



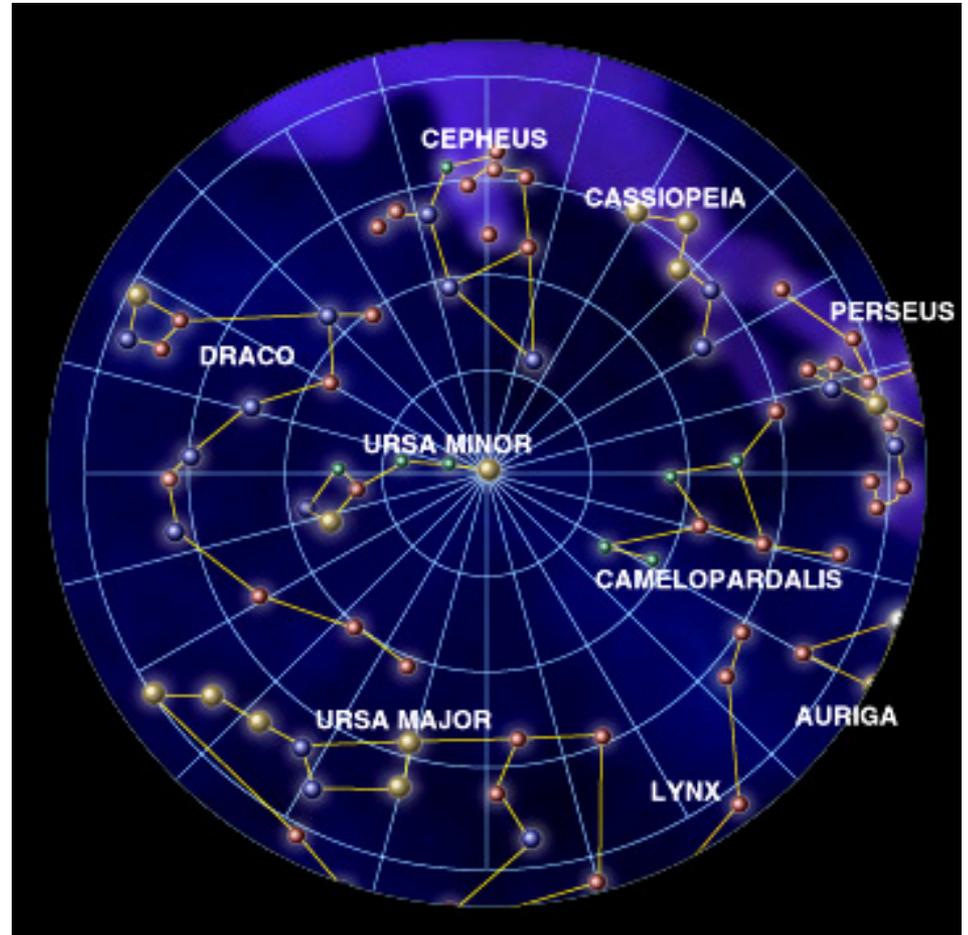
# Nightly Sky Guide

*A constellation study guide  
Baker Science 2005*



# Constellations

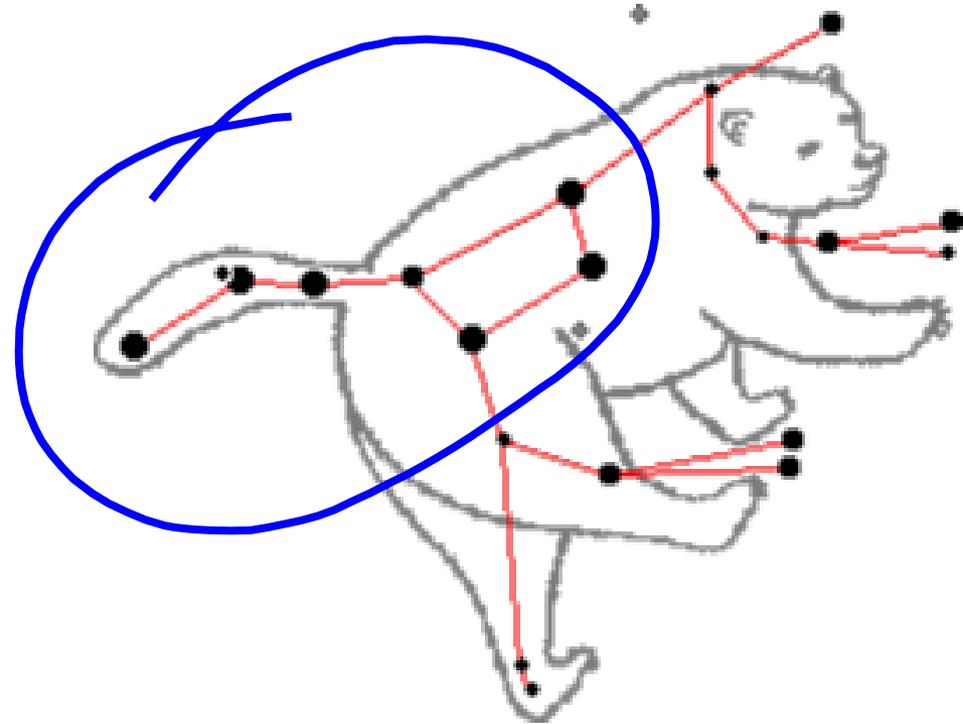
- ✦ Constellations are formed of bright groups of stars which appear close to each other on the sky, but are really far apart in space.
- ✦ The shapes you see all depend on your point of view.
- ✦ Circumpolar constellations are viewed all year long.



# Ursa Major



- Ursa Major is probably the most famous constellation, with the exception of Orion. Also known as the Great Bear, it has a companion called Ursa Minor, or Little Bear.
- The body and tail of the bear make up what is known as the Big Dipper.
- Most of the constellation is circumpolar, which means it can be viewed all year long. However, parts of the legs will disappear from the sky in the fall and reappear in the winter.



# Ursa Major Myth

Zeus, King of the Gods, fell in love with the beautiful Callisto, a young woman who was a hunter. When Hera, Zeus' wife, heard of what was happening she was furious and set out after Callisto. On finding her, Hera said, "Your beauty, of which my husband speaks so tenderly, is no more!" Whereupon Hera changes Callisto into a bear. Hera left Callisto with her human feelings rather than those of a bear. Callisto roamed the forest day and night in constant fear of the hunters and in fear of other wild beasts, although she was now one.

