

# 24" Mount Wilson Telescope

In 2007 the Little Thompson Observatory was chosen as the new home for the historic 24-inch telescope from the Mount Wilson Observatory in California. The telescope, originally built to support NASA's Apollo missions, was donated to Telescopes in Education, which in turn offered the telescope on long-term loan to the Little Thompson Observatory (LTO). "We are thrilled, not just to get a larger second telescope for the observatory, but to provide a new home for an instrument of NASA history," said Andrea Schweitzer, astronomer and board member of the LTO.

Between 2005 and 2009 our volunteers have constructed an addition to the building to double the size of the observatory. This addition allows us to accommodate larger audiences, and includes a second telescope foundation and dome. "

The 24" telescope, which was known as the Cole telescope, was designed and built by Caltech in the early 1960's to support NASA's Apollo program. Around 1963 the telescope studied the Moon to prove that the lunar surface was solid. This work was done with the aid of an infra-red camera mounted on the telescope, which measured temperatures on either side of the terminator. Mathematical modeling was then used to compare the temperature decay over a known distance with both a rocky surface as well as a heavily dusted surface. After approximately 9 months of study it was concluded that the surface on the Moon was safe to land on. The telescope observations were also used to find landing sites on the Moon for the subsequent Apollo missions.

Following the Apollo program, the 24- inch telescope was decommissioned by NASA and turned over to Cal-Tech in Pasadena, CA for use in astronomical research and made some of the first infrared observations of the center of our Milky Way galaxy, according to Mount Wilson astronomers.

## History of the 24" Telescope

After its two-decade-long research career, the 24" telescope was turned over to the Telescopes In Education (TIE) program, where it continued to operate on Mt Wilson until 2004. The telescope was retired in June 2004 and removed from its dome on Mount Wilson to make room for more modern instruments. After 3 years of negotiations, LTO was able to get the telescope assigned to its Berthoud location on a long-term loan.

In 2007 LTO President Meinte Veldhuis and Board Member Larry Westrum made the drive to California through 114-degree heat to receive the telescope and bring it back to its new home in Colorado. Larry Westrum said, "People at Mount Wilson were very emotional about this telescope, and happy to see somebody like LTO take it and put it into public use."

The massive 1-ton telescope has been refurbished, reassembled, and installed on its supporting pier under the new East dome. The optical system was changed from an F/16 Nasmyth Cassegrain to an F/4 Newtonian in order to increase its field of view for visual observations and general astronomical uses.

The telescope has been outfitted with a Bisque MKS4000 Telescope Control System (TCS) and can be commanded via TheSky X software, also provided by Software Bisque in Golden, CO. In 2014 the LTO received a grant from the Community Foundation of Northern Colorado in Fort Collins, which allowed us to procure a Mallincam Universe video camera for this telescope, which will be installed in 2015.

Donations and volunteer assistance are still needed to maintain the project, since the LTO is an all volunteer non-profit organization. "It's a pretty beefy instrument, not like what you'd buy retail. It was built to be used for a long time," said Larry Westrum.

## Technical specifications:

Diameter: 24" primary mirror

F/4 Newtonian configuration - Total Focal length: 2438mm

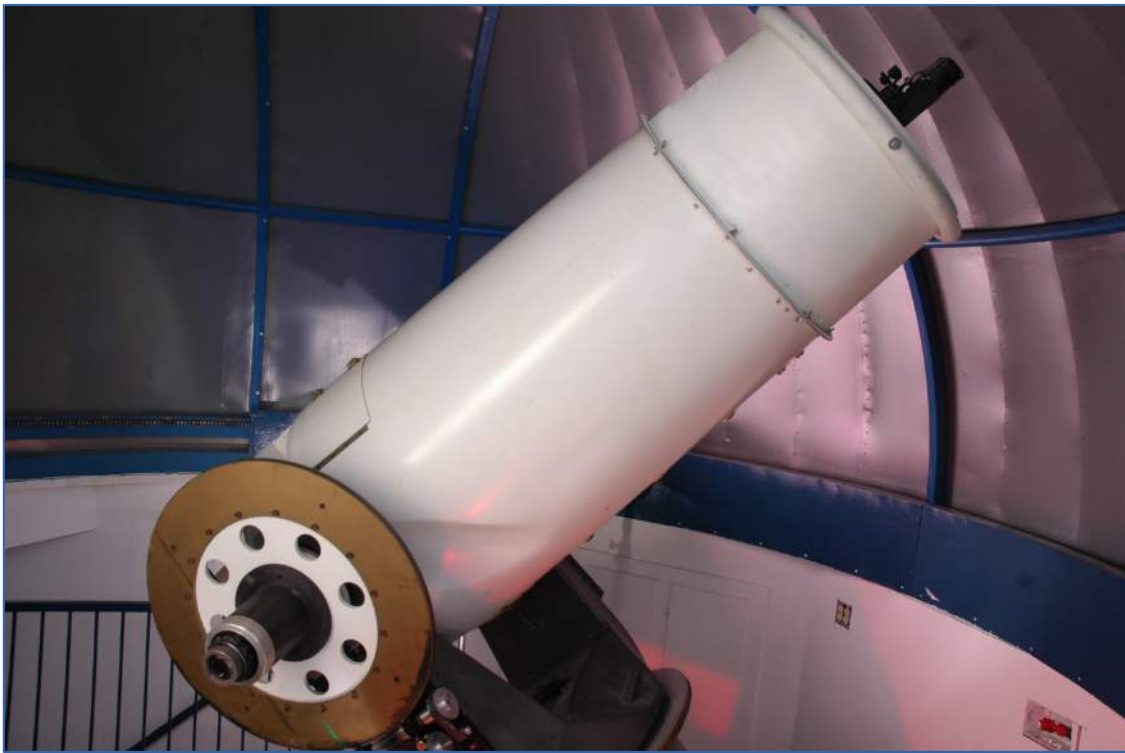
Magnifications: 22mm Nagler (110x), 35mm Panoptics (70x), 40mm Orion (61x)

