by SALLY BENFORD / photographs by DAVID H. SMITH

LOWELL OBSERVATORY in Flagstaff Embodies the Legacy of Arizona's VISIONARY ASTRONOMER

PERCIVAL LOWELL NEVER CONSIDERED himself a dreamer. A stargazer, perhaps, but never a dreamer.

In the summer of 1894, Lowell thought he had proof that intelligent life existed on Mars. The Harvard-educated mathematician, who hailed from Boston blue-blooded society, spent night after night perched on a lonely ponderosa pine-studded mesa above Flagstaff, gazing through a telescope at Mars, taking notes and making calculations. By the end of summer, Lowell decided he had enough information to publish his findings.

Lowell never proved his theory of life on Mars, but such theories sparked a firestorm of controversy about Martians, adding a fascination with space to the developing literary genre of science fiction. Author H.G. Wells published his novel *War of the Worlds* in 1898 amid the debate over Lowell's writings, but no doubt Lowell's greatest legacy lies in the Flagstaff observatory that bears his name. In 1966, Lowell Observatory was registered as a National Historic Landmark. Today, professional and amateur stargazers go to the observatory, one of the world's largest, privately operated, nonprofit astronomical research observatories. Lowell's 24-inch Clark refractor telescope, which he used for his Mars observations, now serves as an instrument for public viewing.

Even in the 21st century, Lowell seems to oversee the operation as he peers from a large painting that hangs in the observatory's Steele Visitor Center lobby. Hand on hip and staring straight into the future, Lowell stands amid modern-day and historical space observational devices. The center serves as the entry point for all observatory programs, telescopes and exhibits. People come to learn the observatory's history and for a chance to look through Lowell's telescopes.

As the two-hour walking tour begins, visitors file into Giclas Lecture Hall for a short presentation about the man who started it all and how the observatory's 27 full-time astronomers continue to conduct research. In the group of about 30,

[LEFT] Percival Lowell's mausoleum overlooks Flagstaff from the Mars Hill campus of the Lowell Observatory. [ABOVE] Susie Lemont peers through the eyepiece of the Clark telescope.

a woman asks about the "red shift." Terms like "LONEOS," "Kuiper Belt," "Io" and "interferometer" bounce around the room. It's enough to make a mere terrestrial's head spin. When a New Jersey couple admit they didn't know that Clyde Tombaugh discovered the planet Pluto here in 1930, public program assistant David Portree explains they will see Tombaugh's 13-inch Pluto Discovery Telescope.

Portree details astronomer V.M. Slipher's spiral nebulae discoveries, current star clusters and comet observations. He also describes the Lowell Observatory Near Earth Object Search (LONEOS), in which astronomers travel 15 miles southeast of Flagstaff to the observatory's Anderson Mesa site to look for asteroids that veer close to Earth.

Then the tour group heads outdoors for a short climb up a paved path leading to the 40-foot dome that holds the historic Clark telescope. Along the way, Portree tells visitors that Lowell died in 1916 and had his remains buried here on Mars Hill in a granite mausoleum covered in cobalt blue glass tiles.

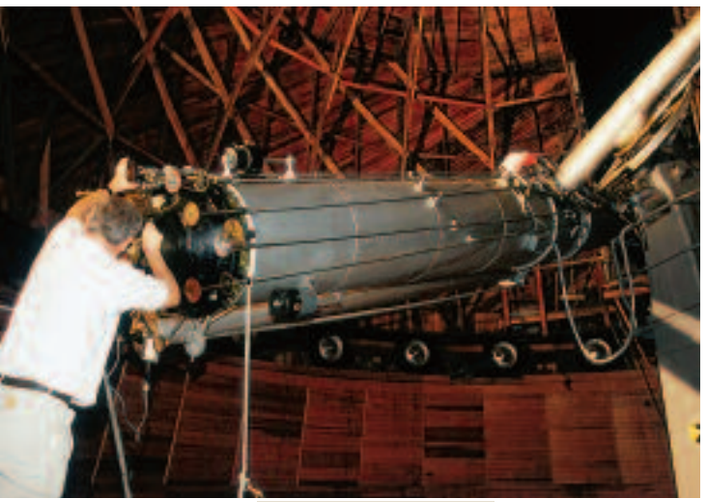
Inside the Clark telescope dome, Portree pulls the 107-year-old telescope in a semicircle, demonstrating how it moves the same as it did in Lowell's day — manually. Pointing out historical trivia, he shows the group the dustcovers for the 6-inch and 12-inch lenses.

"When Lowell died in 1916, he left his entire estate to his widow, Constance Savage Lowell," Portree explains. "Constance didn't want to spend her money on lens covers, so the dustcover for the 6-inch lens is a saucepan stolen from the kitchen of the observatory's second director, V.M. Slipher. Likewise, a frying pan covers the 12-inch lens. Slipher's wife was a little upset over the misappropriation of her cooking utensils."

The 8-ton dome is made of native ponderosa pine. The dome rotates with the help of three electric motors and 24 Ford pickup truck tires from 1954. The Slipher Building and Rotunda Library holds Lowell's private book collection and studies of Mars, Slipher's spectrograph and information about how NASA used the observatory to map the moon for the Apollo Space Program.

Outside, the Pluto Walk, a 350-foot paved path, heads to the Pluto Discovery Telescope. The walk represents a scale model of the Earth's solar system, where 1 inch equals 1 million miles. Signs illustrate the planets' distances and sizes in relationship to the sun. The Pluto Walk begins at our sun and ends at the Pluto Dome with the sign for the ninth planet, Pluto. Inside,

[ABOVE] With the Clark telescope by her side, Haley Landau explains the history of the huge telescope built in 1896. [LEFT] The walls of an old stone water tank remain near the Clark telescope dome.



