Dark Skies Spark Oracle Resident's Appreciation
Result: Steward Observatory

Though people living in the clear, dark skies far from city lights have enjoyed their view of the sky in the Oracle area for many centuries, from the Native Americans to the Biosphere 2, one citizen, Mrs. Lavinia Steward, has left a lasting legacy with a donation to fund the first Observatory at the University of Arizona with a "very large" 36-inch telescope.

That donation, just under one hundred years ago, fulfilled the wishes of Director Andrew Ellicott Douglass at the U of A. Since coming to the University in 1906, he had made do with small or borrowed telescopes in less-than-perfect quarters on campus.

Douglass and the University Program

A borrowed 8-inch refractor telescope had given "long and convincing evidence of the advantages of this Southern Arizona location for astronomical work." Not only had it shown the division in the nucleus of Halley's Comet in 1910, but in one of the observing seasons, seventy-two nights out of seventy-five were found to be available for work. In the winter of 1913 , a series of forty nights in succession showed thirty-six workable and twenty-six of extremely fine character. With all these successes, in September of 1914, Douglass advanced a request for the "large telescope."

The new University of Arizona president took the request to the Arizona legislature in early 1915 where, according to Douglass "[the legislature] failed to make the appropriation desired." So, Douglass and the University sought private funds.

The Stewards: Lavinia, Henry and Fred

Meanwhile, Henry and Lavinia Steward with their ailing nephew Fred J. happened to be among those well-do-do people who had moved to Oracle for health and stayed.

They first built a small two-storied stucco adobe and used that as a home while building the Steward House by 1895. Both are still standing and are recorded in the Arizona State Historic Register.

View from Linda Vista road about 1900—postcard sold at Terry and Lawson's store,

—property of Evaline Auerbach and used by her permission.

Henry Steward, having sold out his oat mill in Joliet, Ohio, could afford this magnificent home —– still known in Oracle as the "Steward House" though most recently "Grace Manor." Lavinia lavished her artist skills on the house and garden, as well as continuing her painting (she had been part of an artists' group in Illinois). Fred throve and soon was off to Tucson to pursue a successful business in banking. However, Henry died in 1902 of heart problems.

Lavinia continued to live alone in the house, described as "spacious and stately … with orchard and garden and employee's quarters, ample grounds, and ivied dignity". The house contained notable works of art besides those she had painted herself, many on trips to Mexico.

Douglass declared at the dedication of the Observatory: Lavinia Steward was "a charming and lovely character, deeply interested in the arts and sciences. She had shown the wonders of the heavens to her grand-nephew and nieces. She had planned to do something for the University and felt a personal inclination towards providing some astronomical equipment. Thus all conditions were happily favorable for the beginning of the Steward Observatory."

That bequest —"the princely gift" of $60,000 for building and outfitting the Steward Observatory—came in October, 1916. Unfortunately Mrs. Steward passed away in August 1917. Douglass noted "It is my deep regret that she did not live to look through this magnificent instrument."

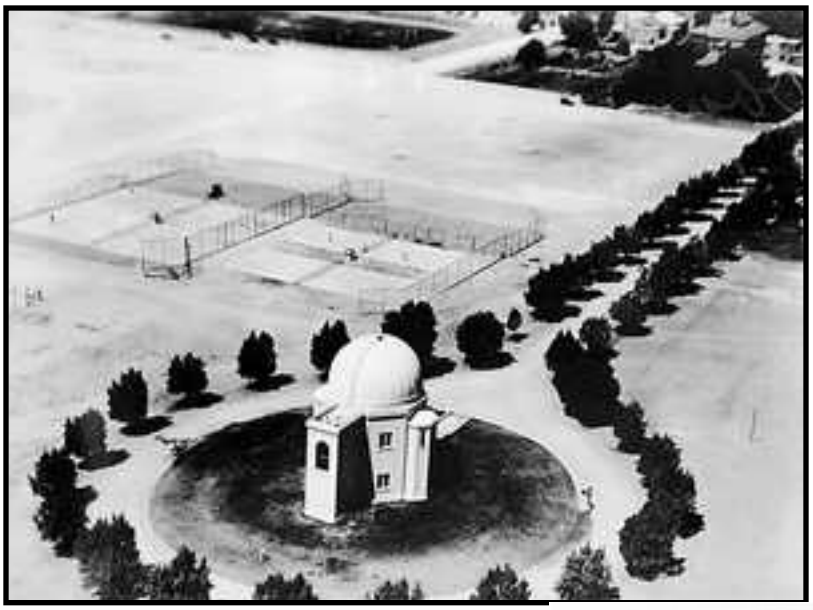
The value of Lavinia Steward's gift adjusted for inflation would be equivalent to $1,265,660 in 2013 dollars: *Tom Fleming, Steward Observatory.*

