

Cardan believ'd great states depend  
 Upon the tip o' th' Bear's tail's end ;  
 That, as she whisk'd it t'wards the Sun,  
 Strew'd mighty empires up and down ;  
 Which others say must needs be false,  
 Because your true bears have no tails.

$\eta$  is  $7^\circ$  from  $\zeta$ , and  $26^\circ$  from  $\alpha$ ; and with  $\zeta$  forms another pair of Pointers—towards Arcturus. It is noted as marking the radiant of one of the richest minor meteor streams, the **Ursids** of the 10th of November.

Bradley's earliest observations for parallax were made on this star and  $\gamma$  Draconis, but unsuccessfully, as his instruments were inadequate: yet even in our own day Pritchard's work on  $\eta$  for the same purpose shows a negative result,— $0''.046$ , and equally unsatisfactory.

Alkaid's spectrum is Sirian, and the star is approaching us at the rate of 16.1 miles a second.

Sir John Herschel thought it, in 1847, the *lucida* of the seven stars.

$\theta$ , Double, 3.4 combined, brilliant white.

This, with  $\tau$ ,  $h$ ,  $v$ ,  $\phi$ ,  $e$ , and  $f$  in the Bear's throat, breast, and fore knees, which describe somewhat of a semicircle, was the Arab star-gazers' **Sarīr Banāt al Na'ash**, the Throne of the Mourners.

This space also has been **Al Haūd**, the Pond into which the Gazelles sprang for safety at the lashing of the Lion's tail; although Hyde applied this title to the stars now our Coma Berenices, and **Thufr al Ghizlān**, the Gazelles' Tracks, to the small outlying stars near the Bear's feet. But the engraver of the Borgian globe placed them at stars in the neck.

In China  $\theta$ ,  $v$ , and  $\phi$  were **Wan Chang**, the Literary Illumination.

$\iota$ , Binary, 3.2 and 13, topaz yellow and purple, and  $\kappa$ , 3.5.

Smyth wrote that

this star has obtained the name of **Talita**, the third vertebra, the meaning of which is not quite clear. Ulug Beigh has it **Al Phikra al Thalitha**, perhaps for *Al Kaf-ah al-thalithah*, the third spring, or leap, of the ghazal;

but he was not sufficiently comprehensive, for this last title was applied by the Arabs to  $\iota$  and  $\kappa$  together; al Ūla, the First (leap), being shown by  $v$  and  $\xi$ , and al Thānīyah, the Second (leap), by  $\lambda$  and  $\mu$ ,—not  $\delta$  and  $\mu$  as that

generally accurate author asserted. In popular lists  $\iota$  frequently is given as **Talitha**. Hyde strangely rendered the original words of Ulug Beg as the *Vertebrae* of the Greater Bear,—whence probably Smyth's statement,—or the Cavity of the Heel, which, from the star's position in the figure, is a much more likely translation.

In China these two stars were **Shang Tae**, the High Dignitary.

Holden says of  $\iota$  that its "companion is suspected to be a planet." It is 12" distant from the larger, and the orbital revolution is very slow.

$\lambda$ , 3.7, and  $\mu$ , 3.2, red.

These are our **Tania borealis** and **Tania australis**; and together were the Arabs' **Al Kafzah al Thāniyah**, the Second Spring (of the Gazelle), marking the Bear's left hind foot. Baily has them in his edition of Ulug Beg's *Tables*, from Hyde's Latin translation, as **Al Phikra al Thānia**,—in the original **Al Fikrah**, the Vertebra; but this, more probably, is entirely wrong, as these three pairs of stars have always marked three of the Bear's feet.

In China they were **Chung Tae**, the Middle Dignitary.

$\nu$ , Double, 3.5 and 12, orange and cerulean blue,

$\xi$ , Binary, 3.9 and 5.5, subdued white and grayish white,

mark the right hind foot, and are the southern of the three noted pairs.

They were the Chinese **Hea Tae**, the Lower Dignitary.

The components of  $\xi$  are but 1" apart, with a position angle of  $300^\circ$ .

$\nu$ , the northern one of the two stars, is **Alula borealis**, from **Al Kafzah al Ūla**, the First Spring.

$\xi$  is **Alula australis**, the southern one in the combination,—Ulug Beg's **Al Fikrah al Ūla**. Ideler's **Awla**, and Burritt's **Acola**, are erroneous.

This, with  $\zeta$  Herculis and  $\gamma$  Virginis, was the most prominent of the double stars discovered to be binary systems by Sir William Herschel in his investigations for stellar parallax, when (I quote from Professor Young),

to use his own expression, he "went out like Saul to seek his father's asses, and found a kingdom,"—the dominion of gravitation extended to the stars, unlimited by the bounds of the solar system.

$\xi$  was the first binary of which the orbit was computed,—by Savary in 1828,—having a period of sixty-one years, and has already made more than a complete revolution since its discovery. The components are about 2" apart, with a position angle in 1898 of  $162^\circ.7$ .