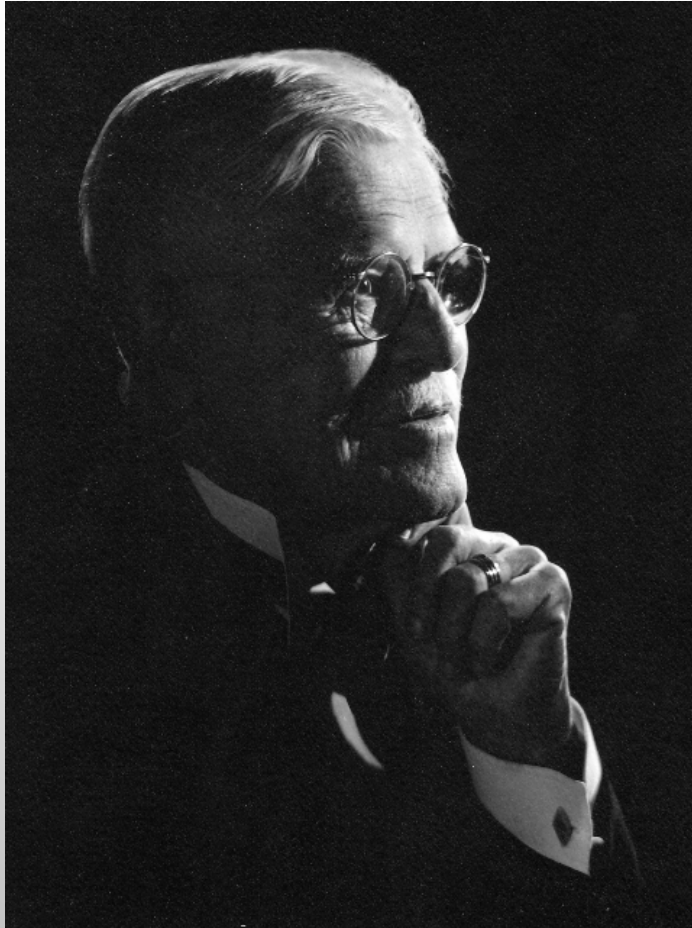


Steward Observatory: The Birth of Astronomy in Southern Arizona



Dr. Thomas A. Fleming

Steward Observatory Through the Years



The story of Steward is the story of:

Andrew Ellicott Douglass (1867– 1962)

1891 – 1893 Harvard College Observatory

1894 – 1901 Lowell Observatory

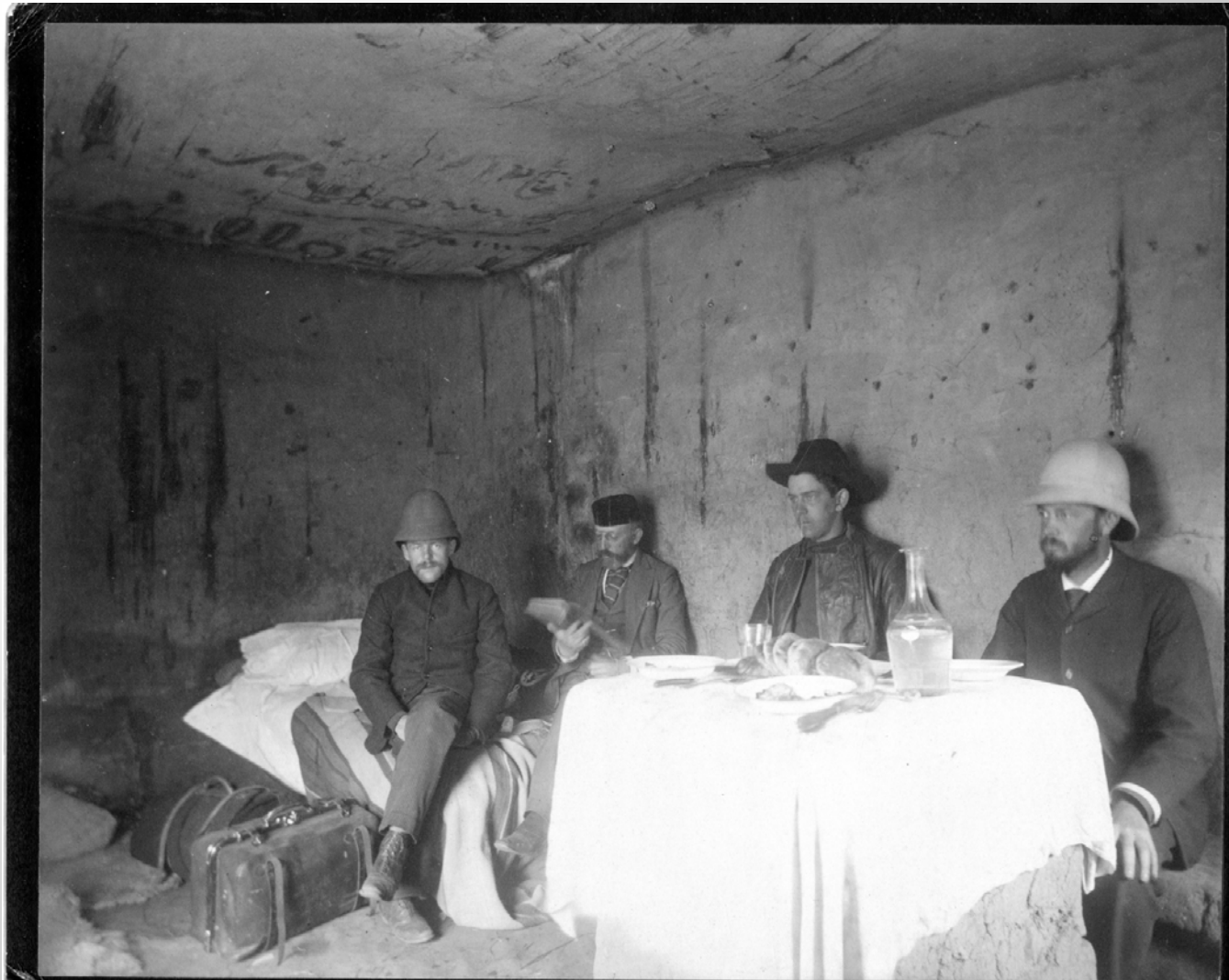
1902 – 1906 Northern Arizona Normal School

