





8/9
City/Inner
City Sky

7
City/
Suburbia
Transition

6
Bright
Suburban
Sky

5
Suburban
Sky

4
Suburban/Rural
Transition

3
Rural Sky

2
Dark-Sky
Site

1
Excellent
Dark-Sky
Site

>4.1

4.1-5.0

5.0-5.5

5.6-6.0

6.1-6.3

6.3-6.5

7.1-7.5

7.6-8



Bortle scale 1 sky
Naked eye observation
6000 stars



Estimated
200 billion trillion stars
(That's 200 sextillion)
in the universe

ORGANIZATION OF STARS

By

Location & Time or Apparent Association

ORGANIZATION OF STARS

By

Spectra or Color

ORGANIZATION OF STARS

By

Apparent Magnitude or Brightness

ORGANIZATION OF STARS

BY

Association or Grouping

ORGANIZATION OF STARS

By

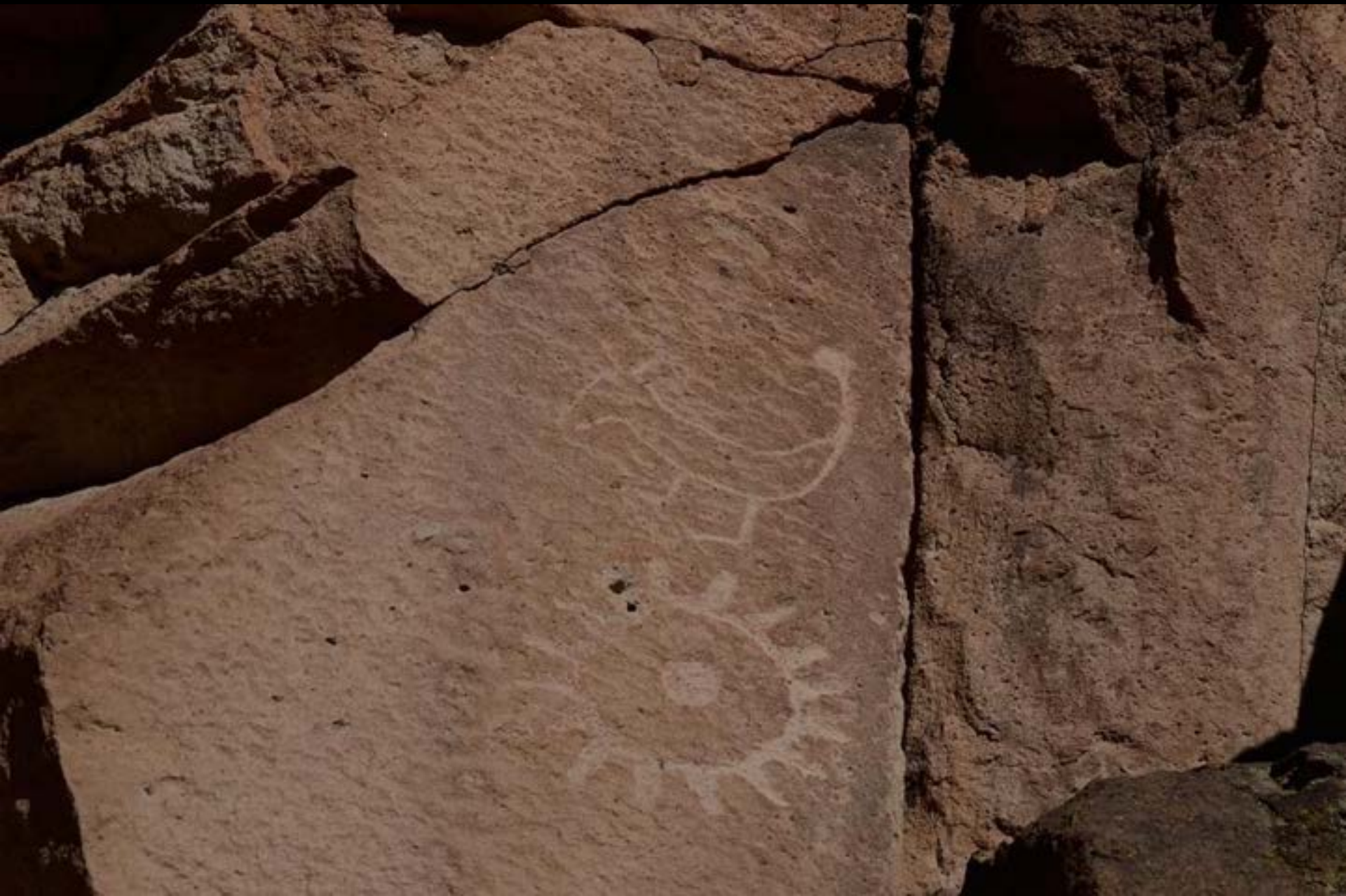
LOCATION & TIME

SOLSTICE

Sol = **sun**

Stitium = stand







**Chaco Cañon
NM**





Chimney Rock

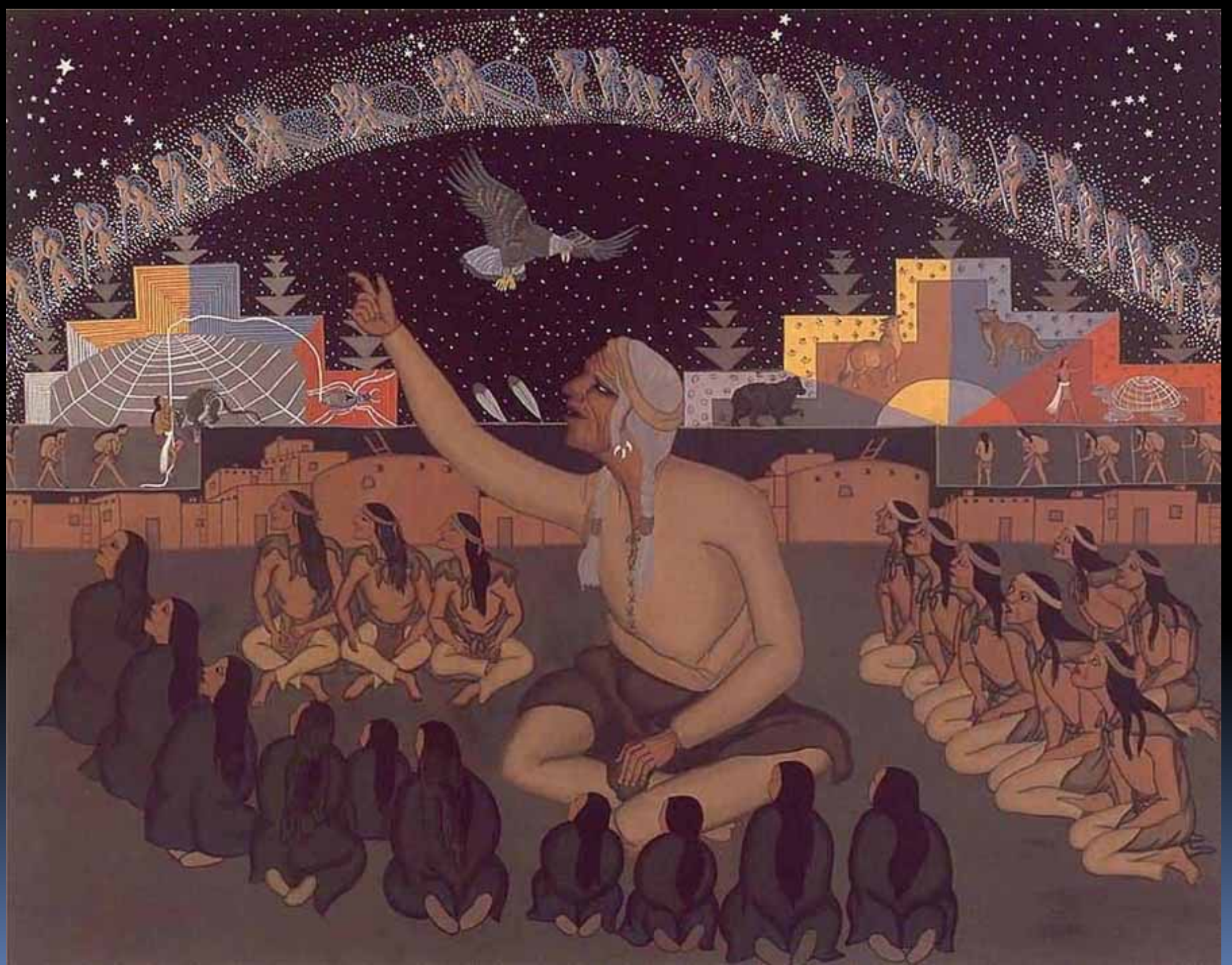
Aztec, NM



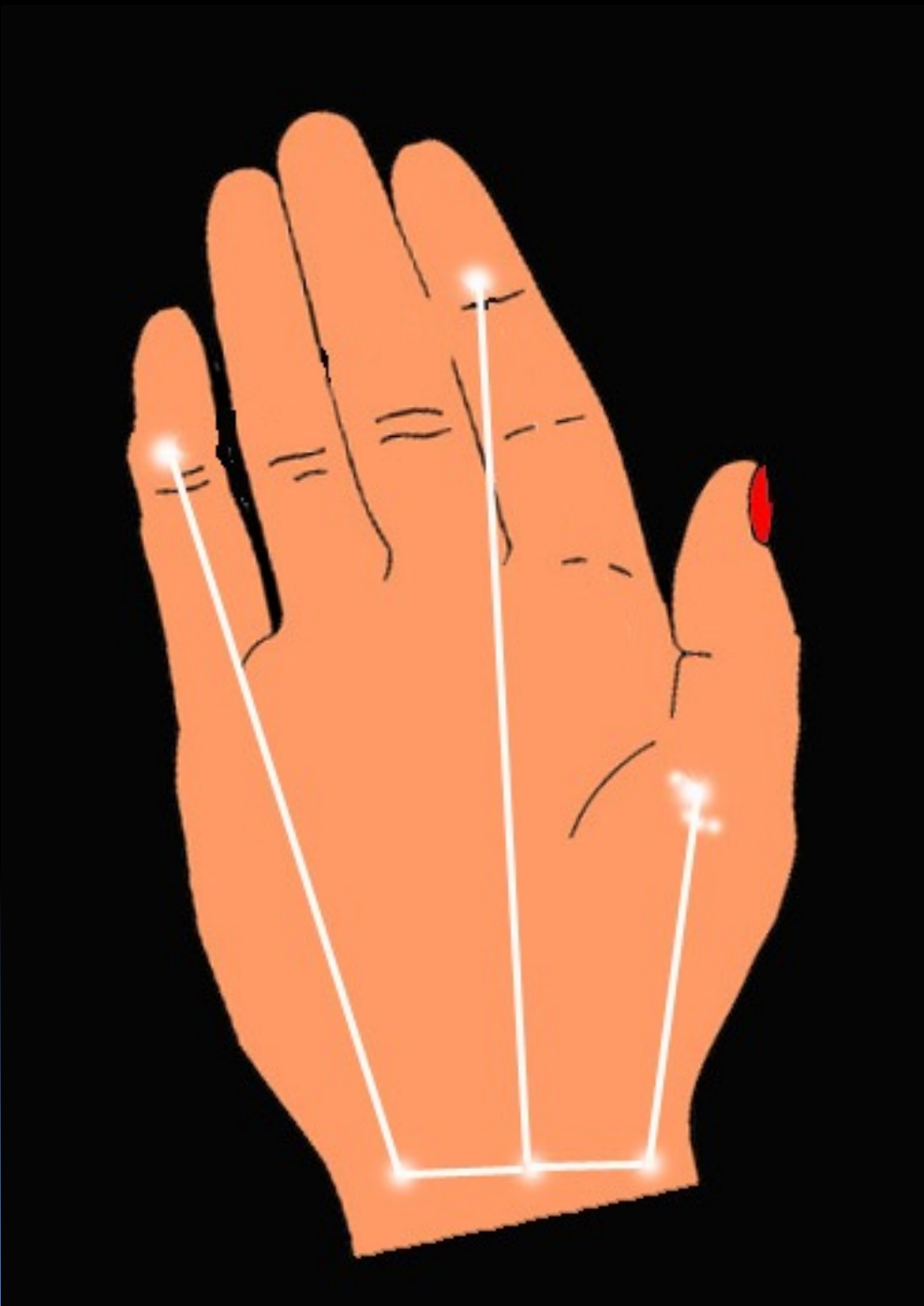
Yellow Jacket
Cortez, CO



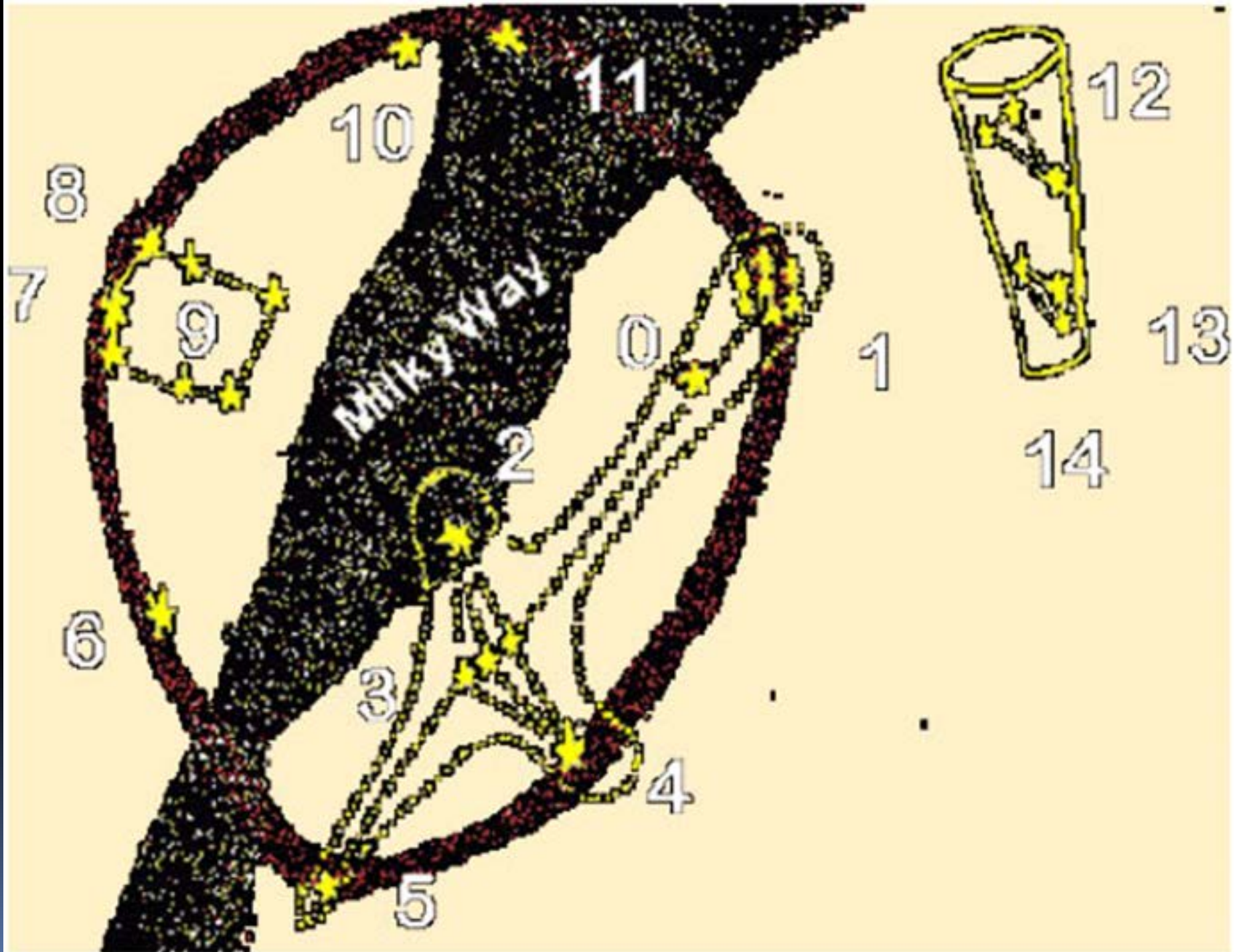
Big Horn Medicine Wheel Wyoming

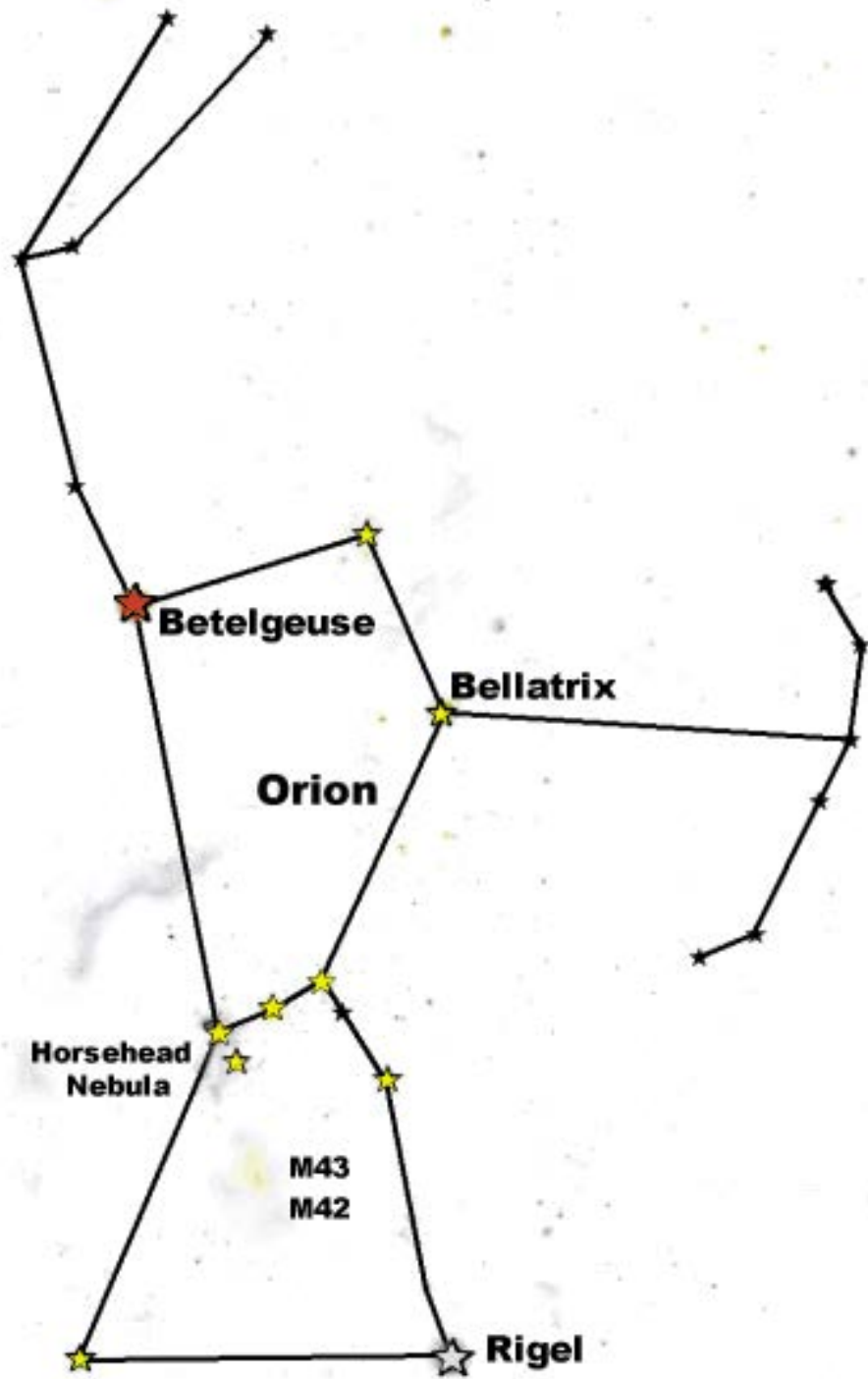