One day Callisto found herself face-to-face with a young and handsome hunter and suddenly recognized him as her son, Arcas. She raised up on her hind legs to embrace her son. Thinking that the bear was about to attack him, Arcas raised his spear and was about to hurl it and kill his mother. Zeus happened to be looking down on the scene from his position on Mt. Olympus and instantly turned Arcas into a bear also. Zeus then grasped each bear by its tail and tugged and tugged until he had managed to lift both high into the sky, Callisto as Ursa Major and her son Arcas as Ursa Minor. This tugging of tails over such a long journey through the sky, stretched both tails and explains why our celestial bears, unlike earthly ones, have long tails. The tail of Arcas became even longer since he was continuously swung around the sky by the end-star in his tail, Polaris.

On discovering that her husband had given Callisto and Arcas honored places in heaven, Hera was furious. She went down to Earth to visit her friend the ocean god, Oceanus. "How dare Zeus give these two an honored place in heaven?" Hera fumed. "They have now displaced me, Queen of Heaven, from my place in the sky. I ask you forever keep these two penned so that they may never wander far."

Oceanus was sympathetic and promised that he would grant Hera her wish. He would see to it that "the couple never would be permitted to enter our water in their wandering," in other words, that the bears forever would be forbidden to set below the horizon of the sea as other constellations do. To this day both the Lesser Bear and the Greater Bear are held high in the sky near the Pole Star, never permitted to sink beneath the sea horizon.