F/16 Nasmyth Cassegrain configuration - Total Focal length: 9753mm

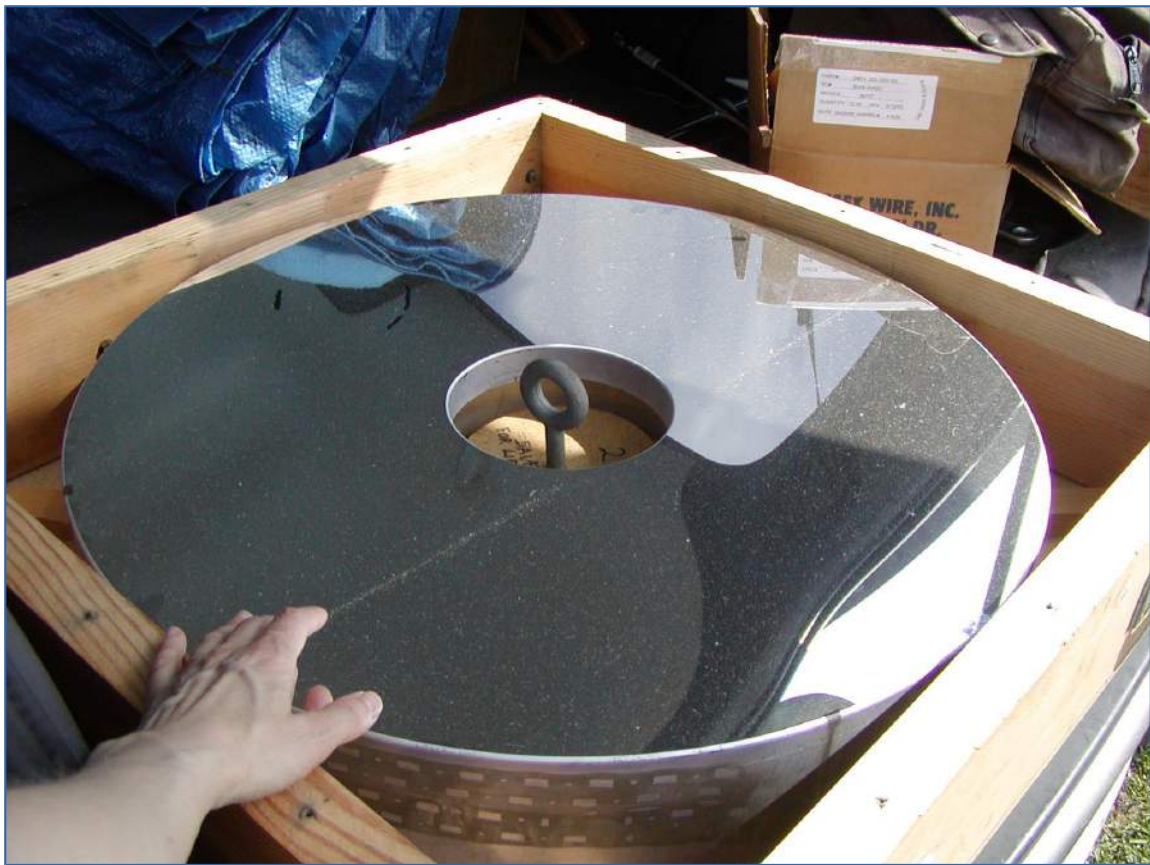
Magnifications: 22mm Nagler (443x), 35mm Panoptics (278x), 40mm Orion (244x), 85mm Russell (115x)



24" telescope ready for trip to LTO



24" Telescope in F/16 Nasmyth Cassegrain configuration – original eye piece on DEC bearing



24" Primary Mirror



24" Primary Mirror being cleaned by Dick Gutshall



24" Telescope in F/4 Newtonian set-up

11/12/2015