπη. 5<sup>m</sup>.85 B9n

23 MEROPE (mēr'ō-pē), from the Greek Μερόπη. 4<sup>m</sup>.25 B5ne

27 ATLAS (ăt'lās), from the Greek Ἄτλας. 3<sup>m</sup>.80 B9n

28 PLEIONE (plē'yō-nē), from the Greek Πληϊόνη. 5<sup>m</sup>.18 B8ne

URSA MAJOR (UMA)

α \*DUBHE (düb'ē), from the Arabic ظهر الدب الأكبر, Zahr ad-Dubb al-  
Akbar, "the back of the greater bear." It might be well to note here  
that there was no "bear" constellation in the astronomy of the Sumerians  
and Babylonians: they called UMA<sup>mul</sup> MAR-GÍD-DA, "the constellation of  
the long chariot." 1<sup>m</sup>.95 G7

β \*MERAK (mē'rāk), from the Arabic مراق الدب الأكبر, Marāqq ad-Dubb  
al-Akbar, "the loins of the greater bear." 2<sup>m</sup>.44 A2s

γ \*PHECDA (fĕk'dā), from the Arabic فخذ الدب الأكبر, Fakhidh ad-  
Dubb al-Akbar, "the thigh of the greater bear." 2<sup>m</sup>.54 Aon

δ \*MEGREZ (mē'grĕz), from the Arabic مغرز الدب الأكبر, Ma-  
ghriz adh-Dhanab ad-Dubb al-Akbar, "the root of the tail of the greater  
bear." 3<sup>m</sup>.44 Aon

ε \*ALIOTH (ǎl'ī-ōth), one of the ridiculously corrupt forms of al-  
'Ayyūq, the ancient Arabic name of Capella. This is just another exam-

ple of how star names are wont to wander at the hands of the uninformed. Scaliger's derivation is not accepted. The Arabic names for this star were الجور, al-Jaun, "the black horse or camel," and الحور, al-Hawar, or الحور, al-Hawwar, "the extremely bright one," an appropriate name for the brightest star in the constellation. 1.<sup>m</sup>68 A2s

ζ \*MIZAR (mī'zār), from the Arabic al-Mi'zar, "the veil, trousers, or waist-cloth," erroneously applied to this star. The Arabs called it العناق, al-Anāq, "the female kid." This word is not the plural of عنق, 'Unq or 'Unuq, "neck." 2.<sup>m</sup>17 A2s

η \*ALKOID (āl-kād'), from the Arabic تائد البنات النعش, Qā'id al-Banāt an-Na'sh, "the leader or governor of the daughters of the bier," one of the early names of the constellation having been بنات العرش الكبرى, Banāt an-Na'sh al-Kubrā, "the daughters of the greater bier." 1.<sup>m</sup>91 B3n

ι TALITHA (tā'līth-ā), from the Arabic القفة الثالثة, al-Qafza ath-Thālītha, "the third leap" (of the gazelles), applied by the Arabs to both ι and κ UMa. 3.<sup>m</sup>12 A5n

λ TANIA BOREALIS (tān'yā bō'rē-ā'līs), from the Latin and the Arabic القفة الثانية, al-Qafza ath-Thāniya, "the northern (star) of the second leap." 3.<sup>m</sup>52 A2s

μ TANIA AUSTRALIS (tān'yā ôs-trā'līs), "the southern (star) of the second leap." 3.<sup>m</sup>21 K5

ν ALULA BOREALIS (āl-ū'lā bō'rē-ā'līs), from the Latin and the Arabic القفة الاولى, al-Qafza al-Ūlā, "the northern (star) of the first leap." 3.<sup>m</sup>71 K3

ξ ALULA AUSTRALIS (āl-ū'lā ôs-trā'līs), "the southern (star) of the first leap." These three pairs of stars, collectively, were known as قفرات الطباء, Qafzāt az-Zibā', "the leaps of the gazelles," referring to an ancient and familiar Arabic legend. 3.<sup>m</sup>86 G0

ο MUSCIDA (mū'sī-dā), a corrupt form of the mediaeval Latin musum or musus, "the mouth, muzzle, or distended jaws (of an animal)." 3.<sup>m</sup>47 G1

80 \*ALCOR (āl'kôr), from the Persian خوار, Khwār, "the abandoned or friendless one," similar in meaning to السهي or السها, as-Suhā, the ancient and well-known Arabic name of the star. 4.<sup>m</sup>02 A1n

URSA MINOR (UMI)

$\alpha$  \*POLARIS (pō-lā' rīs), from the Latin stella polaris, "the pole star," which it has been from about 300 A.D. Polaris will be nearest the north pole of the heavens during the year 2102, at a distance of about 27' 37".

var cF7v

$\beta$  KOCHAB (kō'kăb), from the Arabic الكوكب الشمالى, al-Kaukab ash-Shamālī, "the north star," so named during the period when it was the brightest star near the pole, from about 1500 B.C. to 300 A.D.