At the dedication in 1923, Fred Steward presented the "three-inch telescope which had so long been in the home of his aunt" to Douglass. (This writer has not yet discovered what became of that memento. It is reportedly not in the possession of the Steward Observatory.)

The Observatory had been carefully sited on campus, "away from the lights at the main part of the university" on the site of a former ostrich farm, run by the College of Agriculture. Douglass thought "The real advantage of the site" [where the Observatory still stands] was "the control of lights, a feature most essential to the success of the Observatory."

However, problems with extraneous lights began to arise before the Observatory could be built. According to Douglass "If there had been no war [WWI], the Observatory would have been completed in 1918 or 1919. As it was, the glass for the telescope could not be manufactured in France as planned, so it had to be done in the United States. The Warner and Swazey Company of Cleveland, Ohio, had been contracted to do the casing.

As Douglass recounted in 1917 "the area chosen contained practically no houses nearby to the east or north, but …[by 1923] this part of the city has grown rapidly. The City Council, however, has expressed the wish for most cordial cooperation with the Observatory in the matter of avoiding objectionable lights, of which the common arc light of the city street is the greatest offender." However, the university itself was to become an offender when the tennis courts, always near the observatory, were given permission to add lights.



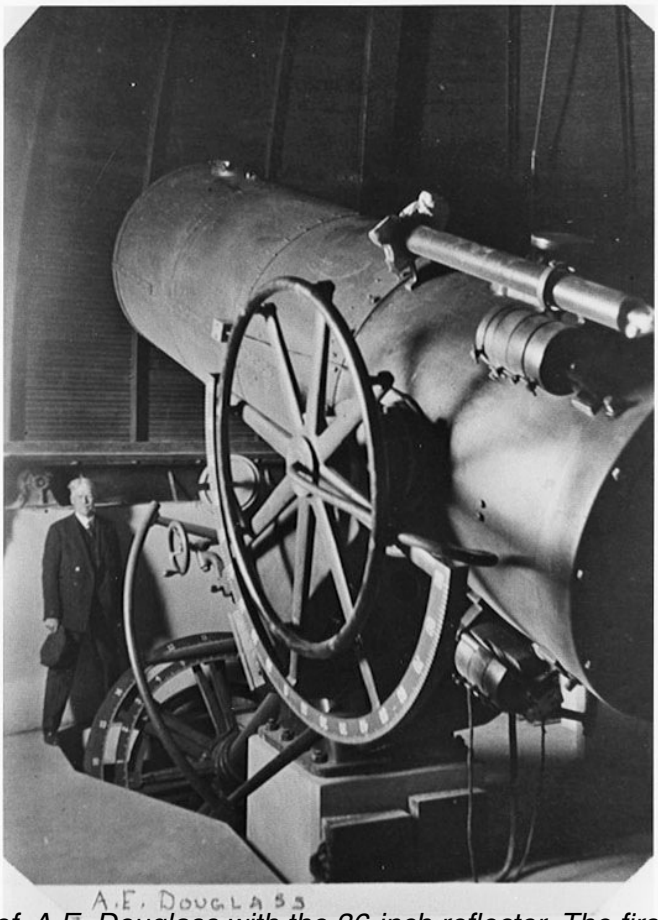
***Steward Observatory, 1928**.*
Note the tennis courts which became a problem when lights were added.
The original dome, a stately structure covered with cream colored tile, is a campus landmark and is listed on the National Register of Historic Places. Architect Roy Place also designed St. Helen's Church and El Rancho Robles in Oracle.
-Courtesy of University of Arizona Libraries, *Special Collections*

The telescope

Douglass had chosen a 36-inch reflecting telescope, a rather new technology, citing "extensive tests made with the great sixty-inch telescope on Mount Wilson." Warner & Swayze of Cleveland, Ohio, received the contract for making the telescope structure. However, the mirror was to be made in France, as was usual in 1916-17.

