

## Constellations and Mythology

Characters from Greek Mythology have found their way into the sky along with intriguing legends. The whole sky is intertwined with animals, heroes and villains that gives us a romantic flavor of long ago.

Greek mythology is mostly made up of stories about gods and goddesses - but the stories themselves serve many purposes. Some myths are early science - man trying to explain phenomena seen on earth, like storms earthquakes, thunder and lightning. Other myths are almost religious in nature because they stress proper behavior. Some myths deal with illness or death. And still other myths explain nothing at all and are pure entertainment - the kind that might be told around the campfire at night.

In Greek Mythology, there are literally hundreds of stories to be told - stories about how the universe was created and about the origin and history of the twelve Olympians that lived with Zeus on Mount Olympus (like Apollo, Helios, Athena, Hermes, Ares), stories of lesser divinities such as the Nymphs, the Fates and the Muses, or stories about the *demi*-gods such as Hercules and Orpheus.

Three such stories have been chosen to tell because we can find these major Greek Mythology characters in the night sky.

### The Story of Perseus

Perseus was the son of Zeus and Danae. He grew up to be a strong and noble youth. But the evil king, Polydectes, wanted Danae for his own, so he had to trick Perseus away from his mother. He was able to do this by holding a contest in which Perseus would bring him the head of Medusa, the Gorgon. Perseus succeeded because Hermes and Athena came to his aid. With this help and that of the Nymphs, Perseus found out how to do the job. They lent him the winged sandals, a magic case in which to carry the head and the helmet of Hades to make him invisible. Hermes gave him a sword and Athena gave him a shield. Perseus could not look directly at the Medusa or he would turn to stone. He used the shield as a mirror and cut off Medusa's head. He flew towards home on the winged sandals.

On the way home, some of the blood from Medusa's head fell into the sea. Poseidon felt the drops, recognized them as Medusa's and was deeply moved. Poseidon had been in love with Medusa when she was a beautiful maiden, before she was bewitched. Remembering how she once had been, he raised her drops of blood from the sea and mixed them with the white foam

of the waves and the white sands of the beach creating Pegasus, the winged horse.

Perseus, while flying over Ethiopia, noticed a lovely maiden chained to a rock and about to be devoured by a horrible sea serpent named Cetus. After landing on the rock, she told Perseus her name was Andromeda and that her mother, Cassiopeia, had offended the sea nymphs by bragging about her own beauty. The monster, Cetus, was sent by the nymphs to ravage the sea coast. Andromeda's father, Cepheus, had consulted an oracle which said that the destruction would stop if he sacrificed his daughter.

As Perseus listened, he was overwhelmed with Andromeda's beauty. He quickly made a deal with Cepheus: if he killed the monster, Cetus, he could marry Andromeda and have a kingdom of his own.

As the monster came near, Perseus pulled Medusa's head from the case, turning the monster to stone. Before Perseus and Andromeda could be married, he had to return the head to Polydectes. When he arrived, Polydectes would not believe Perseus' story. So, Perseus pulled out Medusa's head and instantly, everyone turned to stone.

Perseus and Andromeda were married and had many children.

## **The Story of Orion**

Orion was a mighty hunter in Greek Mythology. He was the son of the god, Poseidon, who gave him the power to walk through the sea and on its surface. He lived on the island of Crete where he hunted game and led a happy life. One day he met Artemis, Goddess of Wild Animals and of the Moon, She also lived to hunt, and the two of them fell in love and spent many days together hunting. On one of these days, Orion boasted to all, that he could rid the whole earth of wild beasts and monsters.

Each night, Artemis was supposed to drive her silver moon-chariot across the sky. Apollo, Artemis' brother, became angry when he noticed there had been no moon for several nights. He warned his sister that she must not neglect her duties, but her love for Orion was so great that she ignored her brother's words.

This left Apollo no choice. He arranged with Mother Earth to have a monstrous scorpion pursue Orion. Orion attacked the scorpion but discovered that his mortal arrows were no match for the skin of the scorpion. He dived into the sea and swam away.

Apollo, seeing this, caused a bright patch of light around Orion in the water. He then called Artemis and teased her. He said her marksmanship had deteriorated because she'd been spending so much time with her lover. Apollo challenged her to hit the dark spot in the water

that was surrounded by a shimmering patch of light. Artemis was angry with her brother over the teasing and quickly sent an arrow to the dark part in the center of light. Only when Orion's body washed up on shore did Artemis realize she had killed her lover.

## **The Story of Hercules**

Hercules was one of the most famous heroes of Greek legend. He was the strongest man on earth and considered himself on a par with the Gods. His father was Zeus and his mother was the princess Alcmena. Hera, wife of Zeus, was jealous of Alcmena and hated Hercules. When Hercules grew up and married Megara, a Theban princess, Hera made him become insane, burning his house and killing his children. When Hercules recovered his sanity, he sought help from the Oracle at Delphi. The Oracle told him he must serve his cousin, Eurystheus, King of Argos, for twelve years.

Hercules performed twelve great labors for Eurystheus. First, he killed the Nemean Lion by strangling it. With difficulty, he removed the tough skin and wore it as armor. The second labor was to kill the Hydra, a serpent with many venomous heads. Hercules cut off all but one head. The remaining head was immortal, so he buried it under a stone. He dipped his arrows in the Hydra's venom to make them fatally poisonous.

In the third and fourth labors, Hercules captured a wild boar and a stag in the Arcadian Mountains and showed them to Eurystheus. In the fifth labor, Hercules drove away a great flock of destructive birds that lived near Lake Stymphalos. The sixth labor was to clean the stables of King Augeas of Elis in one day. The king owned the largest herd of cattle in Greece and the stables hadn't been cleaned in 30 years. Hercules was able to turn rivers through them and did the job in one day.

For the seventh labor, Hercules caught the savage bull of Minos, King of Crete. The eighth labor was to capture the man-eating mares of King Diomedes of Thrace. Hercules killed Diomedes and fed him to the horses, which then became gentle. The ninth labor was to obtain the girdle of the Amazon Queen, Hippolyta. He had to kill her but escaped with the girdle.

The tenth labor took Hercules far to the west, past the Pillars of Hercules (Straits of Gibraltar) to get the cattle of the monster Geryon. The eleventh labor was to carry the Apples of the Hesperides to Eurystheus. The apples were guarded by the dragon, Landon. Hercules killed the dragon with his poisoned arrows and took the apples back to Eurystheus.

For his twelfth labor, Hercules had to show Cerberus, the watchdog of the underworld to Eurystheus. Hercules wrapped himself with the Nemean Lion's skin and succeeded in his

twelfth task, winning his freedom. The last three labors were to win immortality because Geryon and Cerberus represent Death and the apples were the fruit of the Tree of life.