2<sup>m</sup>.24 K5

$\gamma$  PHERKAD (fēr'kăd), from the Arabic الفرقد, al-Farqad, "the calf."  $\beta$  and  $\gamma$  UMI were known as الفرقدان, al-Farqadāni, "the two calves,"  $\beta$  having been called انور الفرقدان, Anwar al-Farqadāni, "the more brilliant one of the two calves," and  $\gamma$ , اخفى الفرقدان, Akhfā al-Farqadāni, "the more concealed one of the two calves." In popular story  $\beta$  and  $\gamma$  were also called ندمانى جزيمة, Nadmānai Jadhīma, "the two pot companions of Jadhīma," a famous king of the Arabs in 'Irāq, who would drink with the Farqadāni only, and never with mortal men!

3<sup>m</sup>.14 A2neVIRGO (Vir)

$\alpha$  \*SPICA (spī'kă), from the Latin, "the ear of corn." The ancient Arabs called this star السماك الاعزل, as-Simāk al-A'zal, "the unarmed prop," Arcturus being "the armed prop."

1<sup>m</sup>.21 B3n

$\beta$  ZAVIJAVA (zāv'ī-jāv'ă), from the Arabic زاوية العواء, Zāwiyat al-'Awwā', "the corner of the barking dog," al-'Awwā' being the name of the 13th L.M., which consisted of  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\epsilon$ , and  $\eta$  Vir. This name, which remained a mystery to scholars for centuries, shows the influence of ancient Babylonian astronomy, in which  $\theta$  Leo was called kakkab Zibbat, Kalbi Ari, "the tail of the dog of the lion."

3<sup>m</sup>.90 F8

$\gamma$  PORRIMA (pör'ī-mă), the name of a Roman nymph or goddess of prophecy and child-birth, and one of the companions, or one of the ancient attributes, of Carmenta, the leader of the Camenae.

2<sup>m</sup>.90 Fo

$\epsilon$  VINDEMIATRIX (vīn-dē'mī-ă'triks), from the Latin, "the female grape-gatherer."

2<sup>m</sup>.95 G6

$\eta$  ZANIAH (zān'yă), from the Arabic الزاوية, az-Zāwiya, "the corner."

4<sup>m</sup>.00 Ao

$\iota$  SYRMA (sīr'mă), from the Greek σύρμα, "the train."

4<sup>m</sup>.16 F5

time is due in great measure to the generosity of my sister, Gladys D. Simson.

## NOTES

<sup>1</sup> Vol. L, pages 356-364.

<sup>2</sup> *Ibid.*, page 353.

<sup>3</sup> For a good description of the position of the ancient Arabs with reference to Babylonia and Egypt, see de Lacy O'Leary's *Arabia Before Muhammad*, pages 43 and 44 (New York, 1927); and consult also Stephen H. Langdon's excellent "Semitic Mythology" in *The Mythology of All Races*, Vol. V, pages 1-5 (Boston, 1931).

<sup>4</sup> I am indebted to Professor Philip K. Hitti for this very pat comparison; see his scholarly and exciting *History of the Arabs*, pages 269, 271, 337, and 419 (London, 1937).

<sup>5</sup> *Harvard Annals*, 91-99, 1918-1924.

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## Planetary Phenomena in 1944

By WILLIAM A. CALDER

NOTE: Greenwich Civil Time is used unless otherwise stated. To obtain Eastern War Time, subtract 4 hours, Central War time, 5 hours, etc. The data have been taken from the *American Ephemeris and Nautical Almanac*. A complete description of the four penumbral eclipses has been given by Alexander Pogo in the August, 1943, issue of POPULAR ASTRONOMY, from which information concerning these events has been taken.

## ECLIPSES

Theoretically, there will be six eclipses in 1944, two of the sun and four of the moon. The lunar eclipses, however, are all penumbral. This means that the moon does not enter the central cone of the earth's shadow. In only one case, that of December 29, is the diminution of light sufficient to become apparent to the naked eye. For the smaller eclipses, a hypothetical observer suitably located on the moon would see the earth take a small nick out of the sun's disk. These grazing eclipses take place on February 9, July 6, and August 4 and are worthy of being noted inasmuch as they are in the beginnings and endings of saros cycles. But from the viewpoint of the amateur observer, we may say that 1944 offers three eclipses:

I. A total eclipse of the sun will occur on January 25, 1944. As may be seen in Figure 1, the path of totality begins in the Pacific Ocean some 2500 miles west of South America, and about 3 degrees north of the equator. The track runs across Peru and Brazil, crosses the Atlantic and ends in Africa.

Circumstances of the Total Eclipse of the Sun, January 25, 1944:

Greenwich Civil Time	a	h	m	Longitude	Latitude
Eclipse begins	January	25	12	48.3	99 12 — 0 31
Central eclipse begins		25	13	44.9	111 59 — 3 23
Central eclipse at local apparent noon		25	15	29.3	49 15 — 7 23
Central eclipse ends		25	17	7.6	— 9 23 18 48
Eclipse ends		25	18	4.2	3 16 14 56