# Ursa Major & Minor Summary



## Immortals:

Hera & Zeus

## Mortals:

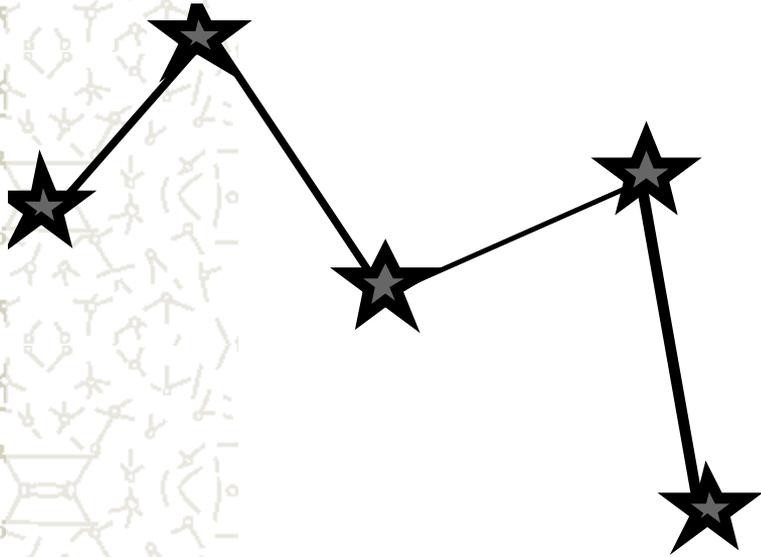
Calisto & Arcus

## Myth:

Zeus loved Calisto, but Hera became jealous and turned her into a bear. Her son, Arcus, tried to kill her & Zeus turned Arcus into a bear as well.



# Casseopia



- ✦ Nickname "The Queen"  
Another story says that for her bragging, Cassiopeia was chained to her throne and placed in the sky to circle the North Star. At times she is hanging upside down in a most undignified position as a warning to all.
- ✦ The Romans called her the Woman of the Chair.
- ✦ To the Arabs, she was the Lady in the Chair.
- ✦ Cassiopeia is a northern circumpolar constellation, so it can be viewed all year long.

# Cassiopeia-the vain queen

- **Cassiopeia** was the wife of **Cepheus**, the Ethiopian king of Joppa (now known as Jaffa, in Israel), and the mother of **Andromeda**. The queen was both beautiful and vain, and the story of how her vanity caused great distress is told in relation to the constellation **Andromeda**.
- After promising her daughter in marriage to **Perseus**, Cassiopeia had second thoughts. She convinced one of **Poseidon's** sons, **Agenor**, to disrupt the ceremony by claiming **Andromeda** for himself. **Agenor** arrived with an entire army, and a fierce struggle ensued.
- In the battle Cassiopeia is said to have cried "Perseus must die". At any rate it was **Perseus** who was victorious, with the help of the **Gorgon's** head.
  - **Perseus** had recently slain **Medusa**, the **Gorgon**, and had put its head in a bed of coral. He retrieved the head and waved it in midst of the warring wedding party, instantly turning them all to stone. In the group was both **Cepheus** and **Cassiopeia**.
- A contrite **Poseidon** put both father and mother in the heavens. But because of Cassiopeia's vanity, he placed her in a chair which revolves around the **Pole Star**, so half the time she's obliged to sit upside down.

