Spectroscopic observations by Vogel in 1890 show that Spica is in revolution with a speed of at least fifty-six miles a second in an orbit of three millions of miles' radius, around the common centre of gravity of itself and an obscure companion in a period of about four days. It is, however, never eclipsed by the latter, as is the case with the star Algol. Its spectrum is Sirian; and the system is approaching us at the rate of 9.2 miles a second. Gould thinks that it shows fluctuations in brilliancy.

It is one of the lunar stars much utilized in navigation, and lies but 2° south of the ecliptic, and 10° south of the celestial equator, coming to the meridian on the 28th of May.

With Denebola, Arcturus, and Cor Caroli it forms the **Diamond of Virgo,** 50° in extent north and south.

β, 3.9, pale yellow.

Zavijava, a universal name in modern catalogues, is first found with Piazzi, but is **Zarijan** in the *Standard Dictionary*. It is from **Al Zāwiah,** the Angle, or Corner, *i. e.* Kennel, of the Arab Dogs,—although γ exactly marks this Corner and should bear the title.

The stars β, η, γ, δ, ε, outlining this Kennel, formed the 11th *manzil*, **Al 'Awwā',** the Barker, which was considered of good omen; while Firuzabadi included it with the preceding moon station Al Ṣarfah,—β Leonis,—in the group **Al Nahrān,** the Two Rivers, as their rising was in the season of heavy rains. Other indigenous titles were **Al Bard,** the Cold, which it was said to produce; and **Warak al Asad,** the Lion's Haunches.

β marked the 18th ecliptic constellation of Babylonia, **Shēpu-arkū sha-A,** the Hind Leg of the Lion, for this country also seems to have had one of these creatures here. With η, it perhaps was **Ninsar,** the Lady of Heaven, probably a reference to Istar; and **Urra-gal,** the God of the Great City; and one of the seven pairs of stars famous in that astronomy. As a Euphratean lunar asterism it bore the same title **Ninsar,** but this included all the components of the Arabs' Kennel Corner.

These also were the Persian **Mashaha,** the Sogdian **Fastashat,** the Khorasmian **Afsasat,** and the Coptic **Abukia,** all of the Arabic signification.

In China it was **Yew Chi Fa,** the Right-hand Maintainer of Law.

β is 13° south of Denebola in Leo, culminating with it on the 3d of May.

γ, Binary and slightly variable, 3 and 3.2, white.

The Latins called this **Porrima,** or **Antevorta,** sometimes **Postvorta,** names of two ancient goddesses of prophecy, sisters and assistants of Car-

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menta or Carmentis, worshiped and at times invoked by their women. Porrima was known as **Prorsa** and **Prosa** by Aulus Gellius of our 2d century.

γ was specially mentioned by Kazwini as itself being **Zāwiat al 'Awwā'**, the Angle, or Corner, of the Barker; and Al Tizini, with Ulug Beg, had much the same name for it; but Al Bīrūnī, quoting from Al Zajjāj, said that "these people are all wrong," and that 'Awwā' here meant "Turn," referring to the turn, or bend, in the line of stars. This interesting early figure is noticeable even to the casual observer, γ being midway between Spica and Denebola, the sides of the Kennel stretching off to the north and west, respectively marked by η and β, δ and ε.

In Babylonia it marked the 19th ecliptic constellation, **Shur-mahrū-ahirū**, the Front, or West, Shur (?); while individually it was **Kakkab Dan-nu**, the Star of the Hero, and the reference point in their annals of an observation of Saturn[1] on the 1st of March, 228 B. C., the first mention of this planet that we have, and recorded by Ptolemy.

The Chinese knew γ as **Shang Seang**, the High Minister of State.

Astronomers consider the two stars alternately variable in light; and some call both yellow, so following the apparent rule of similar coloration in components of binaries when of equal brilliancy; those unequal being of contrasting colors. In 1836 they showed as a single star in the largest telescope then in use; but now are 6″ apart, moving in an orbit more eccentric than any other as yet well determined, with a period of revolution estimated at about 190 years. The position angle in 1890 was 330°. They are of special interest to astronomers, as well as a show object to all.

They culminate on the 17th of May.

δ, 3.6, golden yellow,

although individually unnamed in our lists, was one of the 'Awwā'.

On the Euphrates it was **Lu Lim**, the Gazelle, Goat, or Stag,— or perhaps King; and, with ε, probably **Mas-tab-ba**, another of the seven pairs of Twin-stars of that country. The Hindus called it **Āpa**, or **Āpas**, the Waters; and the Chinese, **Tsze Seang**, the Second Minister of State.

Secchi alluded to δ as *bellissima*, from its most beautiful banded spectrum of the 3d class of spectra, like that of α Herculis.

ε, 3.3, bright yellow,

is the **Vindemiatrix** of the *Alfonsine Tables*, whence it has descended into modern lists; but in Latin days it was **Vindemiator** with Columella, which

[1] Saturn was Χρόνος and Φαίνων, the Shiner, with the Greeks; Al Thāḳib, the Piercer, with the Arabs; and Saturnus, or Stella Solis, with the Latins.

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