Lakota
Star
Knowledge





Betelgeuse

Bellatrix

Orion

**Horsehead
Nebula**

**M43
M42**

Rigel



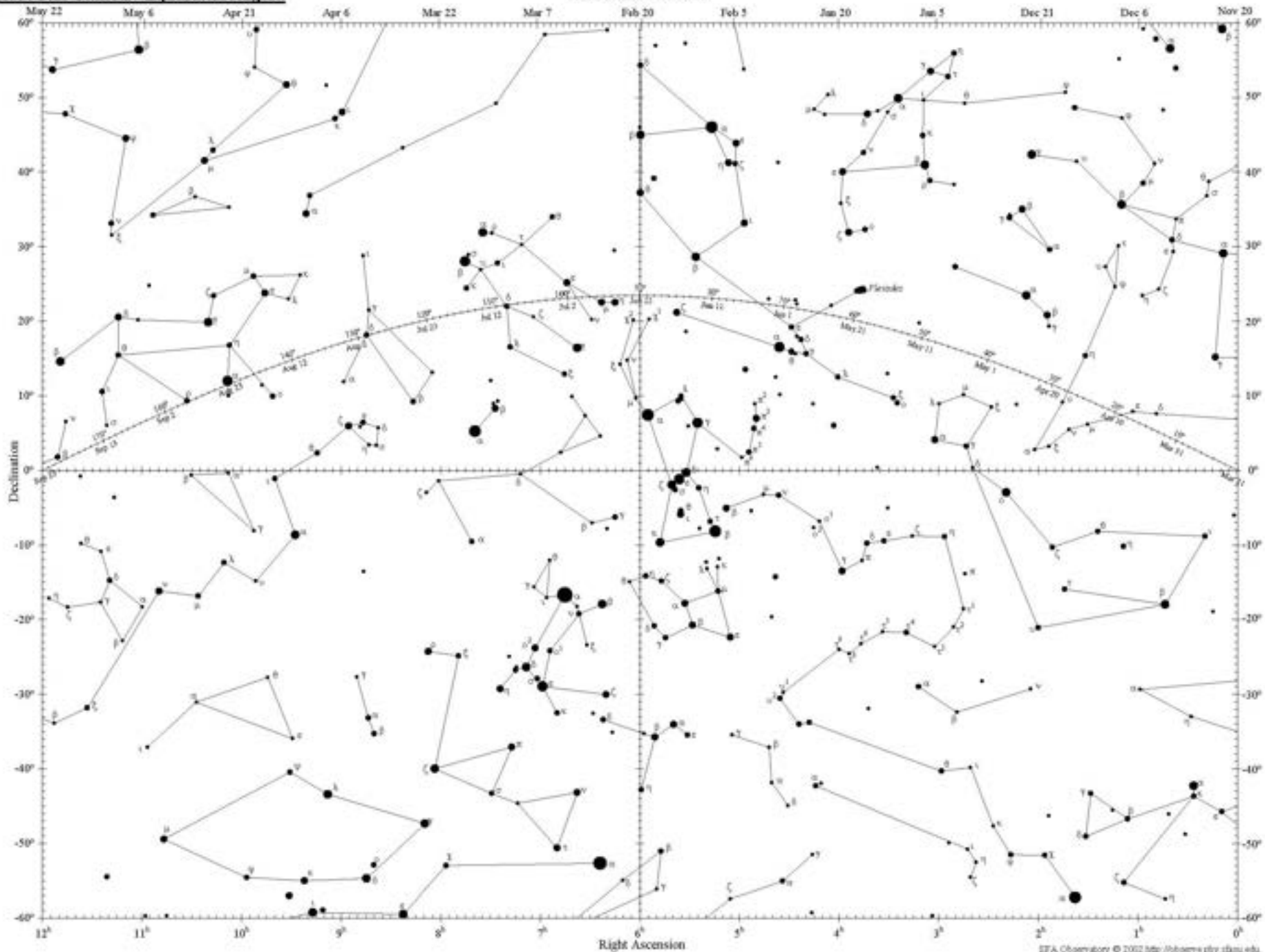
www.ariopad.com/
 atlas/urania.htm

1697 Hall, engr.

Scientifically agreed upon
88 Constellations
and
Boundaries
IAU

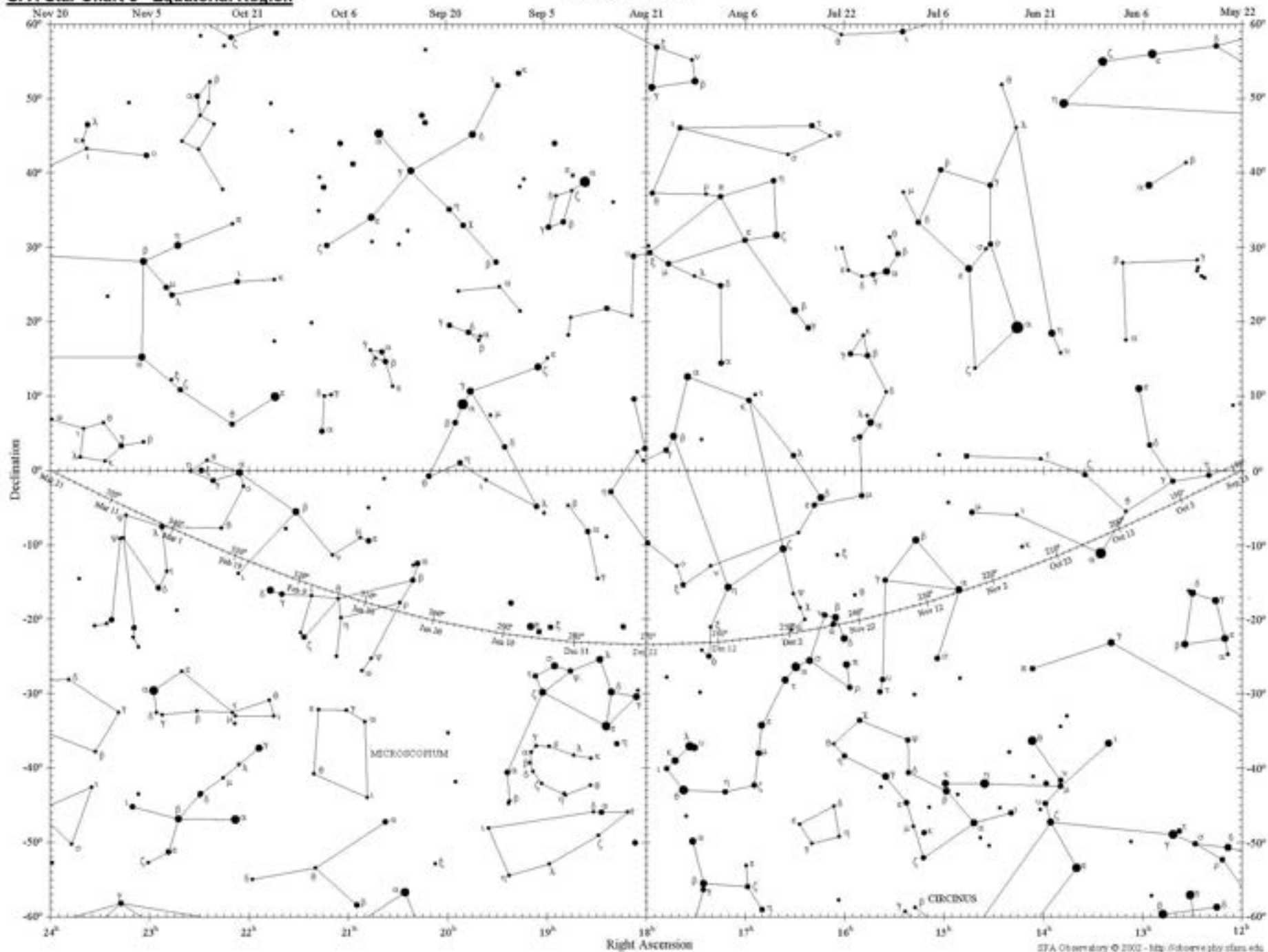
SFA Star Chart 2 - Equatorial Region

Local Meridian for 8 PM



SFA Star Chart 3 - Equatorial Region

Local Meridian for 8 PM



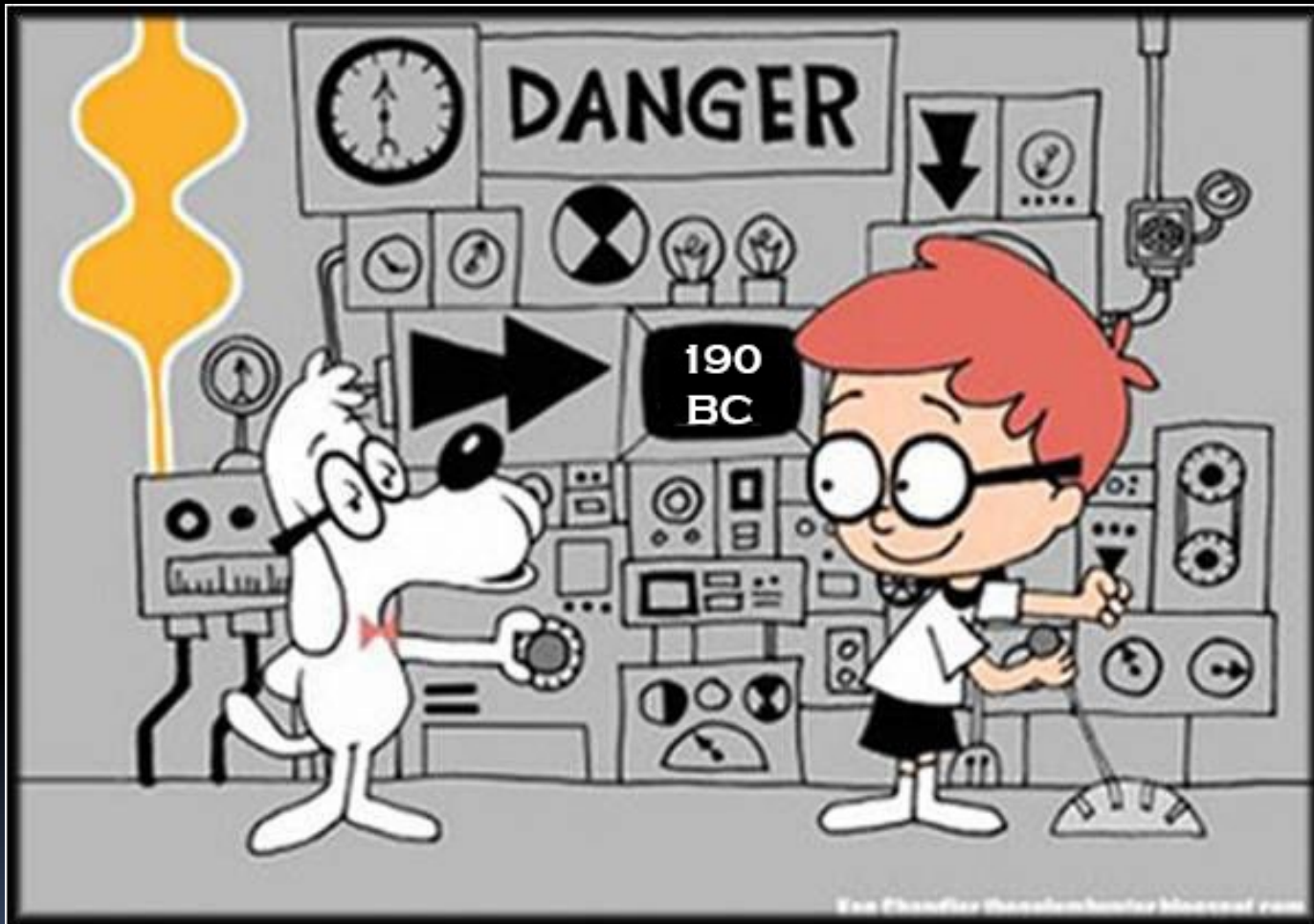
ORGANIZATION OF STARS

By

Apparent Magnitude

Or

Perceived Brightness



Ken Flanzer www.kennethflanzer.com

Greek Alphabet and Symbols

Α α Alpha	Β β Beta	Γ γ Gamma	Δ δ Delta	Ε ε Epsilon	Ζ ζ Zeta
Η η Eta	Θ θ Theta	Ι ι Iota	Κ κ Kappa	Λ λ Lambda	Μ μ Mu
Ν ν Nu	Ξ ξ Xi	Ο ο Omicron	Π π Pi	Ρ ρ Rho	Σ σ, ς Sigma
Τ τ Tau	Υ υ Upsilon	Φ φ Phi	Χ χ Chi	Ψ ψ Psi	Ω ω Omega

Brightest star in a constellation was designated ALPHA, then BETA, and so on. As instruments improved, the next star would start at 25 and continue.

