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Berthoud's Little Thompson Observatory

(This story originally appeared in the September/October 2013 issue of Colorado Life Magazine)

ON BRIGHT FALL mornings the sun beats down on the small town of Berthoud. The blue sky is cloudless and it's almost too bright to even look up. Inside the Little Thompson Observatory, Meinte Veldhuis hits a switch, and a section of the observatory's dome top slides open. The long, 18-inch diameter Tinsley Classical Cassegrain telescope is aimed at a seemingly featureless sky. He consults a program called simply "The Sky" on his computer, makes a few minor adjustments and in a reverential tone says, "Here! Look!"

A quarter face of the planet Venus fills the viewfinder despite the fact that this is broad daylight. Veldhuis then points a small solar telescope directly at the sun. The telescope's hydrogen-alpha filter makes it safe for us to stare at the nuclear fusion reaction 93 million miles away. He points out several sunspot fields three times the diameter of Earth flaming out from the edge of the sun.

A giant telescope, infinite space and an unfathomable big flaming ball really puts things into new perspective. This is only one of the many beautiful realities of astronomy. The Little Thompson Observatory has been expanding minds through space since its doors first opened.

The project started simply enough: Someone heard a telescope was available at Mount Wilson Observatory in Los Angeles through the Telescopes in Education program. As in many can-do communities, three individuals started the movement to bring the telescope to Berthoud. Chet Rideout, Tom Melsheimer and Tom Patterson formed the Little Thompson Science Foundation to bring math and science down to Earth.

They wanted to put the telescope at the high school to promote math, science and physics, using astronomy as the teaching tool. "And that is why they put it at the high school rather than on a mountain top where the air is more clear," Veldhuis said.

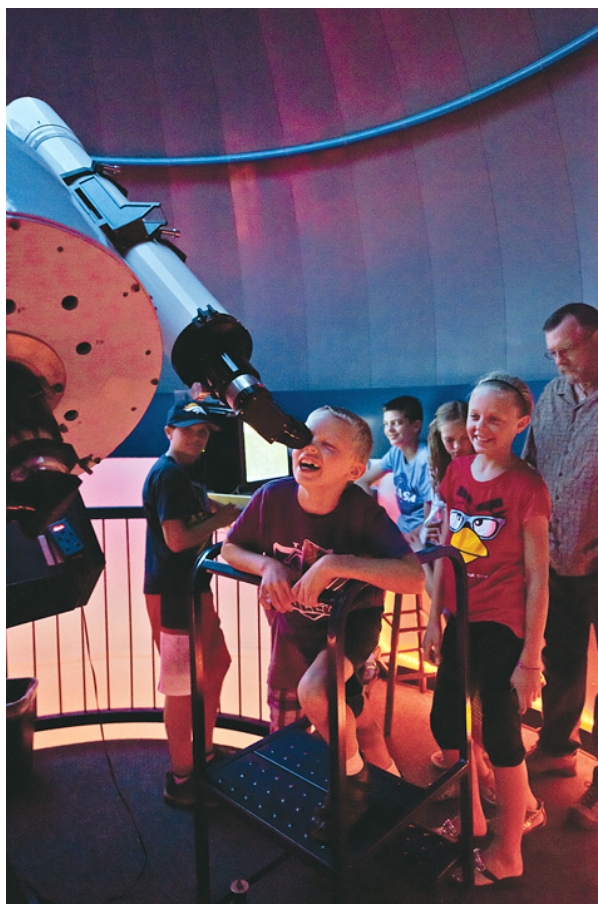
The idea took off, and they didn't work alone for long. More than 150 volunteers helped Berthoud High School teacher and contractor Tom Patterson build an observatory right next to the football field. Local businesses donated materials and equipment to make the observatory a reality. They opened the doors to the public in June 1999. More than 50,000 people have visited space through the observatory's telescopes since then.

Almost every junior high and high school from Fort Collins to Denver, from Sterling to the foothills, has visited the observatory. Sixty-eight percent of all visitors are school groups, and the other one-third is the general public who attend 15 to 20 programs a month, an amazing schedule considering the observatory is staffed entirely by volunteers. All of the programs are free, as the observatory is funded entirely by donations. "A lot of our visitors have never looked through a telescope before, so they are really wowed," Veldhuis said.

BEYOND MATH and physics, the Little Thompson Observatory also is expanding the understanding of native culture on this continent.