The preceding stories have been condensed to only include the relevant portions that pertain to learning the constellations. A more detailed version of the mythology of Perseus, Hercules and Orion can be found by clicking on the "Greek Mythology" button. Also included is the creation myth or Theogony. This is an explanation of how everything in the universe came into being plus the origin and history of the gods. It has been included as background for a better understanding of sky lore, its characters and stories. It will also give some insight into the naming of the planets and their satellites.

## **How to Use Mythology to Remember the Constellations**

When we look at all the northern constellations and their Mythology, we become aware that there are three constellations named after major Greek Mythological characters; Perseus, Hercules and Orion. We notice that these constellations are spaced almost equal distance apart in the night sky. And that at least one of these constellations will be visible in the night sky at any time of the night or year. More importantly, the constellations that surround Perseus, Hercules and Orion are either story characters involving one of the three Greek heroes or can be related to them by the type of hero they were in Mythology.

We will now go back to the stories of the three Greek heroes and point out which constellations are related to them through mythology.

### **Perseus**

Almost the entire story of Perseus and Andromeda is captured in the sky as constellations. These include Perseus, Andromeda, King Cepheus, Queen Cassiopeia, Pegasus, the winged horse, and Cetus, the sea monster. In addition because the Perseus story occurs near the sea many other constellations can be added to the story. Pisces, the fishes, can be thought of as swimming in the sea with Cetus. Aquarius, the water carrier, can be thought of collecting water from the sea. And Capricorn, the sea goat, is another animal in the vicinity of Cetus. Of course we should not forget about Delphinus, the Dolphin who can also be added to the story.

Remembering the Perseus story and the other characters which have been added, 10 constellations can be remembered.

## Hercules

The story of Hercules has two characters that are represented by constellations and one other character that is represented by a constellation of a different name. The two characters that are related to the Hercules story are Hercules himself and Hydra, the serpent that Hercules battled and killed in his second labor. The other character is Ladon, the Dragon that Hercules battled in his ninth labor to obtain the three golden apples. Ladon, the Dragon will be recognized as Draco, the dragon.

Other constellations can again be related to the story of Hercules. Cygnus, the swan and Aquila, the Eagle can be represented by the Stymphalian Birds in Hercules fifth labor. The battle that Hercules and Iolaus had with the Hydra, the serpent can be symbolized by Ophiuchus, the serpent holder, and the Serpens Caput and Serpens Cauda. The constellation Lyra, the harp, can be represented by the musical instrument Hercules played to enjoy himself between labors. And the constellation Corona Borealis, the crown, can represent the crown that Hercules would wear after he defeated the Giants as Prometheus had prophesied.

Therefore 10 additional constellations can be learned from the story of Hercules.

## Orion

The story of Orion has only two characters that are represented by constellations - Orion, the hunter and Scorpius, the scorpion. The scorpion is, of course, the monster Mother Earth sent after Orion had boasted that he would rid Earth of all monsters. Although these constellations are related through the story of Orion, the constellations are in fact on opposite sides of the celestial sphere and cannot be seen at the same time. However this is all consistent with the story. After Orion had been killed, Artemis pleaded to Zeus to immortalize Orion in the sky which Zeus did. However, when Mother Earth heard this she was furious. Zeus was then forced to satisfy Mother Earth by placing the scorpion in the sky also, forever chasing Orion through the cosmos.

If we look at Orion's place in the night sky of constellations we see that Orion is almost totally surrounded by animals. This is fitting for Orion was noted as a great hunter. Therefore by using this information we can relate many constellations to Orion by thinking of him on a worldwide hunting expedition.

When Orion is hunting in Africa, on a great safari, he requires porters and carts. Also he may have a herdsman to assist in the hunt by making noise to drive any animals toward the

hunter. The porters are represented by Gemini, the twins. Whereas Auriga, the charioteer, and Taurus, the bull, are the cart driver and animal pulling the cart. The herdsman is Bootes, who by his placement in the sky appears to be herding the bears, Ursa Major and Ursa Minor and Leo, the lion toward Orion. The herdsman may have dogs to help him find and drive the animals toward the hunter. The dogs are represented by Canes Venatici, the hunting dogs. Also, the hunter may be hunting near a river, hoping to find an animal that had stopped for a drink. This can be represented by Eridanus, the river, who is just west of Orion.

When Orion is hunting in the United States he requires hunting dogs, these can be the constellations Canis Major, the larger dog and Canis Minor, the smaller dog. Just West of Canis Major is the constellation Lepus, the hare. Lepus can represent the quarry that Canis Major has scented.

By remembering that Orion is a hunter who is surrounded by animals and personnel who assists him in the hunt, fourteen constellations can be remembered.

Thirty four constellations have now been related to three stories about the three major mythology characters, Perseus, Hercules and Orion. However, there is one constellation that can be related between stories.

Orion and Hercules in their respective stories did not have a companion in the sky, whereas Perseus had Andromeda. Therefore we can always remember that the constellation Virgo, the virgin or maiden is located between the constellation bachelors, Orion and Hercules.

## **How to Find the Constellations**

We learned about Greek Mythology and how to use mythology as a method of remembering the constellations. Now we will learn how to find these constellations in the night sky for any observers in the Northern hemisphere.

The easiest way to find the constellations is to have some sign posts in the sky that are bright, easily recognizable and can be seen on almost any night throughout the year. We have two such sign posts, the Big Dipper and the "W".

The Big Dipper is probably the most recognized grouping of stars in the sky. Almost everyone will say that the Big Dipper is a constellation, however this is not true. The Big Dipper