# Cassiopeia



## ☼ Immortals :

- Poseidon

## ☼ Mortals

- Perseus

- Andromeda

- Cassiopeia

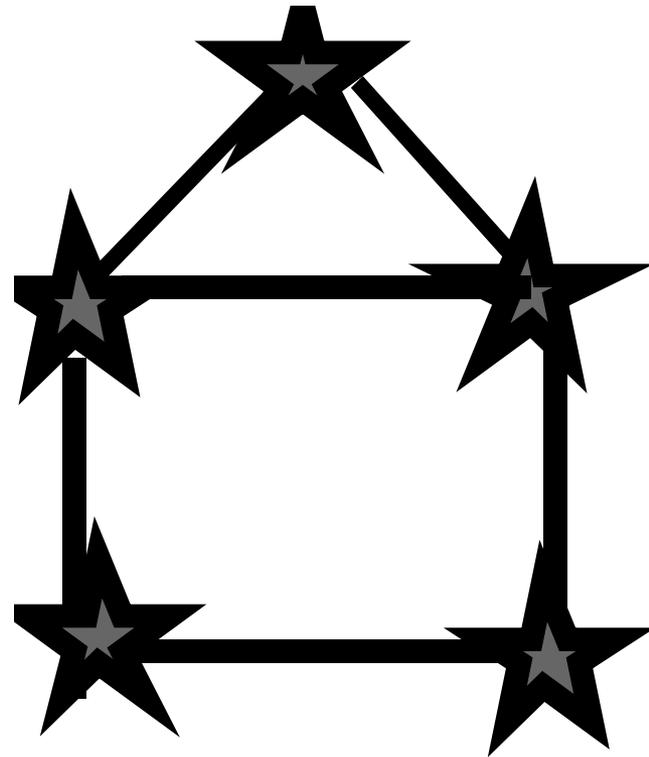
- Cepheus

## ☼ Summary

- Cassiopeia bragged that she & her daughter were more beautiful than the sea nymphs. Poseidon sent a monster to destroy the town. Eventually, Cassiopeia was turned to stone.

# Cepheus

- ✦ Cepheus is one of the oldest constellations in the night sky.
- ✦ He is a circumpolar constellation, circling around the North Star all year long.



# King Cepheus

- ✦ This house-shaped constellation is named after an ancient king of a land called Ethiopia (different from the current country, Ethiopia). He was married to the beautiful Cassiopeia and had a daughter, Andromeda.
- ✦ In Greek mythology, Cassiopeia boasted that she and her daughter were more beautiful than the Nereids. They complained to the sea god Poseidon, who sent a monster to destroy Cepheus' land. The king and queen offered their daughter to the monster, but she was saved by Perseus. All four people, along with the monster, are represented in the sky by constellations.



