

η , and designated it as $\Delta\alpha\gamma\omega\nu$, the Flank, and $\Upsilon\pi\acute{o}\zeta\omega\mu\alpha$, the Diaphragm, as marking those parts of the Bear's figure.

Al Birūni said that it was **Aṅgiras** among the Hindu Seven Sages.

In China it was **Yuh Kang**, the Gemmeous Transverse, a portion of an early astronomical instrument; while other stars between it and δ were **Seang**, the Minister of State.

ϵ has a Sirian spectrum, and is in approach toward us at the rate of 19 miles a second. It is $5\frac{1}{2}^\circ$ from δ , and $4\frac{1}{2}^\circ$ from ζ .

In 1838 Sir John Herschel thought it the *lucida* of the seven stars, but in 1847 that η had taken its place. Franks, in 1878, considered ϵ the *lucida*, and that the sequence was ϵ , η , ζ , α , β , γ , and δ .

ζ , Double, possibly binary, 2.1 and 4.2, brilliant white and pale emerald.

Mirak was an early name for this, a repetition of that for β ; but Scaliger incorrectly changed it to the present **Mizar**, from the Arabic **Mi'zar**, a Girdle or Waist-cloth, which, although inappropriate, has maintained its place in modern lists; **Mizat** and **Mirza** being other forms. There is evident confusion in the early use of this word as a stellar title, for it has also been applied to the stars β and ϵ of this constellation. The "hill Mizar" of the 42d *Psalm* sometimes is wrongly associated with this, the original Hebrew word *miš'ar* being better rendered in the *Psalter*, from Coverdale's version, as "the little hill," i. e. of Hermon, of which it was a minor peak.

ζ also was the Arabic **Anāk al Banāt**, the Necks of the Maidens, referring to the Mourners at the Bier; or perhaps this should be rendered "the Goat of the Mourners," for in some editions of Ulug Beg's *Tables* it was written **Al Inak**,—correctly **Al 'Inz**. Assemani said that it was "**Alhiac**," the Ostrich, probably another of his errors, as all these stellar birds were much farther south, in or near our River Eridanus.

With Alcor it has various combined titles noted at that star; and Wetzstein repeats an Arabic story in which Mizar is the *wālidān* of the Banāt, with Alcor as her new-born infant.

In India it may have been **Vashishtha**, one of the Seven Sages.

ζ was the first star to be noticed as telescopically double,—by Riccioli at Bologna in 1650, and fifty years later much observed and very fully described by Gottfried Kirch and his scientific wife, Maria Margaretha Winckelmann: an association like that of the great observer Herschel and his sister, of the last century, and of Sir William and Lady Huggins in their spectroscopic work of to-day. As early as 1857 it was successfully daguerreotyped, with others surrounding, by the younger Bond of the Har-

ward Observatory, although Wega had been pictured by the same process at the same observatory seven years previously by the elder Bond.

The components are within $14''$ of arc of each other, with a position angle of $149^{\circ}.5$, and may be a binary system with a long period of revolution; while Pickering has shown, by study of its spectrum photographed in 1889, that the brightest component is itself double, the two bodies, of nearly equal brightness, revolving around their common centre of gravity at a speed of 100 miles a second in 104 days, 140 millions of miles apart, and with a united mass forty times that of our sun. This spectrum is Sirian, and the star is in approach to us at the rate of 19.5 miles a second.

ζ is $4\frac{1}{2}^{\circ}$ from ϵ , and 7° from η ; and a straight line from it to Polaris passes through the exact pole $1^{\circ} 14'$ before reaching Polaris.

Mizar and Alcor are $11' 48''$ apart, and, since they have nearly identical proper motion, some think that they may also be in mutual revolution, although so distant from each other. With their attendant stars they form one of the finest objects in the sky for a small telescope, being readily resolved by a terrestrial eyepiece of 40 diameters with a $2\frac{1}{4}$ -inch objective.

η , 1.9, brilliant white.

Alcaid, Alkaid, and Benatnasch are our present titles, from **Kā'id Banāt al Na'ash**, the Governor of the Daughters of the Bier, *i. e.* the Chief of the Mourners. Some of the Arabic poets wrote that these Daughters — the stars ϵ , ζ , and η — were

Good for nothing people whose rising and setting do not bring rain.

Bayer included **Elkeid** in his list of names for the stars as well as for the constellation, and had authority for it from Kazwini; but he added for η "**Benenaim, Bennenatz correctius Benetnasch**," and in his text of Boötes alluded to it as **Benenacx**. The *Alfonsine Tables* of 1521 say **Bennenazc**; Riccioli, **Benat Elnanschi, Beninax, Benenath, Bennenatz**; while Al Kā'id often has been turned into **Alchayr**, Arago's **Ackair**, and others' **Ackiar**. In this Al Kā'id we see the derivation, through the Moors, of the modern Spanish word *Alcaide*; and, with the same idea, Ideler translated the original as the "Stadtholder."

Assemani transcribed from the Borgian globe "**Alcatel**," Destroying. Al Birūni gave it as **Marici**, one of the Seven Rishis of India.

In China it was known as **Yaou Kwang**, a Revolving Light.

Boteler has an amusing reference to it in *Hudibras* :