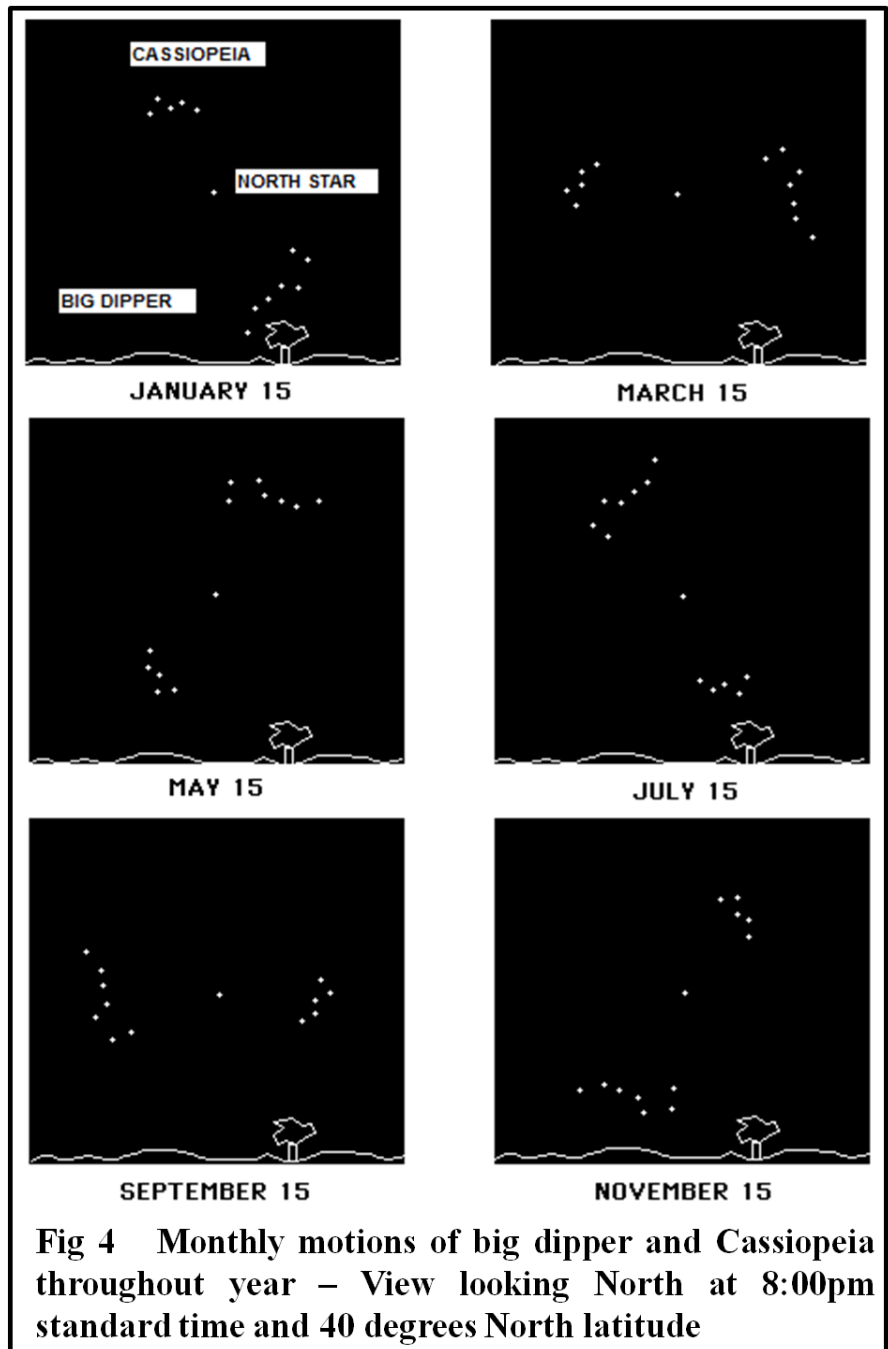
is only an asterism, which means marking with stars. The Big Dipper actually makes up a portion of the constellation, Ursa Major, the Larger Bear.

Although the "W" is less known to the general public, it is a bright constellation and can easily be found. The official name of the constellation "W" is Cassiopeia, the Queen.

With the selection of the Big Dipper and Cassiopeia as our sign posts, we now begin the next step of locating these two sign posts in the night sky. If you go out at night and watch the stars for several hours you will notice that the stars move in circular paths through the night sky. This is because the earth rotates on its axis every 24 hours. As a result, the Big Dipper and Cassiopeia will look different depending on what time of the night you are looking. However, we have one other effect that makes the Big Dipper and Cassiopeia move depending on what time of year it is. This is because the Earth is moving around the sun once every year. This means that if you stood out in the night sky facing South at 8:00pm and picked a star and returned the next night at exactly 8:00pm you would find that the star has moved West from where you had observed it the previous night. This is because stars rotate around the earth in 23 hours 56 minutes, not in 24 hours.

Because the stars appear to rotate around the earth, it is a little difficult to know where to look in the night sky to find our sign posts and also how the sign post may appear. Reproductions of what the Big Dipper and Cassiopeia will look like throughout the year if you were outside looking North at 8:00pm can be seen in figure 4. Remember that if you look at some other time the sign posts will have change their positions. But if it is only an hour early or later than 8:00 the position of the Big Dipper or Cassiopeia will not have changed very much. Using figure 4 as a guide, find the picture that is closest to the current date. Then go outside and look north. If the Big Dipper is visible you should not have any trouble finding it. Once you have found the Big Dipper, you should try to find the North Star (Polaris). Using figure 5 and 6 and the fact that the two end stars, that make up the bucket of the Big Dipper, point directly at Polaris, you should be able to locate the North star.

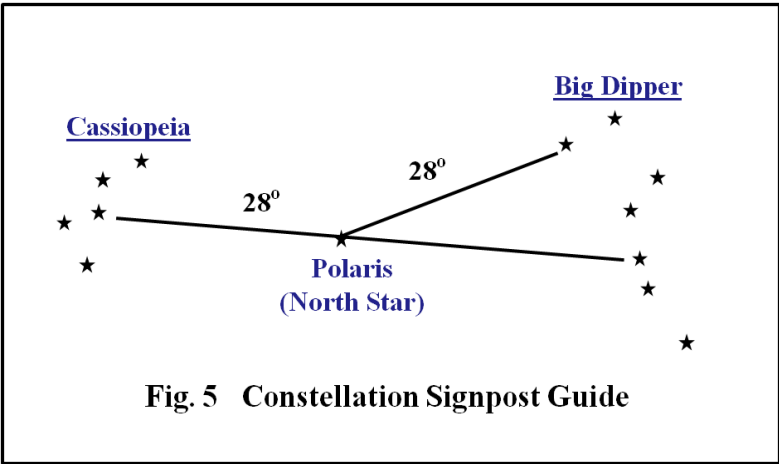
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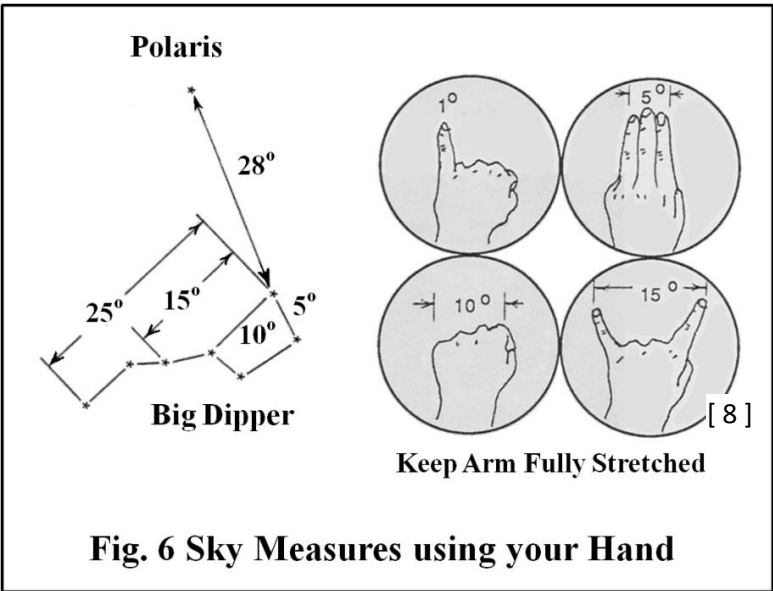


Polaris has a unique place in the sky. If you watch the stars rotate around the earth, you notice that Polaris appears to stay in the same place. This is because Polaris is currently almost directly above the earth's rotation axis. Therefore, as the earth rotates, Polaris will appear to be stationary in the sky. This also means that Polaris will always be in the direction of North and therefore, that is why it is known as the North Star. If you are having trouble finding Cassiopeia, but you can see the Big Dipper and the North Star, use figure 5 as a guide.



