

ALPHA CHI OMEGA'S SURPRISING CONNECTIONS TO THE

A long exposure picture shows the Milky Way extending horizontally through the Summer Triangle (see photo on page 38) as seen from the North Crater Trail at Craters of the Moon National Monument in Idaho. The bright star Vega (a.k.a. Alpha Chi Omega's star) lies at the top center above the Milky Way. (Photo credit: Wally Pacholka, AstroPics.com)

Night Sky

By **Don McCarthy**, Faculty Fellow and Professor of Astronomy, University of Arizona
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***Don:** One evening last fall, I was showing Beta Lambda members some prominent objects in Tucson's skies (satellites, Moon, Venus, Mars) and pointed out one of the most famous stars: Vega. Imagine my surprise when no one in the group knew it was "Alpha Chi Omega's star"! As a professor of astronomy, I had assumed all Alpha Chi Omegas knew that their badge and magazine correspond to a famous constellation.*

***Katharine:** As a freshman and newly initiated member of the fall 2016 new member class, I am continuously learning about Alpha Chi Omega's Ritual and traditions. When Don taught us about the constellation and the star, I learned yet another interesting bit about Alpha Chi Omega! In addition to the star's being in the Lyre constellation, it is inspiring that our motto, "Together let us seek the heights," can also help connect sisters across the country when they look up to the sky.*

The Grecian lyre is a famous constellation (Lyra) visible in the early evening sky in summer and fall. According to legend, this harp was played by the Greek musician Orpheus, whose music was so appealing that no god or person could resist. Other cultural stories from China and Japan concern Lyra's bright star Vega, which symbolizes a goddess in love with a mortal, represented by the bright star Altair. Unfortunately, Vega's father disapproved and separated them in the sky on opposite sides of the Celestial River (a.k.a. the Milky Way). Every year, the lovers reunite via a bridge of magpies forming across the river.

A constellation is simply an imagined shape of naked-eye stars in the sky. In reality, its stars are at different distances from us, and there are many other objects even farther away in the same direction but too faint for the eye to see. Like the exterior facade of the Beta Lambda chapter's house, a constellation alone doesn't tell the whole story of what's inside.

Inside Lyra

When looking inside Lyra, one first notices six colorful stars outlining the harp, as shown in our electronic-textile shirt on the opposite page. Stars are analogous to people: They are born and die; have different sizes and personalities; may have partners and kids (i.e., planets); and reside in groups both large and small. For example, the blue star Vega is a single star, more massive than our Sun and in the prime of its life, shining with 50 times the energy of our Sun. Vega is relatively close to us at 25 light-years, so its light arrives here 25 years later. The next brightest star in Lyra consists of two stars so close together they share material back and forth. Other stars in the harp include a dying "giant" and the



The Summer Triangle asterism is outlined by three very bright stars belonging to different constellations: Vega in Lyra the harp, Deneb in Cygnus the swan and Altair in Aquila the eagle. (Photo credit: Bob King, astrobob.areavoices.com)

renowned "double-double."

With telescopes to look farther inside Lyra, astronomers see an even wider diversity of objects. About 1,200 light-years away, a rocky planet larger than Earth (Kepler 62-e) orbits a small orange star and is considered the most likely habitable planet orbiting another star. The famous Ring Nebula, 2,300 light-years away, displays a colorful oval of glowing gas ejected from a dying star. Lyra also includes star clusters and entire galaxies of stars ranging out to billions of light-years distance, giving astronomers a type of time capsule to understand the history of our universe starting from when it was much younger.

An especially influential object in the history of astronomy is the variable star, RR Lyr. The pioneering women astronomers Williamina Fleming and

Henrietta Leavitt used it to prove that our Sun is not in the center of the universe, but instead orbits within our Milky Way galaxy. They were real, strong women who succeeded in a field then-dominated by men.

Lyra even hosts its own prominent meteor shower every April 22, when Earth encounters small particles shed from the comet Thatcher, which orbits the Sun every 415 years. On that night, you can expect to see 10-20 meteors per hour from a dark site.

Our Star (Vega) is Irresistible

Vega is the second brightest star visible from the northern hemisphere and is easily seen, high in the sky, even from light-polluted regions. Vega is of fundamental importance to astronomers because it serves as

the standard by which the brightness of all other objects in the universe is measured. Alpha Chi Omega's star literally has far-reaching significance!

Vega is part of a famous "asterism" known as the Summer Triangle, which combines three exceptionally bright stars (Vega, Altair, Deneb) from the constellations Lyra, Aquila (an eagle) and Cygnus (a swan), with the Milky Way running down the middle. You should be able to see all three stars nearly overhead throughout the fall season; they form a large right triangle spanning nearly 40 degrees across the sky.

It may be arrogant to joke, but our view of the universe seems to revolve around Alpha Chi Omega's star! Because Earth's spin axis slowly shifts its orientation in space, Vega will become Earth's new North Star about 12,000 years from now. Then, like

today's North Star (Polaris), Vega will remain in the same position all night long as all other objects revolve around it. Also, the Earth and entire solar system are moving toward Vega right now and will pass by in about a quarter million years.

Finally, Vega is an object of "firsts" to be proud of: It was the first star to be photographed and have its spectrum recorded, and the first star discovered with orbiting material that might form planets. In the science fiction movie *Contact*, Ellie Arroway, played by actress Jodie Foster, travels there via a wormhole shortcut in space-time to visit aliens.

Legacy and Suggestions

We hope this brief perspective of the Grecian lyre adds new meaning and

pride to being a member of Alpha Chi Omega, and inspires everyone to look upward to literally seek the heights and reconnect with nature. Here are some suggestions for utilizing our newfound connections to the sky:

- Consider hosting "star parties" with local astronomers and amateur astronomy clubs.
- Build hands-on projects such as our glowing electronic-textile shirt (shown below), which combines traditions of Alpha Chi Omega and the Lyra constellation's stars with fun technology and engineering.
- Plan a reunion activity and take a look back. For example, at a 25th reunion, light that was emitted from Vega at graduation will just now be reaching us 25 years later.