# Cepheus



## Immortals :

- Poseidon



## Mortals

- Perseus

- Andromeda

- Cassiopeia

- Cepheus



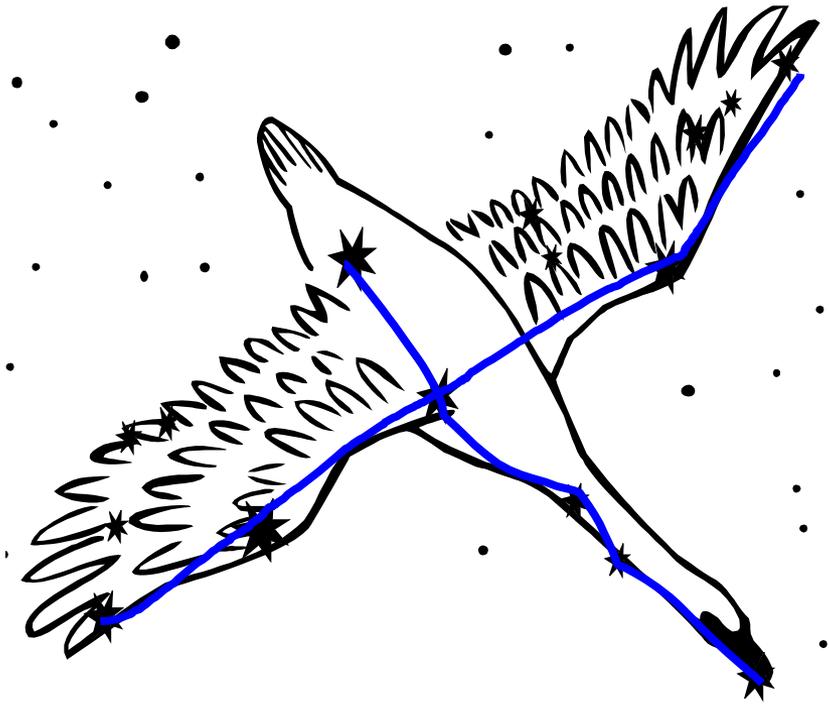
## Summary

- Cassiopeia's husband

# Cygnus

## The Swan

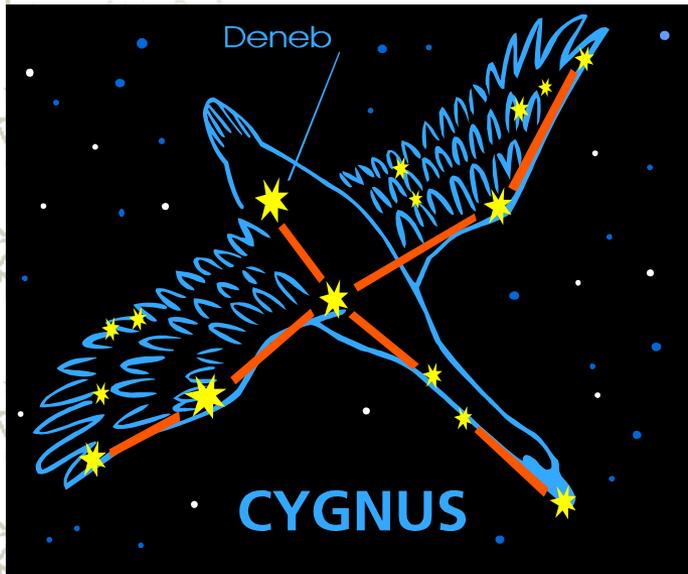
Cygnus, the Swan, is also known as the Northern Cross because of its shape. The tail of the swan is marked by the bright star Deneb, Arabic for "tail". Three fainter stars cross the line between Deneb and the head of the swan, Albireo. Cygnus flies southward along the summer Milky Way, and into the Summer Triangle. Deneb is a bright, blue supergiant star, very young as stars go.



# Cygnus

- ✦ The identity of Cygnus is uncertain. He could be Zeus in the guise in which he seduced Leda, the mother of Helen of Troy.
- ✦ In one myth, Cygnus is a friend of Phaethon, the son of Apollo, the sun god. Phaethon fell into the river Eridanus, trying to drive the sun-gods chariot. Cygnus dove repeatedly into the water to search for Phaethon. Out of pity, Zeus turned the boy into a swan.

# Cygnus



## ☼ Immortals

- Apollo

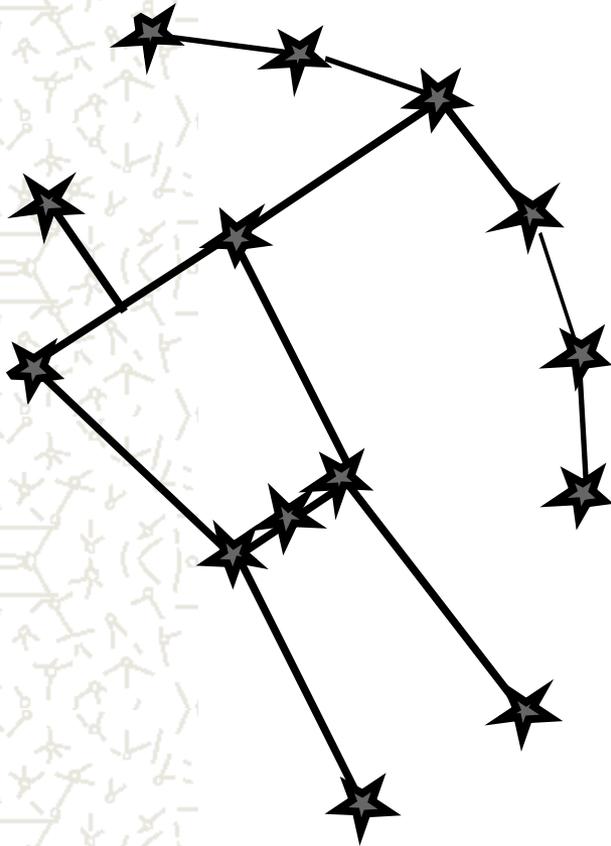
## ☼ Mortals

- Cygnus
- Phaeton

## ☼ Summary

- Phaeton is shot out of the sky while trying to drive Apollo's chariot. Cygnus dives repeatedly into the river to save his friend. Zeus turns Cygnus into a swan out of pity.