If the Big Dipper is not visible, use figure 5 and 6 to help in locating Cassiopeia. Another hint in finding these sign posts, as well the other constellations, is do not learn in the dark skies far away from the lights of the cities, because there are so many stars visible that it is sometimes hard to make out the shape of a constellation. Almost all of the constellations that we will be talking about are bright enough to be seen even from the middle of a large city, but of course only on clear nights. After you are able to find your way around the night skies, then go out into the dark skies to begin taking in the whole beauty of the night skies.

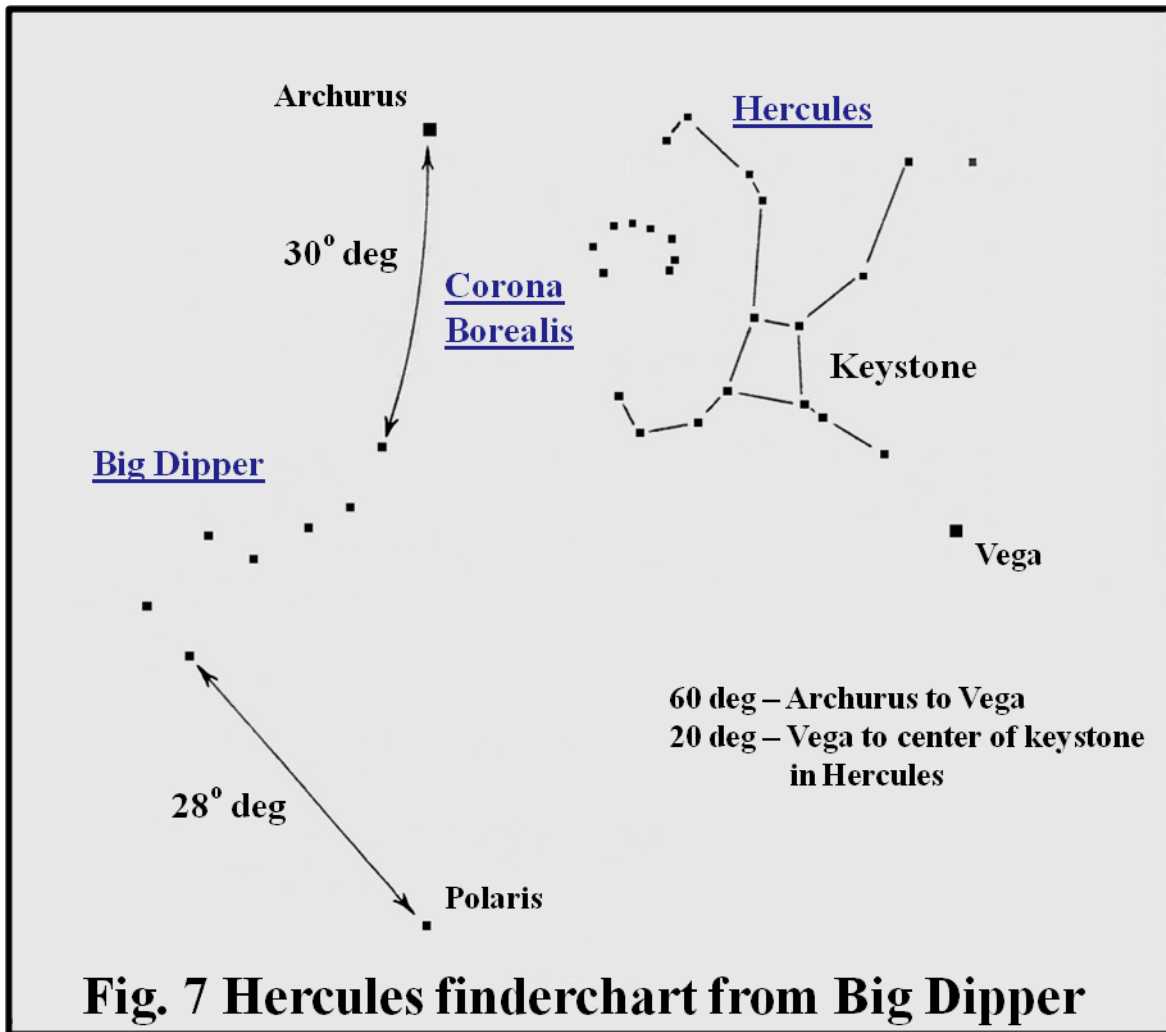
After you have found and are familiar with either the Big Dipper or Cassiopeia, then we are ready to find our Major Sky characters. Note that which character is visible, depends on the time of year and time of the night.



Orion will be visible at 9:00pm from approximately November 15 through April 15. Hercules will be visible at 9:00pm from April 15 through October 15. And Perseus will be visible from September 15 through April 15. Of course, these dates will depend upon your location and visibility. If you live in a large city or have poor horizon visibility, you may have to wait an additional month to see the constellation at 9:00pm or have the constellation fade away a month earlier. If this is the case, you can just wait an additional 2 hours in the night to see a constellation rise or 2 hours earlier to catch it before it

sets. However, if you are in dark skies these dates should be a fairly good rule of thumb.

Before we continue, it is advisable that you become familiar with figure 6, if you have not already done so. In the discussions of how to find the constellations, we will be using an