STAR Common Name*	STAR Official Name	DISTANCE (ly) From Earth	APPARENT BRIGHTNESS**
SUN	Sol	8 lmin	-26.72
SIRIUS	Alpha CMa	8.6	-1.46
CANOPUS	Alpha Car	74	-0.72
RIGIL KENTAURUS	Alpha Cen	4.25	-0.27
ARCTURUS	Alpha Boo	34	-0.04
VEGA	Alpha Lyr	25	0.00
CAPELLA	Alpha Aur	41	0.08
RIGEL	Beta Ori	863	0.12
PROCYON	Alpha CMi	11.4	0.38
ACHERNAR	Alpha Eri	69	0.46
BETELGEUSE	Alpha Ori	700+/-	0.50(var)
HADAR	Beta Cen	391.4	0.61
ALTAIR	Alpha Aql	16	0.60(var)
ACRUX	Alpha Cru	322.9	0.76
ALDEBARAN	Alpha Tau	60	0.85(var)
ANTARES	Alpha Sco	600+/-	0.96(var)
SPICA	Alpha Vir	220	0.98(var)
POLLUX	Beta Gem	40	1.14
FOMALHAUT	Alpha PsA	22	1.16
DENEb (Adigee)	Alpha Cyg	1500	1.25
MIMOSA	Beta Cru	277.2	1.25
REGULUS	Alpha Leo	69	1.35
ADHARA	Epsilon CMa	570	1.5
SHAULA	Lambda Sco	570+/-	1.62(var)
CASTOR	Alpha Gem	50.9	1.58
GACRUX	Gamma Cru	88.6	1.64

**A Logarithmic scale originally based upon Vega = 0

Ranging from -27 to +6 (visual limits) using the Pogson's Ratio of 2.512 (fifth root of 100)

Concept originally proposed by Hipparchus

SEE ALSO:
J. Bayer 1603
J. Flamsteed 1712-1725

*See texts by Richard Hinckley Allen, James Kaler, William Thayer, and Ian Ridpath

