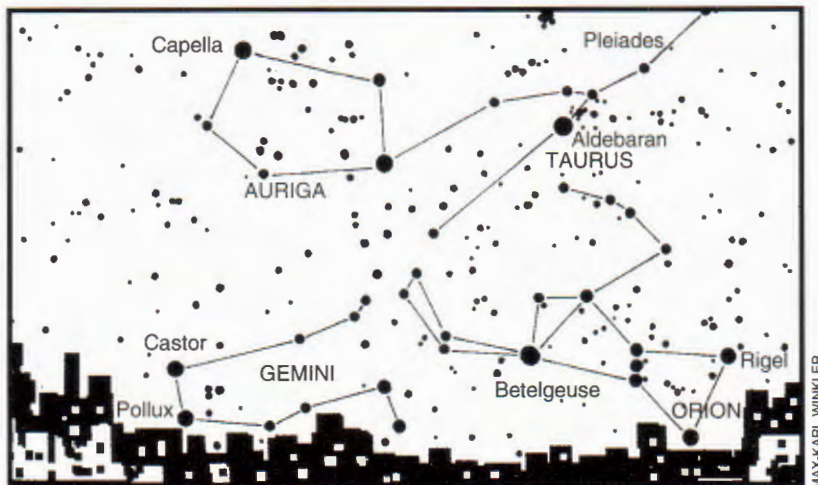


## The winter wanderers



LOOKING EAST-NORTHEAST AT 7 P.M. ON DECEMBER 30, 1995.

As winter approaches in the northern hemisphere, the bright stars and constellations associated with this season are becoming visible as they appear over the eastern horizon. One of the more striking areas of the winter sky is the cluster of stars known as the Pleiades, situated at the shoulder of Taurus the Bull. To the unaided eye, this star cluster resembles a miniature dipper-shaped group of six stars. However, the Pleiades is actually an open star cluster (a group of gravitationally linked stars) with about 400 stars, most of which are visible through binoculars. Coincidentally, another easily seen open star cluster, the Hyades, marks the V-shaped face of Taurus, and represents the Pleiades' half sisters.

Often described in mythology as the daughters of Atlas and Pleione, the stars of the Pleiades are one of the older and more familiar star patterns of the night sky. Curiously, while commonly known as the Seven Sisters, only six stars are easily seen with the unaided eye. While there are no scientific explanations or historical accounts of the star fading, the missing sister, thought of as ei-

ther Electra or Merope, has been the subject of many myths and legends. Many of these stories involve the group of young women wandering across the sky. In some stories, the sisters were lost, and the seventh sister (the youngest) is obscured because she is crying and her tears dim the light from her eyes. In another story, the missing youngest sister is shedding tears because all of the sisters, except for herself, have married gods.

How the Pleiades got into the sky is also a subject of many stories. In a recurring theme, the sisters are escaping the amorous advances of a suitor, usually represented by Orion, who was known as a hunter of both game and women. As a result, Taurus was placed between Orion and the Seven Sisters by the sisters' father, Atlas, to shield them from the great hunter's amorous advances.

### Medicine boys

To some Native Americans, the seven stars are described as a group of boys who danced into the sky against the wishes of their elders. The boys would congregate and play in an area

away from the village. One time the boys decided that they should start their own medicine society similar to the men's. The boys gathered wood for a fire, and one boy found and repaired a broken drum for their dancing ceremonies.

For many nights, the boys met away from the village to dance and sing medicine songs around the fire. One night, in the midst of song and dance, the boys were visited by an old man who warned them of dangers if they did not stop their dancing and singing of the medicine songs. And so for a time, because they were frightened, the boys did not meet to sing medicine songs or to dance.

One day, however, the boys decided to meet again to hold another ceremony. Each boy was to ask his parents for food to bring to that night's ceremony. However, when asked, the parents said that the boys did not need food as there was plenty to eat at home, and besides, boys should not hold ceremonies that were meant for adults.

Their parents' responses angered the boys enough that they decided to get together and dance anyway. The drummer started drumming and dancing around the fire and the other boys followed him. As they danced, their singing began to grow louder and was heard at the village, quickly attracting the attention of the parents. Running to the source of the sound, the parents arrived in time to see their sons dancing up into the sky.

"Come back!" one mother called out to her son.

"Do not look back," shouted the drummer. "If you do, you will fall to Earth."

The youngest boy, not heeding the warning from the drummer, looked back at his mother. In that instant, he turned into a falling star and fell back to Earth. The other boys continued their dancing and singing

MAX-KARL WINKLER

until they reached the sky, where they became stars.

During cold, clear winter nights, go outside and look for the Pleiades. As the stars twinkle and flicker, it is easy to imagine them as the boys dancing to the drum beat. To the Onondaga (a Native American people), these are Oot-Kwah-Tah, the Seven Star Dancers.

### Leap second alert

You might not be aware of it, but the month of December will last a little longer thanks to the addition of a leap second. An extra second, or leap second, is occasionally added to civil time, or International Atomic Time (TAI), to keep it in synch with the Sun-based time system known as Coordinated Universal Time (UTC). UTC is based on an the mean solar day (approximately 24 hours), which varies due to the Earth's inconsistent orbital speed. Atomic time is based on a constant, the vibrational frequency of a Cesium atom. Every 500 days or so, when the difference between these two systems accrues to more than 0.9 seconds, the U.S. Naval Observatory adds a second to atomic time.

Historically, leap seconds have been added at the end of December and June. The corrections occur at midnight when it is easier to recognize the completion of an orbit in relation to the background stars. The next scheduled correction will occur on December 31, 1995. The sequence of UTC markers will be as follows:

1995 December 31	23h	59m	59s
1995 December 31	23h	59m	60s
1996 January 01	0h	0m	0s
(the leap second)			
1996 January 01	0h	0m	1s

So, before you pop the cork on New Year's Eve, make sure you wait one extra leap second!

### Evening planets

**Venus:** Visible low over southwestern horizon, sets one hour after sunset.

**Saturn:** Over southwestern horizon, sets three hours after sunset.

### Moon phases

January

Full Moon - January 5

Third Quarter - January 13

New Moon - January 20

First Quarter - January 27



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