Every culture has its own set of constellations with accompanying beliefs and mythologies. We are typically taught Greek and Roman constellations, but the volunteers at the observatory wanted to also teach the constellations and mythologies of Colorado's American Indians.

They soon discovered the native Coloradan constellations have been passed down solely by oral means. Each tribe has different stories.





In their research they learned that the Lakota, a nation from the upper Great Plains, wrote down their constellations, which are commonly accepted among many American Indian cultures.

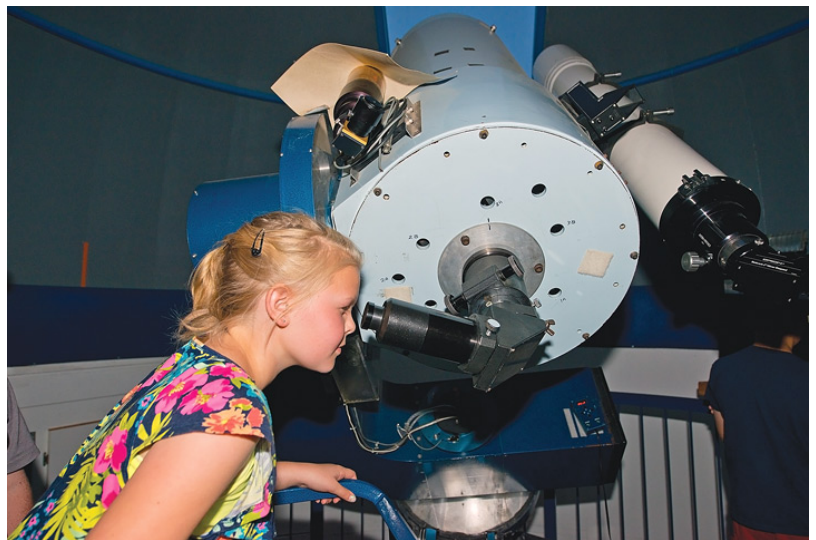
The observatory volunteers decided to decorate one wall with the Lakota constellations. They invited Lakota medicine man Sam Moves Camp to Berthoud. Moves Camp's grandfather fought alongside the great warrior Crazy Horse.

He arrived in Berthoud accompanied by Lakota singers and drummers and dedicated the wall during one of the public star nights. Painted above the constellation wall is one of the Lakota traditional sayings, "What is on the Earth is on the stars and what is on the stars is on the Earth." It emphasizes the connected nature of not only the people on this planet, but our planet's connection to the infinite space beyond.

The fortuitous acquisition of another large telescope will soon allow the observatory to connect immediately with astronomers and classrooms all across this planet. In 1963, the California Institute of Technology built a 24-inch telescope for NASA to determine whether the surface of the moon was solid enough to support a spacecraft, or if it was just deep dust. They needed to know whether the astronauts would be safe or would sink out of sight upon touchdown.

They used the telescope to identify several potential landing spots. As history has proved, the scientists peering through this telescope got it right. NASA returned the telescope to Caltech where it was used for many years for research, including a project that may have identified the first black hole in space.

By 2004, the telescope was too small for modern research. It became available through the Telescopes in Education program. A flurry of letters erupted from Berthoud. After several years of lobbying and organizing, Berthoud was awarded the historic telescope. Volunteers drove to California with a truck and trailer, loaded up the telescope and drove it back to Berthoud, storing it in a nearby barn until volunteers can finish building another observation dome to house it.



The observatory is working with Software Bisque, a Colorado company, to get the telescope online so classrooms around the world can log in, focus the telescope on what they want to see and study astronomy in real time over the web. It's a fitting purpose for such a historic telescope.

Until then, everyone is welcome to view the heavens for free at one of the observatory's public star nights. Some of the recent highlights include a full lunar eclipse in 2011, the Mercury transit between the sun and Earth in 2006 and the Venus transit in 2012.

One of the most popular events took place in 2003 when Mars was at its closest point to Earth in 50,000 years. Through the observatory's telescopes people saw Mars' polar caps, its highlands and its lowlands.

"It was amazing how many people wanted to see it," Veldhuis said. "It was a total mob scene."

As we walk planet Earth, completely obsessed with the skin on the apple we occupy, it is easy to forget that the planet's core and space above even exists. Getting to the core is a problem, but getting in touch with space is easy and inexpensive, brought to us by the hardworking volunteers of the Little Thompson Science Foundation and the Little Thompson Observatory.

See the public star night schedule at starkids.org.