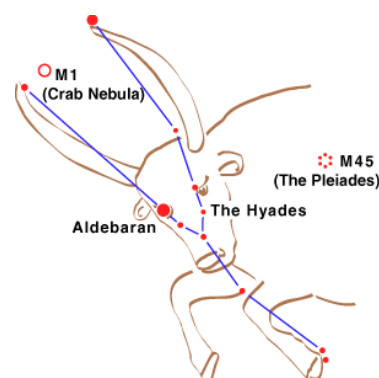


Taurus

Introduction

The Bull, one of the original 48 figures passed down to us via Ptolemy's 2nd century Almagest. It lies along the ecliptic, thus is one of the signs of the Zodiac (the Sun passes through this constellation in June). The prominent V-shaped grouping of the Hyades is the head of the charging bull, the orange-red Aldebaran tipped by beta and zeta Tauri.



Mythology

In Greek mythology, Taurus was a snow-white bull (Zeus in one of his many guises) who carried off the princess Europa. Alternatively, Taurus can be represented as the Cretan bull that was defeated by Hercules in one of his twelve labours.

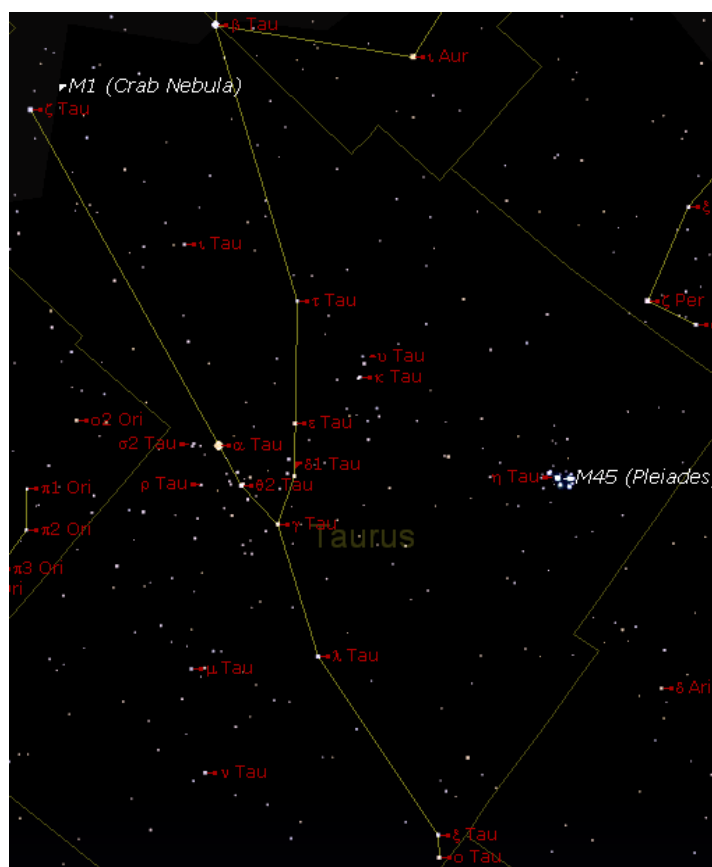
Features

The brightest star is Aldebaran (apparent magnitude +0.85) and the 13th brightest in the sky. It follows the Pleiades across the sky. Aldebaran is Arabic for 'the follower'. It is a red giant with spectral classification K. Its radius is 40 times that of the Sun and has an absolute luminosity of 125 times that of the Sun. It is 'superimposed' on the Hyades; it is 68 light years away in the line of sight between us and the cluster.

Beta Tauri (El Nath) is the Bull's northern horn and was originally assigned to the constellation of Auriga however the IAU in the 1930s assigned it to Taurus (some books still refer to this star being in Auriga but this is not the case). El Nath means 'the butting one'; this is probably due to its location in the Bull's horns. It is a B-class star with an apparent magnitude of +1.65.

Zeta Tauri is the southern horn and is much fainter than El Nath with an apparent magnitude of only +3.03 again it is a B-class star. This star is actually 4000 times brighter than the Sun but it is 520 light years away and is a shell star. A shell star means that it is suspected of occasionally blowing away its outer atmosphere, however in this case it is far too faint to be observed with amateur instruments.

The majority of the prominent stars in Taurus are concentrated into the V-shaped 'head' of the Bull - this is marked out by the core of the Hyades cluster. Each arm of the V is about 4.5 degrees apart and is probably best viewed through binoculars.



Hyades Cluster

This is 150 light years away. 2nd closest star cluster to us (the closest is in Ursa Major, this includes 5 members of the Plough). Due to this is an important standard to measure distances to more remote objects in our galactic neighbourhood. Around 200 stars belong to the Hyades, some of these are outside of Taurus. The whole cluster is approximately 15 light years across. The general motion of this cluster is towards Betelgeuse in Orion (this is in our line of sight). The apparent brightness of this cluster is +3 to +4 mag. Some of the stars inside this cluster are quite luminous. This cluster is approximately 400 million years old.



Double Stars

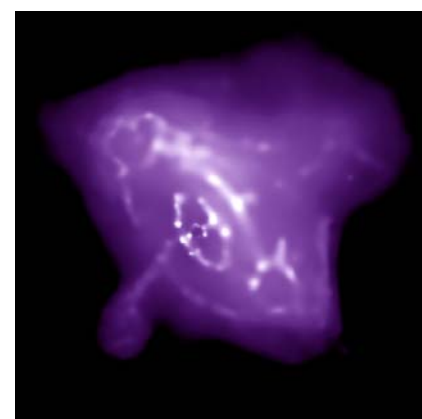
Southern Arm of the 'V' in the Hyades, $\theta 2$ and $\theta 1$ Tauri – this varies from +3.40 to +3.80 and is separated by 5'37". It also has an eclipsing binary, λ Tauri which is similar to Algol. It has a period of 3.95 days and varies from +3.4 to +3.9.

Table of Objects

Object	Type	RA (J2000.0)	Dec
Pleiades	Open Cluster	03h 47.0m	+24° 07'
λ	Variable Star	04h 00.7m	+12° 29'
NGC1554-55 Hind's	Variable Nebula	04h 21.8m	+19° 32'
T	Variable Star	04h 22.0m	+28° 27'
Hyades	Open Cluster	04h 27.0m	+16°
NGC1647	Open Cluster	04h 46.0m	+19° 04'
$\theta 2$ and $\theta 1$	Double Star	04h 28.7m	+15° 52'
M1 Crab Nebula	Supernova Remnant	05h 34.5m	+22° 01'
S 147	Supernova Remnant	05h 35.0m	+28°

Crab Nebula

This is the first entry into Messier's eighteenth century catalogue (to the right in x-rays). It has a magnitude of +8.4 and is the brightest supernova remnant. It is 6 by 4 arc minutes in size, so need a telescope of size greater than 150 mm. It looks as if an S patch shape of nebulosity, inside is a rapidly spinning pulsar. This is the end point of a star. The explosion that formed the pulsar occurred in 1054 and at its peak it was as bright as Venus. The explosion was so intense that it took two years before this object faded from being visible from the naked eye. This was recorded by Chinese astronomers and there are rock paintings of this in the Americas.



Images

Star Chart: Starry Night Backyard Edition

Taurus: <http://stardate.org/images/constellations/taurus.gif>

Hyades and Pleiades: <http://starryskies.com/Artshtml/dln/1-00/pleiades.html>

Crab Nebula: <http://chandra.harvard.edu/photo/0052/crab-smooth-purple.jpg>