25 Brightest Stars in the Night Sky



Sirius



Canopus



Rigel Kentaurus



Arcturus



Vega



Capella



Rigel



Procyon



Achernar



Betelgeuse



Hadar



Altair



Acrux



Aldebaran



Antares



Spica



Pollux



Fomalhaut



Deneb



Mimosa



Regulus



Adhara



Shaula



Castor

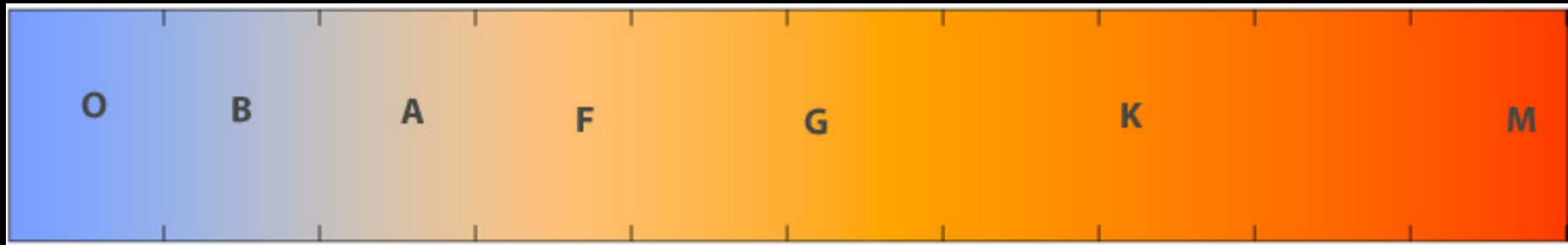


Gacrux

ORGANIZATION OF STARS

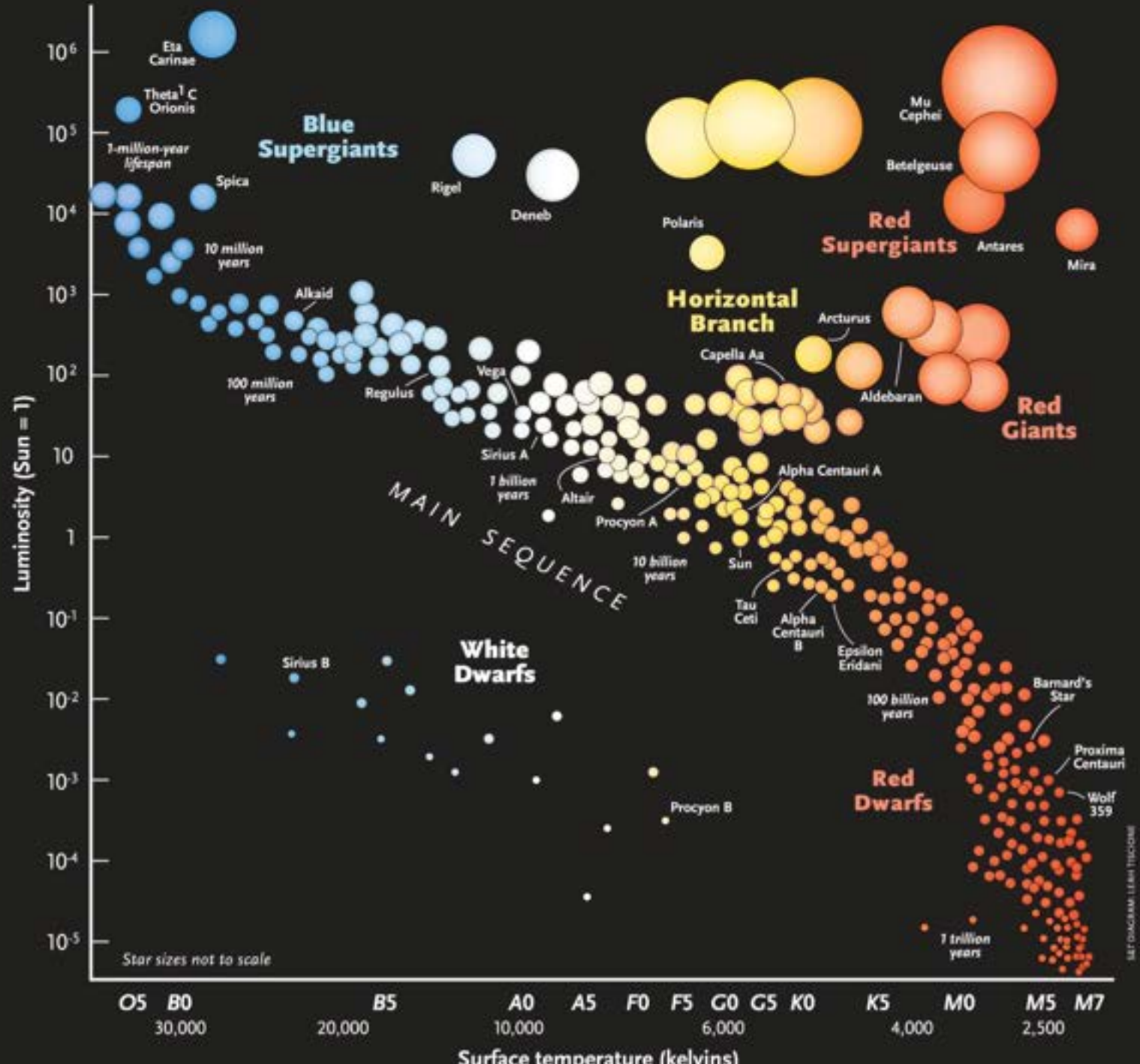
By

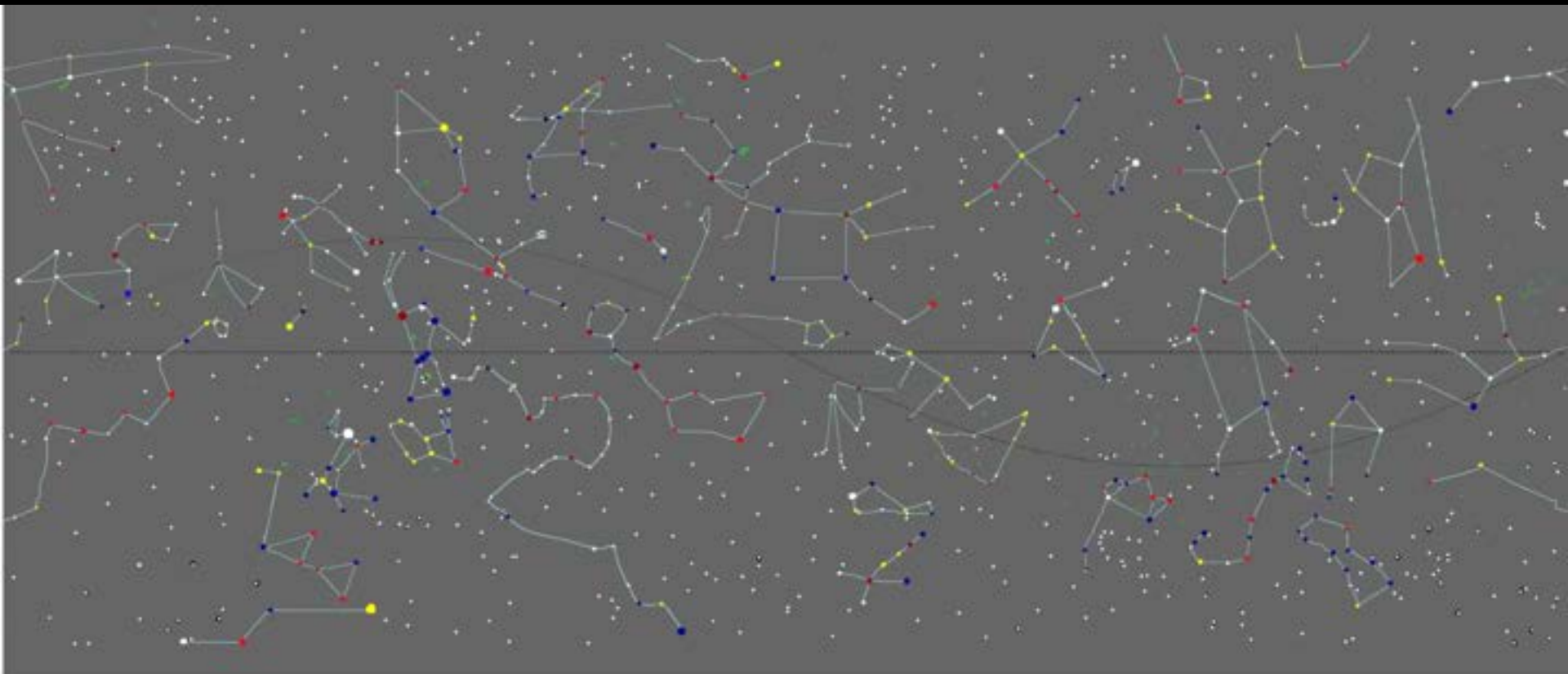
SPECTRA



Originally based on the Henry Draper Catalogue of Stellar Spectra of 10,351 stars, then amended and expanded to 359,083 stars

Spectral Class	Intrinsic Color	Surface Temperature (K)	Prominent Absorption Lines	% Distribution in HD Cat.
O	Blue	30,000 - 60,000	He II, C III, N III, O III, Si IV H lines weak, UV strong	1%
B	Blue-White	10,000 - 30,000	He I lines strong, He II missing H lines stronger C II, O II, Si III	10%
A	White	7,500 - 10,000	H lines strongest Mg II, Si II, strong Ca II weak	22%
F	White-yellow	6,000 - 7,500	H weak Ca II stronger, ionized metals	19%
G	Yellow	5,000 - 6,000	H weaker Ca II strong, neutral metals ionized metals weaker CH strong	14%
K	Orange	3,500 - 5,000	Ca II, Neutral metals strongest CH, CN increasing, H weak	31%
M	Red	Below 3,500	neutral atoms, TiO present molecular bands, Ca I strong	3%