1906 – 1962 University of Arizona

He didn't "see" the canals on Mars, so he left Flagstaff for Tucson!

Voyage to Peru

Douglass with E.C. Pickering, George T. Vickers, & Col. Anderson en route to Peru in 1890. During the voyage, Douglass & Vickers learned Spanish from the Spanish consul to Callao, Peru.



The Boyden Station of HCO in Arequipa, Peru

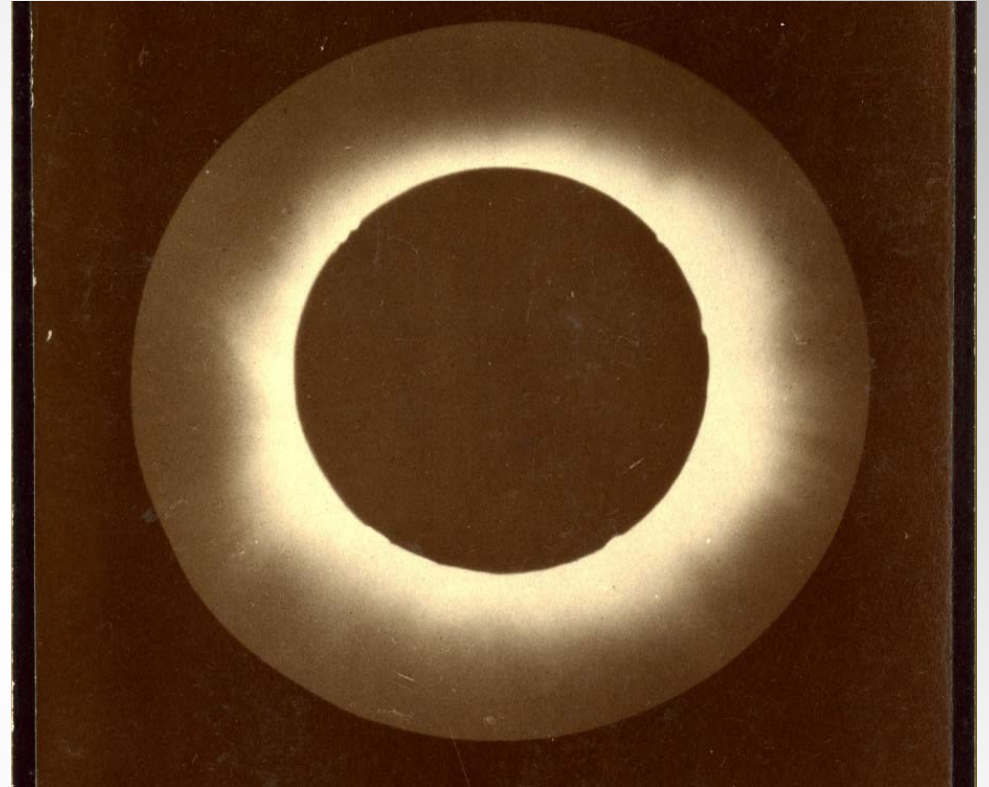
From 1891 – 1893, Douglass and his colleagues took stellar spectra to extend the Henry Draper Catalogue to the Southern Hemisphere. He also made many planetary observations, including the Mars opposition of 1892.



