

SUMMER 1 NOTES (June)

1. Aquila:

- *Usually a Bird of Prey, Eagle
- *Altair= name for constellation as whole; *an-anasr at-ta'ir*; part of the asterism **Summer Triangle** with Deneb and Vega; White A star
- **Alshain*=name for the Persian constellation Flacon *aš-ahīn*; Red M dwarf
- *Tarazed=Persian pivot of the scales; Orange K giant

2. Cygnus:

- *Usually a pretty bird, Hen, Swan
- *Deneb Adige= Tail of the Hen; part of the asterism **Summer Triangle**; Blue-White A supergiant
- *Albiero=Pretty flower in Latin, Blue-Yellow binary, Early Arabic= *Al Minhar al *Dajāh* Hens beak
- **Sadr*= *AlSadr al Dajājah* Hens Breast; White-Yellow G star.
- **Gienah*=Wing; Yellow-Orange K giant

3. Hercules:

- *Champion, Kneeling One, Warrior
- *Alpha = *Al Rās al Jāthhīyy* head of the kneeler; double Red M giant and Yellow G dwarf
- *Beta= actually the brightest star; Yellow G giant;
name for the constellation as a whole, "club bearer"; No Arabic references
- *M13 Halo Globular cluster

4. Scorpius:

- *Usually a scorpion, early Arabic= *Al 'Alkrab*
- **Antares* = Anti Ares, rival of Mars; Binary Red supergiant
- *Confusion about true/actual name *Acrab* = name of whole constellation, where *Graffias* = claws; constellation was separated aprx. 700bce in Rome, into scorpion and Libra (the scales) since Ecliptic and Equator crossed= Autumnal Equinox at that time.
- **Dschubba* = Forehead, along with Omega; Blue OB star
- **Shaula* = The Sting; Along with *Lesath* Complex OB association, plus a neutron star
- **Jabbah*=Crown; Double Double Blue B subgiants
- **Al Niyāt* = heart arteries; Double Blue OB
- **Sargas*, unknown Sumerian meaning; White-Yellow F star

5. Libra:

- *Named by Ptolemy after 200 CE and the separation from Scorpius;
only Zodiac constellation not an animal; names of stars all relate to Scorpions (see #4)
- *Beta brighter than Alpha; Northern Claw and Southern Claw; two longest root names for stars;
Beta=Blue-White B star, Alpha=Binary White-Yellow A and F subgiants

6. Lyra:

- *Harp, Lyre; M57 = Ring Nebula between Gamma -Beta
- **Vega* = from Arabic phrase describing a diving eagle; has been and will again be the Pole Star; used by the Greeks to compare apparent brightness, given the value of Zero (0); White main sequence A star
- **Al Shilyāk* White A star and *Al Sulafat* Yellow G star other names for the whole constellation

7. Ophiuchus:

- *Serpent Holder, Healer; 13th constellation in some cultures since the Sun “resides” here longer than other zodiac constellations
- *Alpha= *Rās al Hawwā'* Head of the serpent charmer; Binary White A subgiant-Orange K main sequence
- *Beta= *Cebalrai (Kalb al Rā'i)*, Heart or Dog of the Shepherd; Orange K star
- **Sabik*= Leader (?), 2nd brightest star; Double White A stars
- *Delta = Front Hand (*Yed*) or arm (*Yad*); Bright M giant
- **Marfik*=Elbow; Double or Binary White A stars
- *M62= globular cluster

8. Sagittarius:

- *Archer, Herdsman, Satyr
- *Alpha, Beta not the brightest stars
- **Rukbat*= *Rukbah al Rāmī* Knee of Archer; Blue-White B star
- **Arkab*=Achilles tendon of kneeler; nonrelated double White-yellow F stars
- *Kaus Australis=Southern part of the Bow; brightest star; Double stars with confusing descriptions, usually B and A stars
- *Kaus Borealis=Northern Bow; 5th brightest, Orange K giant star
- *Kaus Media=Middle of Bow and End of the Arrow; 4th brightest ; Orange K giant
- **Nunki*=unknown name, meaning; 2nd brightest, Blue-White B star
- **Al Nasl*=Point; Double K giant
- **Ascelli*=Armpit or underarm, mule(?); 3rd brightest, White A star
- *Sagittarius A* is located in this constellation, Active Galactic Nucleus, (Black Hole) and center of the Milky Way galaxy

NEBULAE:

- *Often used incorrectly; Confused observations by ancients into the middle ages
- *Actual "clouds" of dust, gas, organic molecules, debris, etc.
- *Telescope views usually include several different types in one image

Planetary Nebulae:

- *Once thought of as the beginning of planet formation
- *The **final phase of a main sequence star** of less than 2-3 solar masses
- *Usually contains 1 or more Helium stellar cores or white dwarfs
 - EX: NGC 3242 (*Ghost of Jupiter* in Hydra)
 - EX: M57 (*Ring* in Lyra)

Wolf-Reyet Ring or Wind Nebulae:

- *The final stage of O stars (red supergiant or blue luminous variable stars); larger than 25 solar masses; identified by specific spectra (H,He,N,O); these are rare
 - EX: M1-67 around WR124 (not a Messier object)
 - EX: Sharpless 308 (*The Dolphin*) around WR6

Emission Nebulae:

- *Energized cloud, produces its own light; color usually RED
 - EX: NGC 2237 (*Rosette* in Monoceros)

Reflective Nebulae:

- *Radiated by star(s) near (usually "behind" the cloud; color usually BLUE
 - EX: IC2118 *Witch Head* in Orion)

Dark Nebulae:

- *High density dust and gas blocks light from the cloud
 - EX: Barnard 59 (*The Pipe* in Ophiuchus)

All three, multiple objects

EX: M20 (*Trifid* in Sagittarius); NGC 2170 (*Angel* in Monoceros)