# Orion



- ✂ Orion, the Hunter, is by far the most famous seasonal constellation. No other is more distinct or bright as this northern winter constellation. The famous Orion's Belt makes the hunter easy to find in the night sky.
- 💡 Orion looks very much like a person. First, you should spot Orion's Belt, which is made of three bright stars in a straight line. One of Orion's legs is represented by the bright star Rigel, one of the brightest stars in the night sky. His two shoulders are made of the stars Bellatrix and Betelgeuse.
- 💡 The famous Orion Nebula is located in Orion's sword, which hangs from the belt. It is so bright, that even the naked eye can see the fuzzy patch



# Orion the Hunter

Orion is the master of the winter skies. He lords over the heavens from late fall to early spring, with his hunting dog Sirius trailing at his feet.

Many different civilizations saw this constellation in the sky. The most famous stories come from Greek and Roman myths. Orion was a famed hunter, and in one story boasted that no creature could kill him. Hera then sent a scorpion to sting the hunter. Orion smashed the animal with his club, but not before he was poisoned. Both are now on opposite sides of the sky. They cannot be seen at the same time.

# Orion

## ☼ Immortals

– Hera

## ☼ Mortals

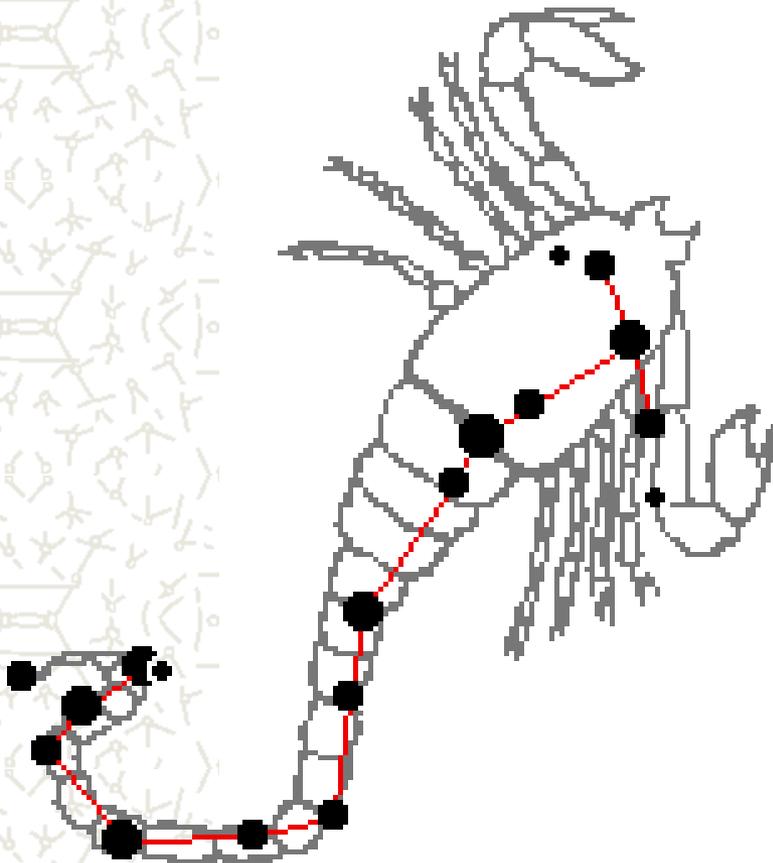
– Orion

## ☼ Summary

– Orion bragged that no animal could kill him. Hera sent a scorpion who did.