Douglass also visited many Incan ruins and helped collect artifacts for Harvard's exhibit at the 1893 Chicago World's Fair. Perhaps this experience sparked his interest in archeology.

The Legacy of A.E. Douglass

Before embarking on a ship for the voyage home, Douglass took this photograph of the total solar eclipse of April 1893.



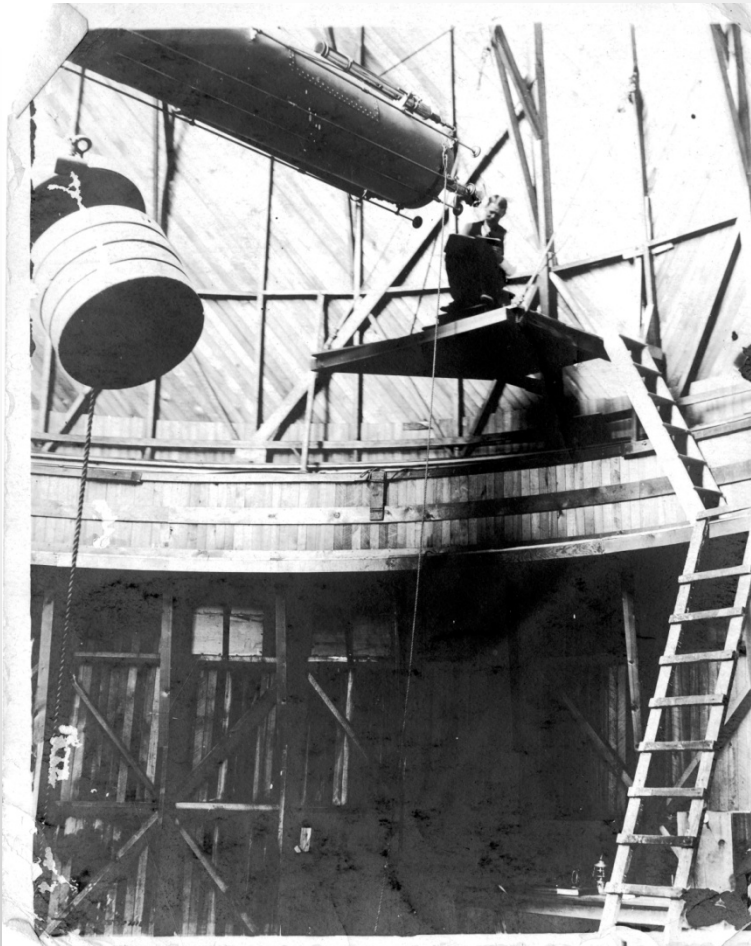
Douglass intended to spend 1894 at Harvard, reducing the Peru data. Instead he met Percival Lowell, who hired him to scout out sites in Arizona for Lowell's new observatory.

The Lowell Observatory

After rejecting Tombstone, Tucson, Phoenix, and Prescott, Douglass chose Flagstaff for Lowell's Observatory, for which Douglass made the construction arrangements.



Observations of Mars opposition began in the summer of 1894.



Douglass

Lowell 24-inch
Telescope,
installed in 1896



Lowell

- Many hours were spent observing and sketching Mars.
- Douglass, at first, defended Lowell's theories.
- But he worried about the observational errors.
- He started to doubt the "scientific" methods of his boss.

The Message from Mars

On the evening of Dec. 7, 1900, Douglass observed a “projection”, a wisp of light beyond the terminator of Mars.

He wired the information to Lowell in Boston, who passed it on to Harvard & European astronomers.

A game of “Telephone”: Somehow the press reported that Douglass had received a signal...a message from the inhabitants of Mars!

Douglass was mortified and disturbed by this incident.

He expressed his doubts about Lowell’s credibility in a letter to William Putnam, the observatory’s business manager.