However, WWI delayed the making of the mirror—until The Spencer Lens Company of Buffalo, N. Y. developed the making of optical glass. For most of 1920, Spencer tried their regular glass furnaces without success. Finally, after installing new furnaces, the first all-American telescope became the Steward telescope.

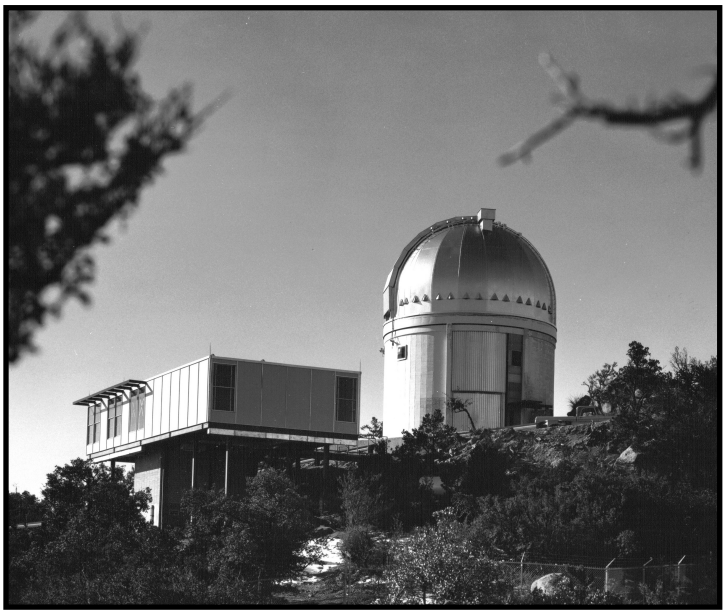
Douglass and two former students had installed the telescope structure at the Steward Observatory building, and the completed glass was received and mounted on July 10, 1922.



Prof. A.E. Douglass with the 36-inch reflector. The first view through the new telescope: "a beautiful crescent of the planet Venus in the afternoon of July 17, 1922."—Courtesy of University of Arizona Libraries, Special Collections

Lights Cause Removal to Kitt Peak

By 1963, the Steward Observatory's once solitary, dark-sky setting had been encroached upon by an expanding Tucson and an expanding campus necessitating a move to Kitt Peak—now the site of much of University of Arizona astronomy, along with much international work. The Steward Observatory's original, "Steward" telescope was removed from that dome for relocation; a smaller telescope was installed for student use.



The 'Steward Telescope,' removed to Kitt Peak in 1963 along with most of the astronomy program at that time, is now housed in this building. Since 1980, it has been used by the Spacewatch program. - Courtesy of Steward Observatory

Since 1982, the telescope has been used by the Space Watch Project: "Once at Kitt Peak, the telescope began its new uses. After 1980, the director of the Steward Observatory granted the Spacewatch Project—a group at the University of Arizona's Lunar and Planetary Laboratory—exclusive access to the telescope on the condition that Spacewatch take on all the tasks of refurbishing the telescope and performing all maintenance."

The primary goal of Spacewatch is to explore the various populations of small objects in the solar system, and study the statistics of asteroids and comets in order to investigate the dynamical evolution of the solar system. Spacewatch also finds potential targets for interplanetary spacecraft missions, provides followup astrometry of such targets, and finds objects that might present a hazard to the Earth.

Thus, the interest in dark skies begun by an artist and humanitarian in Oracle, became the catalyst for the University of Arizona's internationally renowned astronomical studies.

The End

CREDITS: *Article by Evaline Auerbach, Oracle Historian, with information from the Steward Observatory website and other information at the Arizona Historical Society and the Oracle Historical Society.*

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