[ABOVE] Visitors to Lowell Observatory may climb the ladder and gaze into the night sky through the historic Clark telescope.

Portree explains Tombaugh's Pluto discovery.

Back at the visitor center, the "Tools of the Astronomer" exhibit presents the equipment and techniques of modern astronomers and also provides information on astronomy careers and hobbies. A gift shop focuses on science-related items, including an impressive collection of astronomy books.

Perhaps the most popular attraction of Lowell Observatory comes at night, when visitors line up for a chance to look through the Clark telescope. Night tours are held year-round, weather permitting. According to public programs director Jeff Hall, astronomers pick out the most interesting celestial objects for public viewing, which can range from planets, like Mars, Jupiter and Saturn, to the moon, star clusters or other nebulae.

"We keep the telescopes open for as long as people want to stand in line," Hall says.

Before folks meander up the path to the telescopes, amateur astronomer Michael Hill presents information on the current night sky. He explains how to find constellations, how to spot satellites moving across the sky and the role heavenly objects played in Indian and ancient Greek cultures. This night the astronomers have chosen a galactic star cluster called M5 located 25,000 light years from Earth. He explains that the light seen through the telescope lens left M5 approximately 25,000 years ago.

"Who knows what it looks like today," Hill says. One can only imagine.

Lowell may not have considered himself a dreamer, but no doubt he had vision: "Imagination is as vital to any advance in science as learning and precision. . . . Let me warn you to beware of two opposite errors: of letting your imagination soar unballasted by facts, but on the other hand of shackling it so solidly that it loses all incentive to rise."

There's no doubt that Percival Lowell had a hand in some of man's most significant discoveries about our universe during the last 100 years. And from Mars to M5, Lowell would expect today's dreamers and stargazers to keep looking for whatever's out there. His observatory offers us the chance. AH

LOCATION: Lowell Observatory, 1400 Mars Hill Road, Flagstaff.
HOURS: November to March, daily, noon to 5 P.M.; April to October, 9 A.M. to 5 P.M.
EVENING PROGRAMS: November to March, Friday and Saturday, 7:30 P.M.; April to May, Wednesday, Friday and Saturday, 7:30 P.M.; June to August, Monday through Saturday, 8 P.M.; September to October, Wednesday, Friday and Saturday, 7:30 P.M.
FEES: $4, adults; $3.50, seniors and college students; $2, ages 5 to 17; free, under 5.
ADDITIONAL INFORMATION: (928) 774-2096; www.lowell.edu.

OTHER POINTS OF INTEREST IN FLAGSTAFF

All area codes are 928

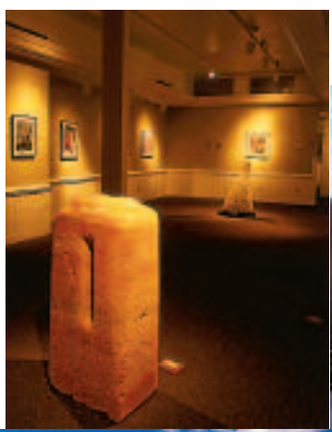
MUSEUM OF NORTHERN ARIZONA See regional art celebrating the cultures of Hopi, Navajo, Zuni and ancient people. Discover northern Arizona's dinosaurs, geology, fossils and native plants, as well as the history of the Colorado Plateau; Flagstaff, 774-5213.

RIORDAN MANSION STATE HISTORIC PARK The home of two pioneering Flagstaff families features Arts-and-Crafts-style architecture and more than 30 rooms filled with original artifacts; Flagstaff, 779-4395.

SUNSET CRATER VOLCANO NATIONAL MONUMENT Trails and scenic vistas allow visitors to see the 900-year-old volcanic crater up close. See how the volcano created "rivers" of black, hardened lava and surrounded the area with ash and cinders; Flagstaff, 526-0502.

WALNUT CANYON NATIONAL MONUMENT Hike down a paved trail in this gorge to view cliff dwellings nearly a thousand years old. The visitors center museum houses the ancient residents' artifacts, showing how they worked and played; Flagstaff, 526-3367.

WUPATKI NATIONAL MONUMENT Once home to ancestral Puebloan people, four ancient pueblos sit atop a mesa; Flagstaff, 679-2365.



OLD MAIN ART GALLERY On the Northern Arizona University campus, Old Main houses galleries featuring historic furniture, silverworks and art, plus a collection of contemporary art; Flagstaff, 523-3471.

ELDEN PUEBLO ARCHAEOLOGICAL PROJECT The project offers programs in archaeological concepts, skills and practices through a variety of activities at the Elden Pueblo; Flagstaff, 527-3475.

THE ARBORETUM AT FLAGSTAFF With 200 acres at an elevation of 7,150 feet, the botanical garden offers a wildflower meadow and the aromatic scent of herbs and nature trails; Flagstaff, 774-1442.

ARIZONA SNOWBOWL Go to ski in mid-December to mid-April; off-season, ride the scenic skyride up the mountain for a breathtaking view; Flagstaff, 779-1951; snow report, 779-4577.

ARIZONA HISTORICAL SOCIETY PIONEER MUSEUM Changing exhibits depict the history of Flagstaff, including displays on logging, livestock, railroads and more. Standing exhibits feature U.S. Route 66 and the Arizona Rough Riders; Flagstaff, 774-6272.

[CLOCKWISE FROM LEFT] The plaza in the heart of downtown Flagstaff is a favorite gathering spot for residents and visitors. Old Main Art Gallery displayed the stone sculptures of minimalist Robert Siracusa in a visiting exhibit. The stone pueblos at Wupatki National Monument were homes to Indians and later to the first park caretakers.