ORGANIZATION OF STARS

By

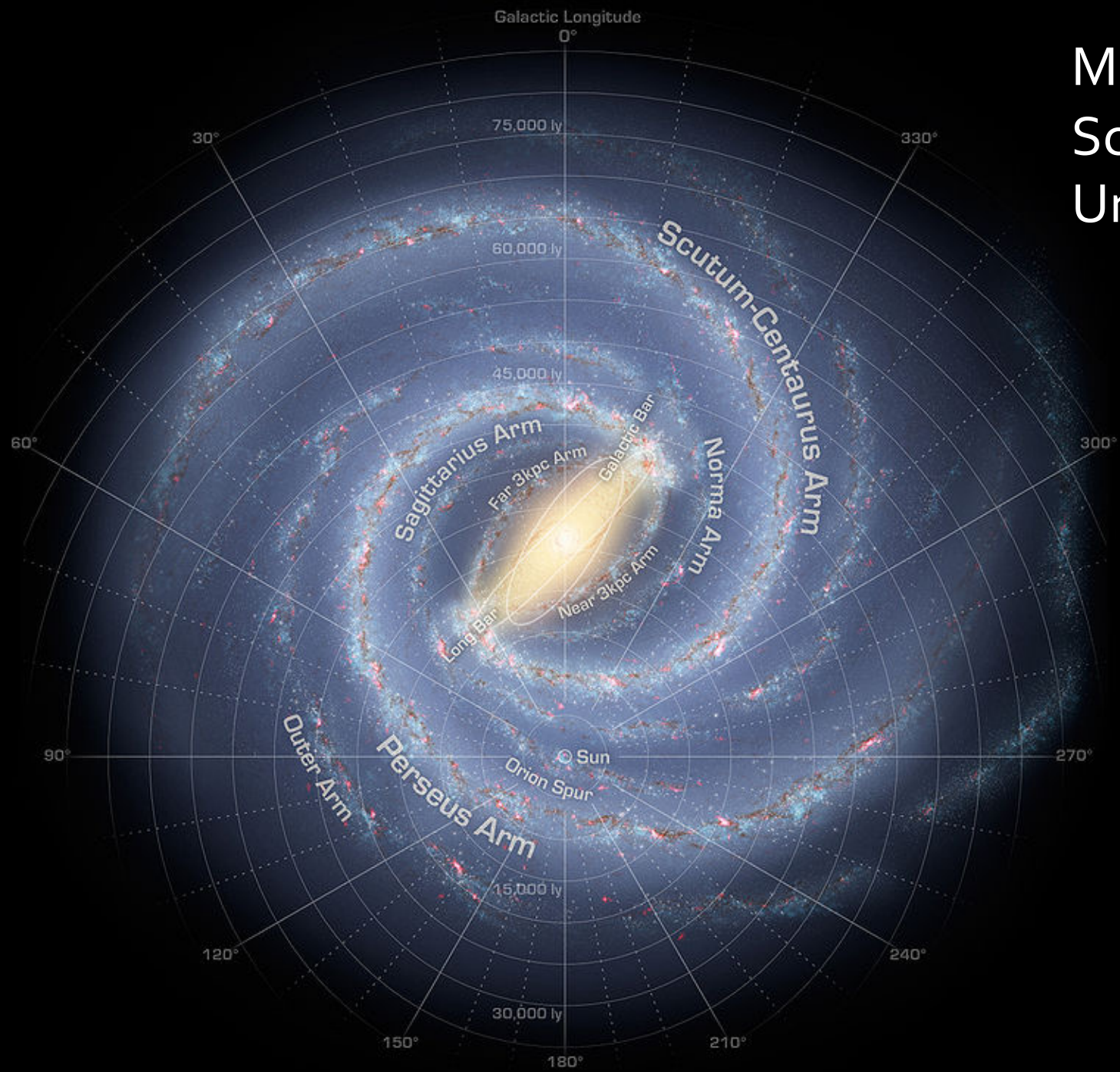
Association or Grouping

OPEN STAR CLUSTERS



AS TECHNOLOGY
IMPROVED

Modern Scientific Understanding

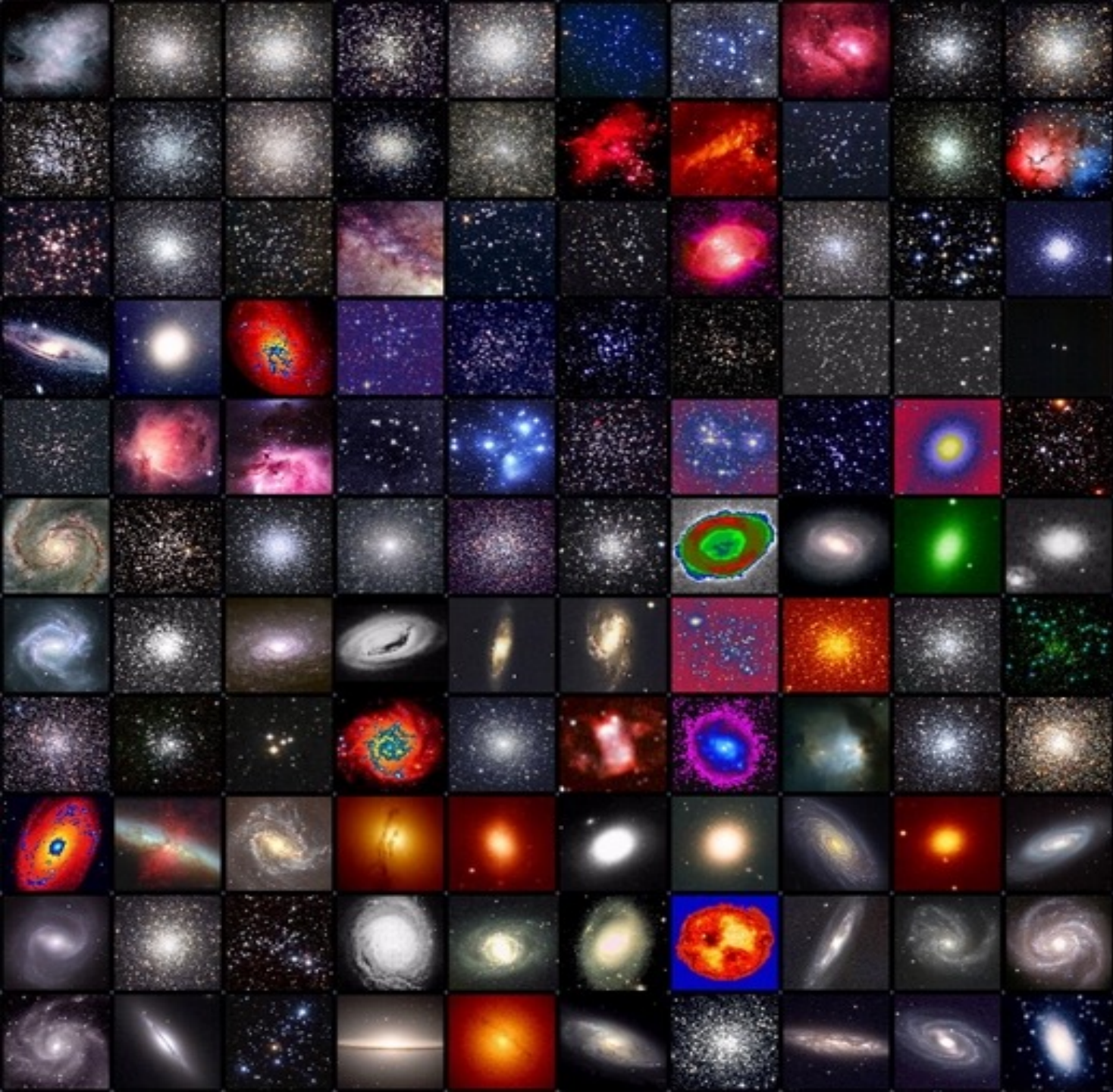


GALAXIES



GLOBULAR STAR CLUSTERS



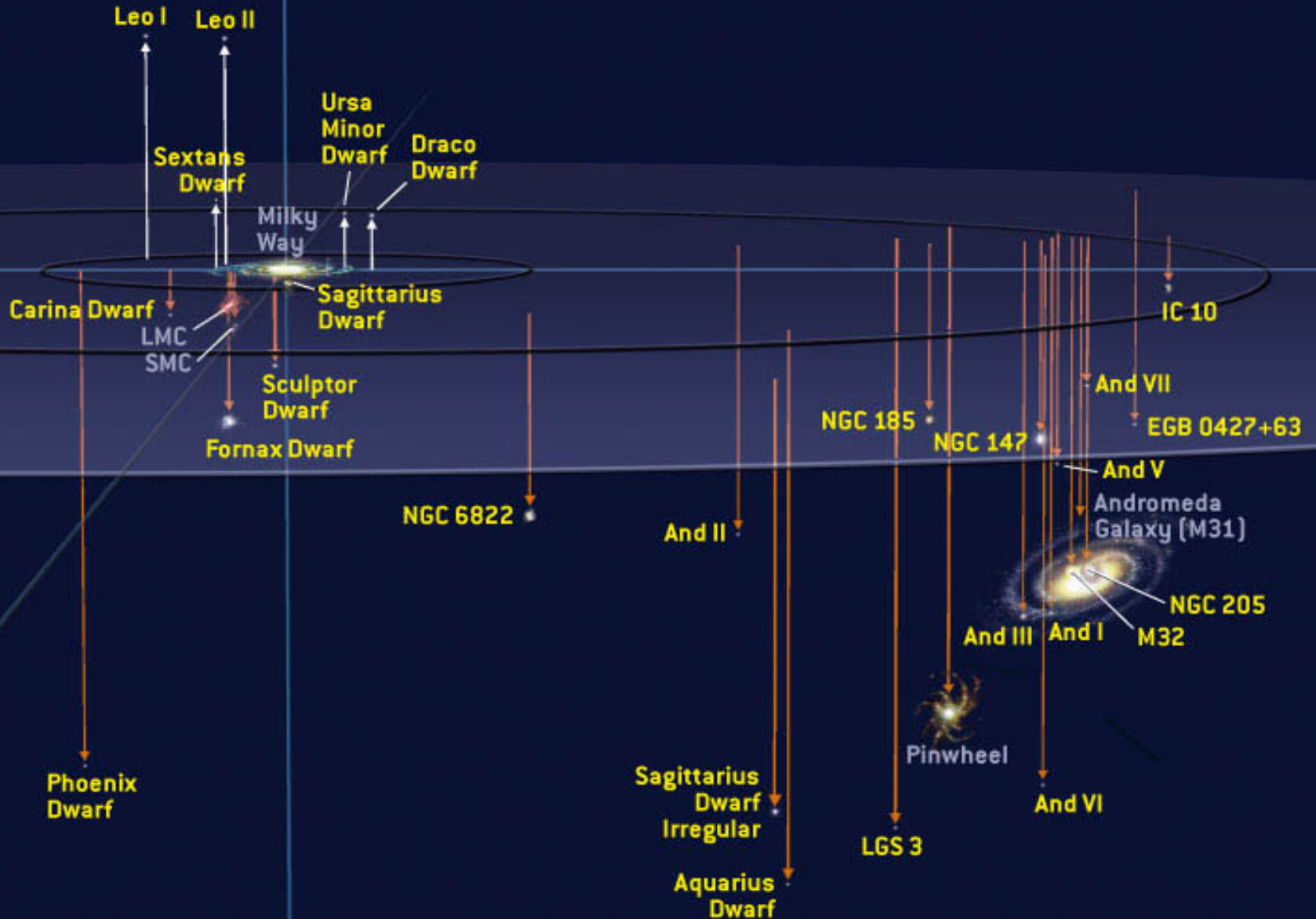