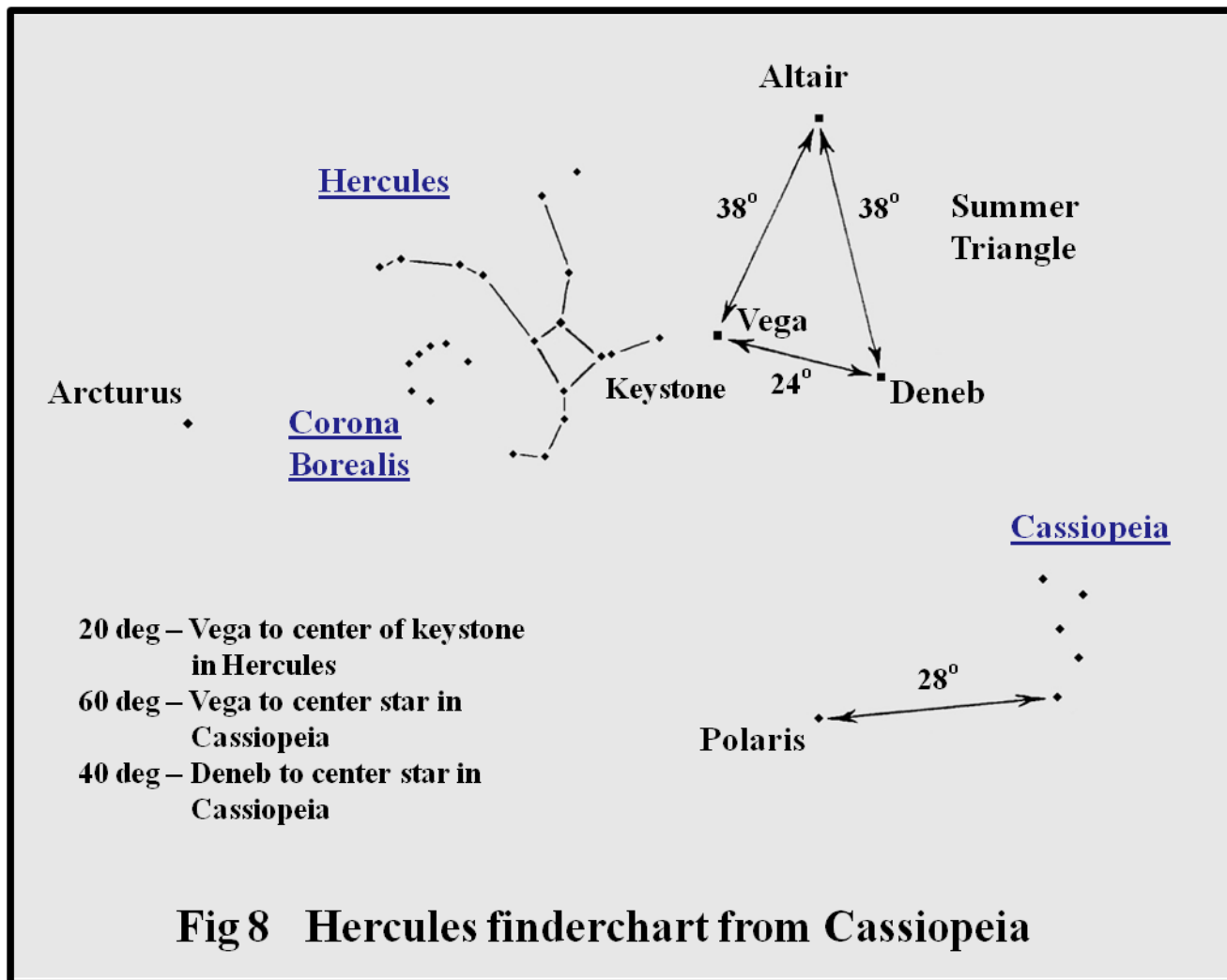
angular measurement called degrees. Being familiar with how to measure angular distances with your hand will help you in finding the constellations.

Let's assume that the Big Dipper is visible. We can find the Constellation Hercules by the following procedure (refer to figure 7 for assistance). Follow the handle of the Big Dipper in an arc (about 30 degrees) until you come to the brightest star in this area. This is the star, Arcturus, in the constellation Bootes, the Herdsman. Now go from Arcturus in the same

direction as you would go from the Big Dipper to Polaris (about 60 degrees) until you come to a star as bright as Arcturus. This is Vega in the constellation Lyra, the harp. Between these two stars Arcturus and Vega lay two constellations. From the star, Arcturus we find Corona Borealis, the crown and our target major sky character, Hercules. Use Corona Borealis to verify that you have found Hercules, as well as the four stars that make up the Keystone in Hercules.

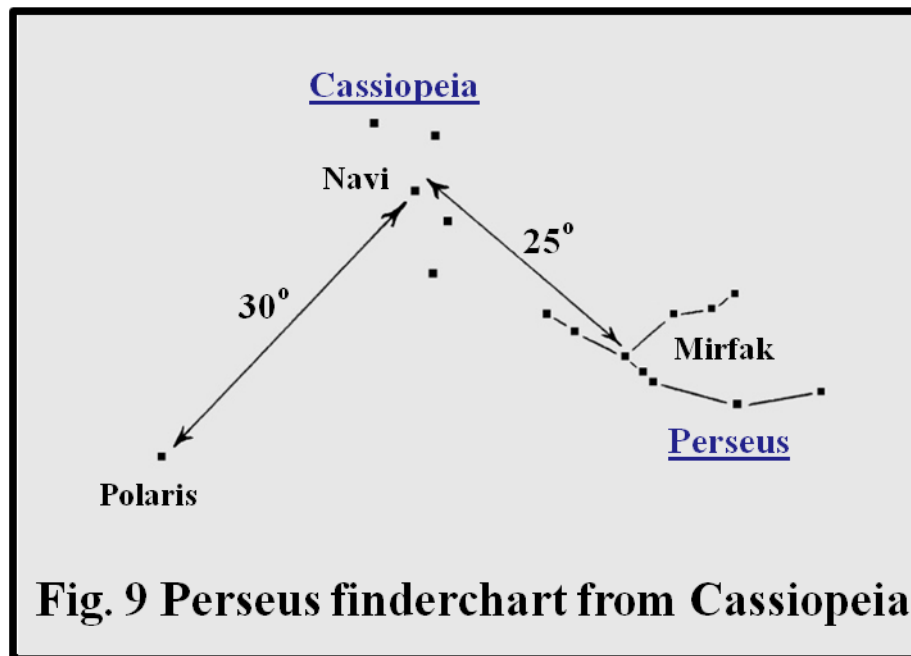
Hercules can also be found if Cassiopeia is visible (figure 8). Start at Polaris and form a

straight to the center star of the "W". Now found the center of Cassiopeia ("W") turn left and go about 60 degrees. Here is the brightest star in this area of the sky, Vega, in the Constellation Lyra, the harp.



The constellation Hercules is always ahead of the star, Vega. So just hang a left at Vega, and go 20 degrees until you find Hercules. Hercules is made up of some fainter stars, so you may have to look a little hard to find him. Look for the four stars that make up the keystone.

If we now assume that Cassiopeia is visible, we can use it as a sign post to find Perseus (see figure 9). Start at Polaris and go to the center star (Navi) in Cassiopeia (the "W"), hang a right turn going through the next star in Cassiopeia (the "W"). Continuing in this direction, about 20 degrees, we find the brightest star in Perseus, Mirfak. Look for the characteristic shape of Perseus, a "Y", with Mirfak being the center of the "Y". Because of the location of Perseus to the Big Dipper we will not be able to use the Big Dipper as a sign post to find Perseus.