# Scorpius



- More than any other constellation, Scorpius resembles its given name. Scorpius crawls across the southern sky, close to the horizon.
- The bright star Antares marks the heart of the arachnid, and its long curving tail trails to the south. The scorpion once had claws, but they were cut off by Julius Caesar to form the constellation Libra.
- Scorpious is a Summer constellation.



# The Scorpion

- ✦ Scorpion represents death, darkness, and everything that we look on as evil.
- ✦ Orion Boasted that so great was his might and skill as a hunter that he could kill all the animals on the face of the Earth. Hera was alarmed at such a boastful and inappropriate statement. Hera decided that Orion must be killed just in case he might one day decide to carry out his boast. So Hera to sting Orion. As mighty as Orion was, after only a brief battle, the scorpion managed to deliver the hunter a deadly sting. Scorpion stung Orion on the heel (at the star Rigel). Orion and the scorpion were given honored places in the sky, but they were placed at opposite ends of the great sky dome so that they would never engage in battle again. Although there are other storied about how Orion met his death, this one is the most common.

# Scorpius - Summary



## ✦ Immortals :

– Hera

Mortals

– Orion

Myth

– Orion boasted no animal could kill him.

– Hera sent a scorpion who did.

# Ursa Major

## Ursa Minor



- ✦ Ursa Major
  - Big Dipper
  - Great Bear
- Ursa Minor
  - Little Dipper
  - Little Bear

# Draco

## Cassiopeia



♁ Draco  
– Dragon

♁ Cassiopeia  
– Vain Queen

# Cepheus

# Perseus

☼ Cepheus  
– King

☼ Perseus  
– The hero



# Andromeda

## Ge m i n i



☼ Andromeda  
– The chained  
maiden

☼ Ge m i n i  
– The twins

# Orion

## Canis Major



♆ Orion

– The hunter

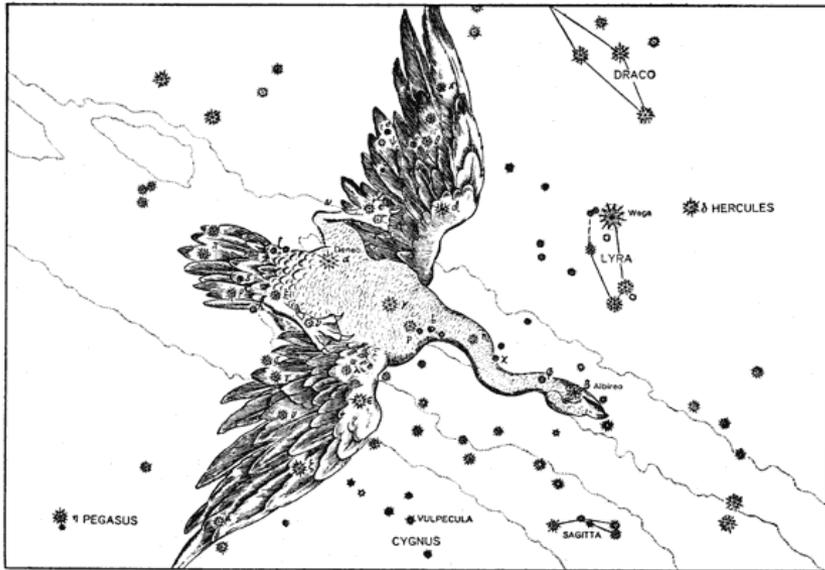
♆ Canis Major

– Orion's Dog

# Cygnus

## Leo

- ☀ Cygnus
  - Northern Cross
  - Swan
- ☀ Leo
  - The lion



# Hercules

# Pegasus

# Scorpius

# Cancer



- ☼ Hercules
  - The strongman
- ☼ Pegasus
  - The winged horse
- ☼ Scorpius
  - The scorpion
- ☼ Cancer
  - The crab