The Messier Catalog

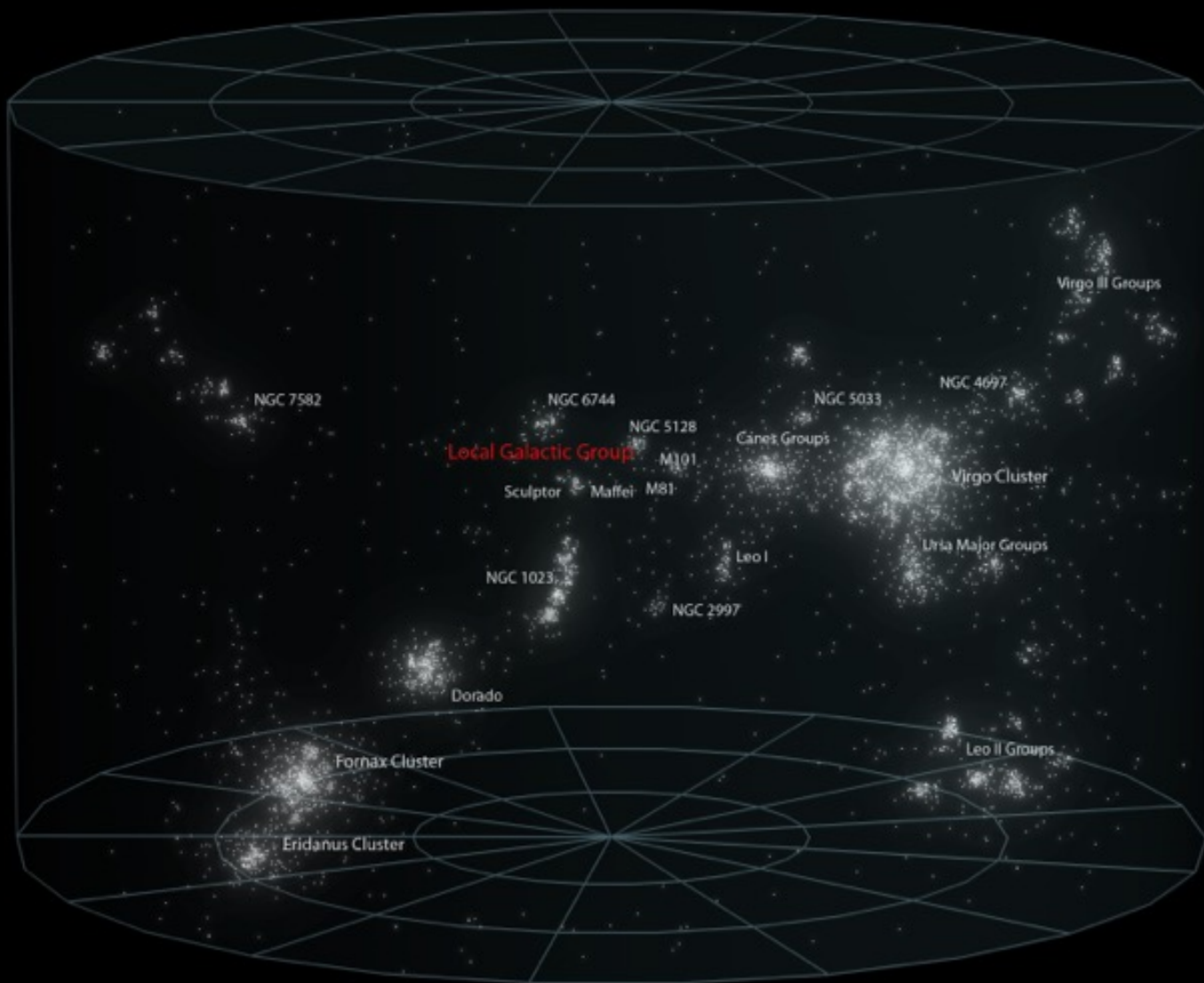
Star Clusters
Galaxies
Star Clouds
Nebulae

MORE ADVANCED
TECHNOLOGIES
AND
SPACE BASED
OBSERVATORIES

Local Galactic Group

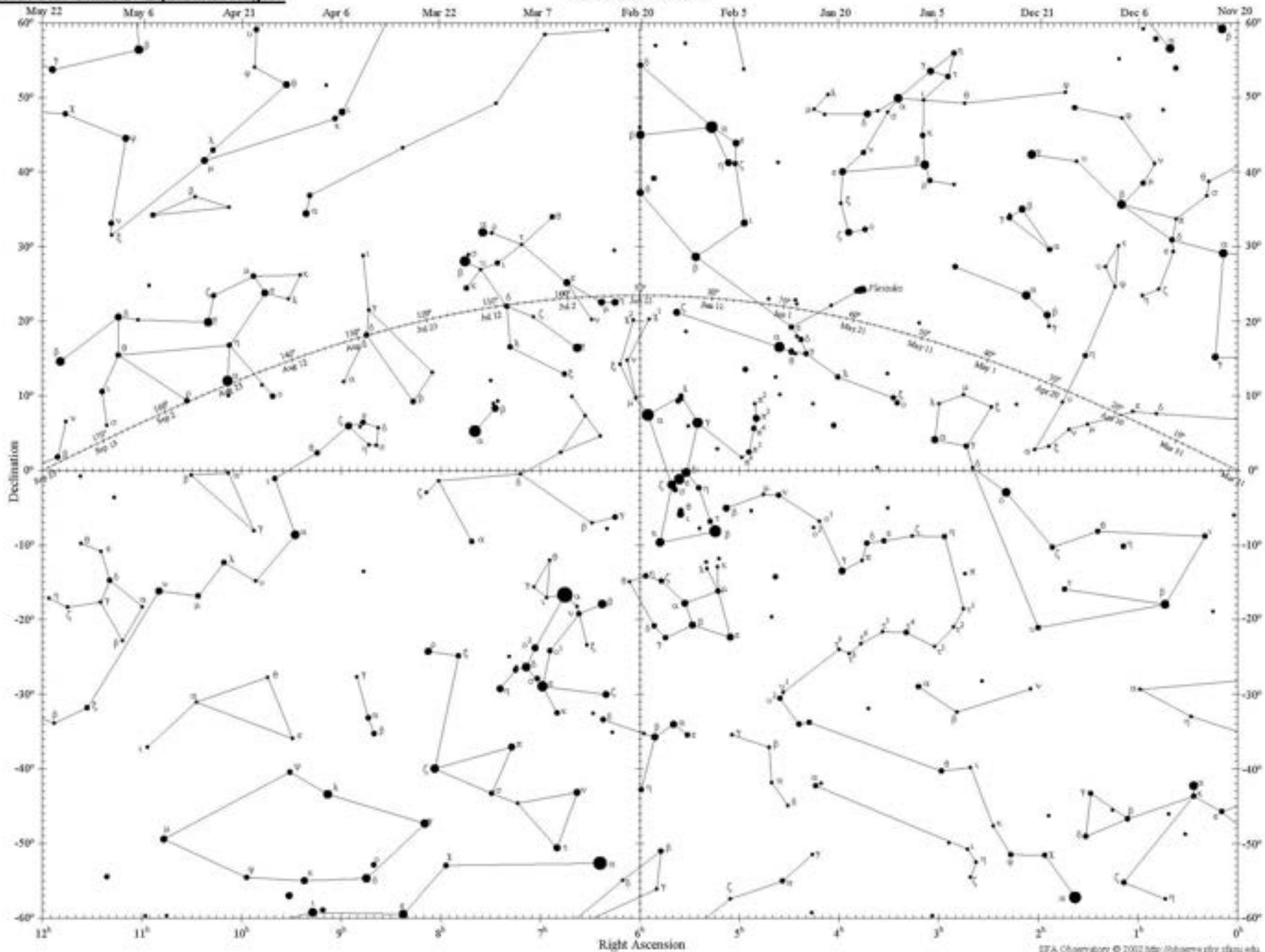


VIRGO SUPERCLUSTER



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