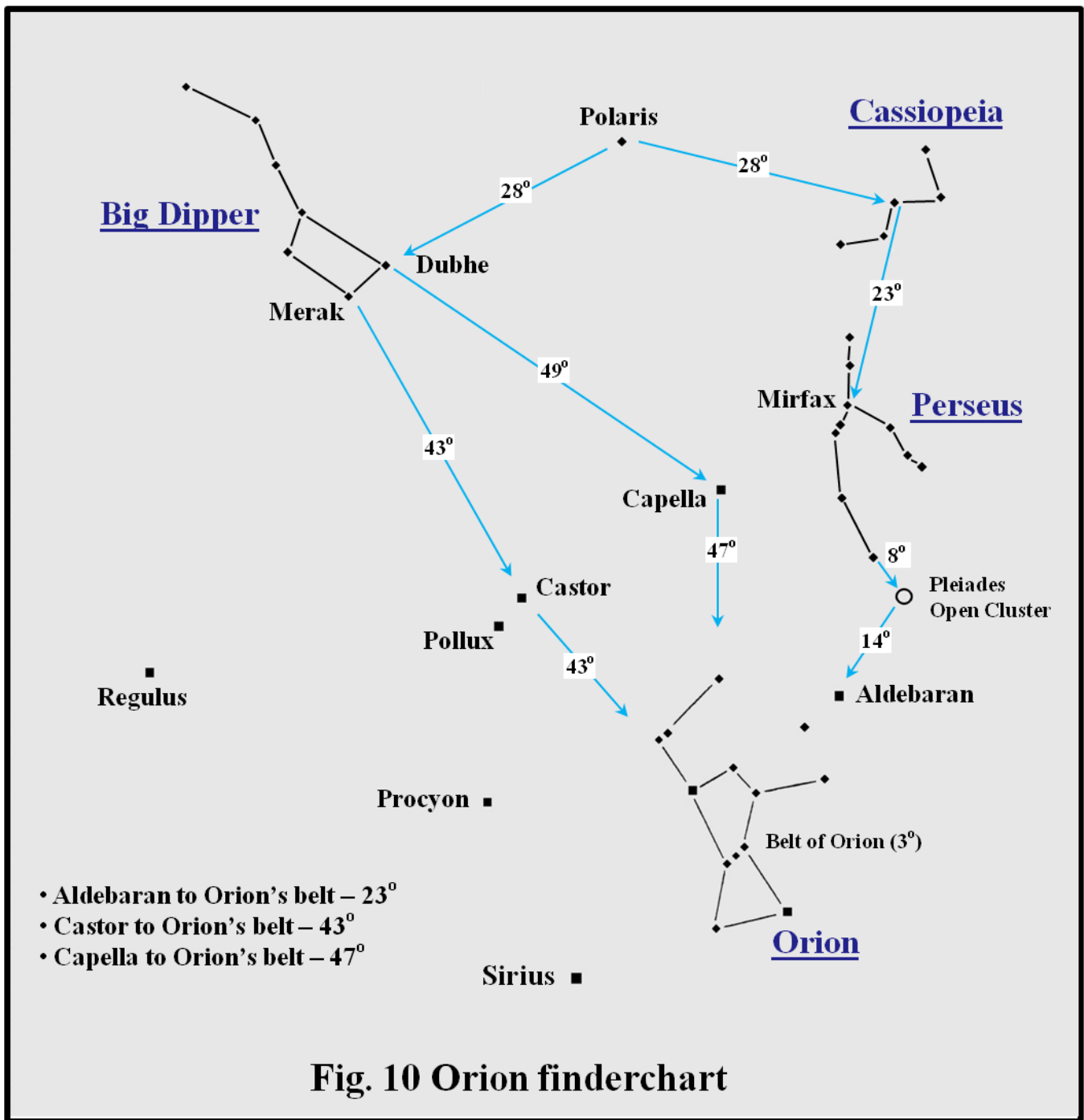
**Fig. 9 Perseus finderchart from Cassiopeia**

Orion can be found by using either Cassiopeia or the Big Dipper (refer to figure 10). If Cassiopeia is visible, find Perseus using the procedure mentioned earlier. If we continue moving through Perseus, going along the long handle of the the "Y", and another 10 degrees, we find a grouping of stars called the Pleiades or the Seven sisters. Now go eastward about 20 degrees until you come to a fairly bright star called Aldebaran. Forming a straight line from the Pleiades through Aldebaran we will find Orion about 30 degrees beyond Aldebaran. Orion can be verified by finding the characteristic belt of Orion, three stars in a straight line within 3 degrees. Also as shown in figure 8, the belt of Orion points at the brightest star in the sky, Sirius.

Another way to remember how to find Orion once you have found the Pleiades is to remember that Orion was the most handsome mortal on the face of the earth and he liked to chase women. Therefore, the constellation Orion will always be following or chasing the Seven Sisters through the sky.

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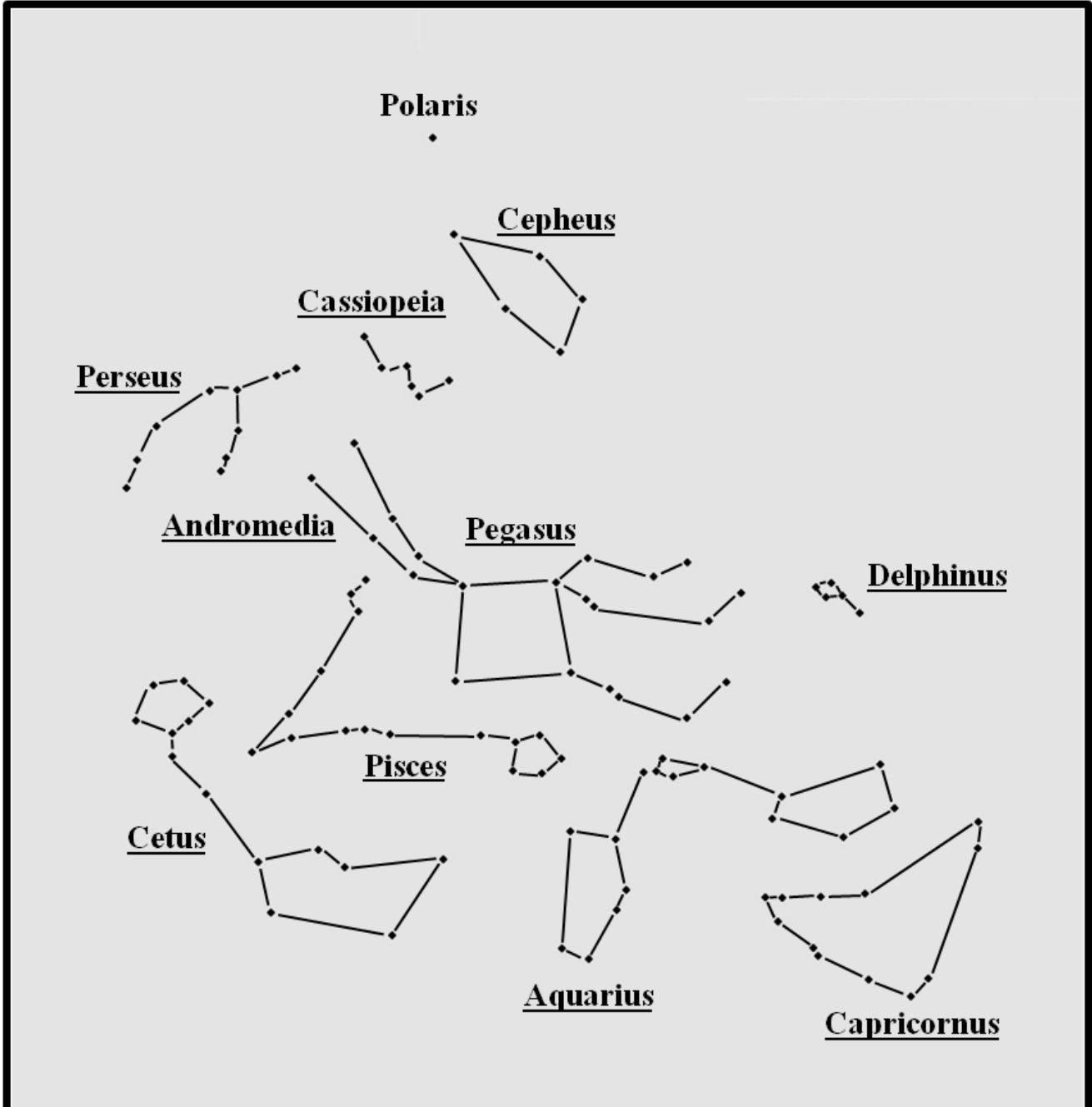
To find Orion using the Big Dipper (see figure 9), we form a straight line from the top two stars in the bucket of the Big Dipper. Now, extending 50



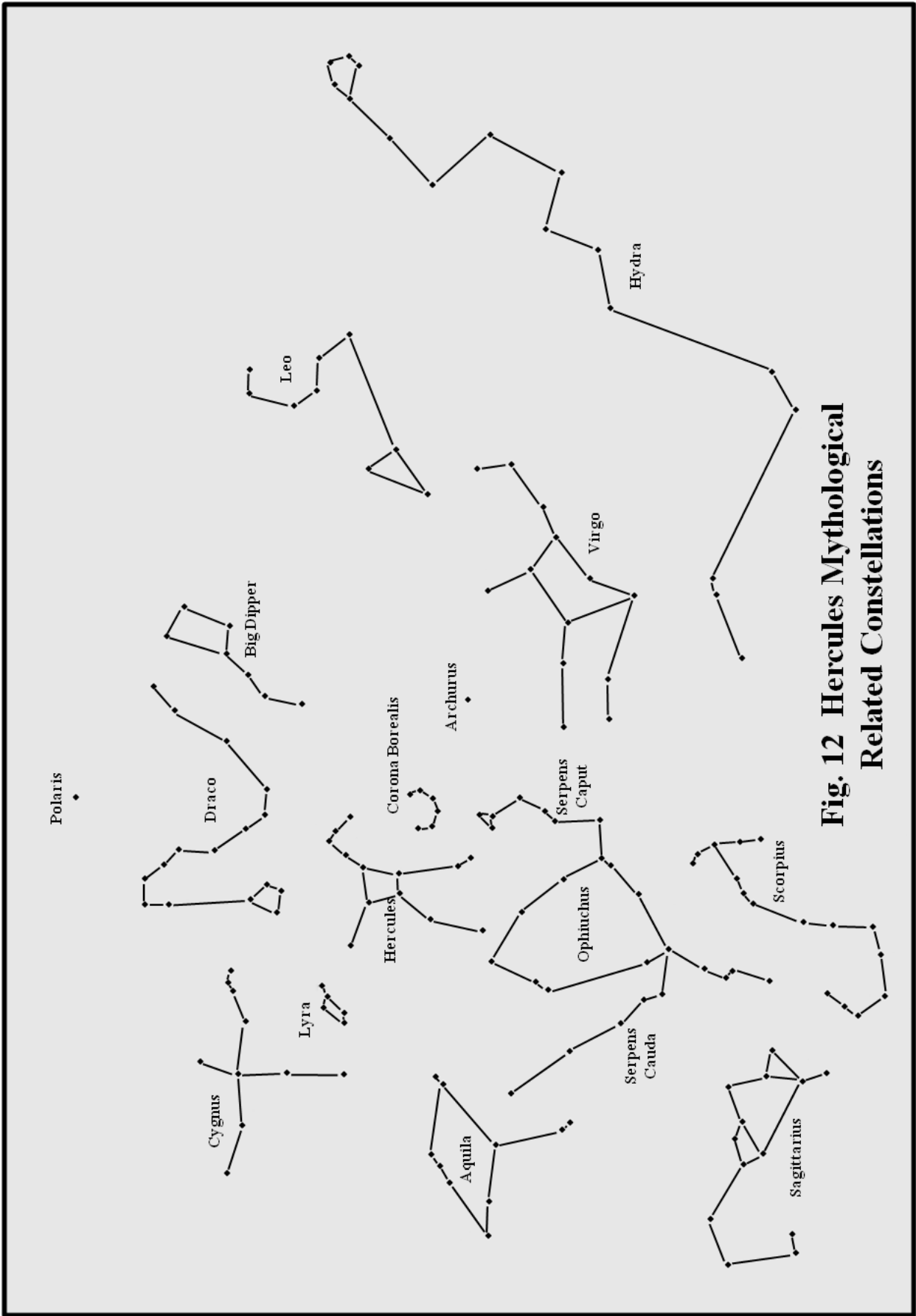
**Fig. 10 Orion finderchart**

degrees along this line we find a very bright star, Capella. By turning right and proceeding about 45 degrees, we find Orion.

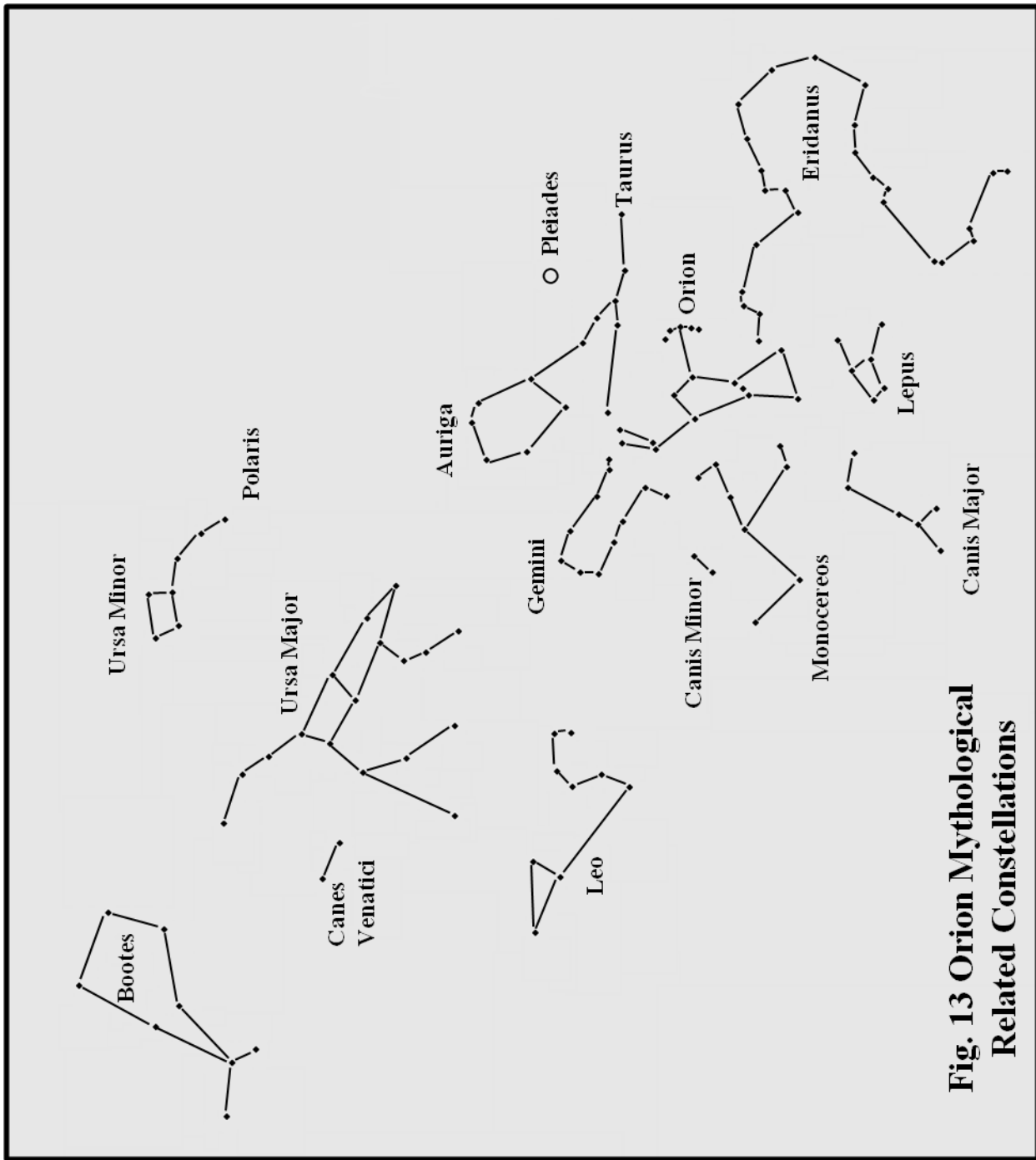
We now know how to find our three major sky characters, Orion, Perseus and Hercules. Now all we have to do is know in what general direction the characters or constellations are that pertain to each of the three major characters. Refer to figures 10, 11 and 12 to determine the location of the constellations surrounding Perseus, Hercules and Orion. This will probably be the most difficult because of the number of constellations involved with each major character. Note that learning the major stars in each constellation will help in this process. However, with a little patience and a lot of practice you will be able to steer yourself around the sky.



**Fig. 11 Perseus Mythological Related Constellations**



**Fig. 12 Hercules Mythological Related Constellations**



**Fig. 13 Orion Mythological Related Constellations**

For reference the Star and Constellation Pronunciations is provided below

**Star and Constellation Pronunciations [8]**

Constellation	Designation	Major Star(s)
Andromeda (an-DROM-eh-dah)	The Princess	



Constellation	Designation	Major Star(s)
Aquarius (ack-QUAIR-ee-us)	The Water Bearer	
Aquila (ACK-will-uh)	The Eagle	• Altair (al-Tair)
Aries (A-rih-eez)	The Ram	
Auriga (or-EYE-gah)	The Charioteer	• Capella (kah-PELL-ah)
Bootes (bow-OH-teez)	The Herdsman	• Arctarius
Canis Major (KAY-niss MAY-ger)	The Greater Dog	• Sirius (SEER-ee-us)
Canis Minor (KAY-niss My-ner)	The Lessor Dog	• Procyon (PRO-see-on)
Carinae		• Canopus (can-OH-puss)
Cassiopeia (kass-see-oh-PEE-ah)	The Queen	
Cepheus (SEE-fee-us)	The King	
Cetus (SEE-tus)	The Whale	• Mira (MY-rah)
Corona Borealis (kor-OH-nah bo-ree-ALICE)	The Crown	• Gemma
Corvus (CORE-vus)	The Crow	
Cygnus (SIG-nus)	The Swan	• Albireo (al-Burr-ee-oh) • Deneb (DEN-ebb)
Delphinus (dell-FINE-us)	The Dolphin	
Draco (DRAY-ko)	The Dragon	
Eridanus (eh-RID-uh-nuss)	The River	
Piscis Austrini	The Southern Fish	• Fomalhaut (FOAM-al-ought)
Gemini (GEM-in-eye)	The Twins	• Castor (KASS-ter) • Pollux (PAW-lux)
Libra (LYE-bra)	The Scales	
Leo	The Lion	• Denebola (den-NEB-oh-lah) • Regulus
Lupus (LEW-puss)	The Hare	
Lyra (LYE-rah)	The Harp	• Vega (VEE-gah)
Monoceros (mon-OSS-err-us)	The Unicorn	
Ophiuchus (off-ih-YOU-kuss)	The Serpent Bearer	
Orion (oh-RYE-un)	The Hunter	• Rigel (RYE-jell) • Betelgeuse (BET-el-jews)
Pegasus (PEG-uh-suss)	The Flying Horse	
Perseus (PURR-see-us)	The Hero	• Algol

Constellation	Designation	Major Star(s)
Pisces (PIE-sees)	The Fishes	
Sagittarius (saj-ih-TAIR-ee-us)	The Archer	
Scorpius (SKOR-pih-us)	The Scorpion	• Antares (an-TAIR-eez)
Taurus (TOR-russ)	The Bull	• Aldebaran (al-DEBB-uh-ran)
Ursa Major	The Great Bear	• Mizar (My-zar)
Ursa Minor	The Little Bear	• Polaris (pole-AIR-iss)
Virgo (VURR-go)	The Virgin	• Spica (SPY-ka)
Vulpecula (vul-PECK-you-lah)	The Little Fox	

## References

[8] Brown, Sam and Dickenson, Terence, The Edmund Sky Guide, Edmund Scientific Co., Barrington, New Jersey, 1977.

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