Putnam showed the letter to Lowell.

Douglass was fired the next day.



Rocky Mtn News - Jan 21. 01.

First Telescope at University of Arizona

A 4-inch refractor was purchased for the University by Regent Merrill Freeman in 1891.

It was located on a pier just west of Old Main, where Memorial Fountain is now located.



UA 4-inch Refractor purchased in 1891

Douglas arrived at the University of Arizona in 1906 as Professor of Physics, Astronomy, Geography. He started looking for a way to raise money to build an observatory.

Steward Observatory Through the Years



From 1908 – 1922, Douglass used an 8-inch refractor, on loan from Harvard, which was housed in a shed on the roof of Science Hall... known today as the Communications Building.

Steward Observatory Through the Years



Lavinia Steward



Henry Steward

Anonymous Friend Gives U. A.

MONEY TO BE USED TO BUY TELESCOPE OF HUGE SIZE

Dr. von KleinSmid's Announcement of Endowment of Astronomical Observatory Occasion for Night of Jubilation on University Campus

President von KleinSmid of the university, announced yesterday morning at the assembly that the University of Arizona was the recipient of a gift of \$60,000 to be used for the erection of an astronomical observatory on the campus. The donor, according to the president, does not wish that his or her name be made public.

When President von KleinSmid left for the east about two weeks ago, he said that he hoped to bring back good news, but would not say what it was. His chief purpose in making the trip was to attend the convention of the American Criminology Society at Buffalo, but it seems that while on his trip he busied himself in the interests of the University and obtained for it the munificent gift for an astronomical observatory.

Dr. von Klein Smid has a habit of bringing back good news from his trips

in the east. It will be remembered that on his last return from an eastern trip he announced that the mining companies that owned interests in Arizona had donated \$75,000 toward the new mining building.

At the assembly yesterday morning there were speeches by some of the members of the board of regents of the institution. Chancellor Frank H. Hereford, Mr. Rasmussen, and Doctor L. D. Ricketts addressed the assembled faculty and student body, and their talks were congratulatory to the president and to the University. Dr. M. B. Freeman told of his first experience when the University was started, and congratulated Dr. von KleinSmid on his splendid accomplishment. John Meyers, of the Tucson chamber of commerce, also said a few words.

DEAN DOUGLASS HAPPY.

Last, but not least, on the morning's program was the talk by Dr. A. E. Douglas, dean of the college of arts and science and a famous astronomer. His face beamed as he talked of the gift of the new observatory. He is immensely pleased and has begun his plans for the work in the new star-gazing shop. In discussing the gift yesterday, Dr. Douglas said that many famous astronomers considered Tucson the ideal location for an astronomical observatory and several have said that they considered the climatic and atmospheric conditions of this locality to be better than any in the world. Dr. Douglas is planning on a thirty-six inch reflecting telescope. With this Dr. Douglas will be enabled to do great work in the field of astronomy and this coupled with the great educational benefit of the gift will spread Arizona's name far and wide.

President von KleinSmid made the announcement that in view of the gift, the student body would be given the afternoon off from school work, and in the evening they held a grand rally to celebrate the gift.

Students Celebrate.

The rally began at 2 o'clock with a serpentine. After this came a big bon fire in front of the men's dormitories at which the university military band made its debut. Following the rally around the fire, the student body retired to the open air auditorium, at which they were treated to several selections by the band. The program here consisted in a cornet solo by Mrs. Vander Vries, wife of the

principal of the Tucson high school; and talks by the president, Dr. Freeman, ex-chancellor of the board of regents of the institution; Dean Douglas, Dean Forbes, Professor Thornber, Dr. W. H. Fenner, Mrs. Roberts, ex-president of the student body; Frank McClure, representing the student body and the senior class; W. H. Westover, for the junior class; Jack O'Keefe, for the sophomores, and Henny for the freshman class. The talks all expressed the great appreciation of the gift of the unknown donor.

After the exercises, which ended with nine big "rahs" and a "wildcat" for the donor and the singing of "America," the students went to Herring Hall, where an informal dance was held.

Last January Dr. von KleinSmid succeeded in obtaining \$100,000 for a new mining building, an indication of the prosperity of Arizona's mines and the generosity of their owners. Now he returns with \$60,000 for an astronomical observatory to be located under ideal conditions.

With probably the best location of any educational institution in America for this sort of work, the University now will be in a position to win recognition in an important line of scientific achievement.

The lens of the original University telescope is but four inches in diameter, the size of a small saucer. This first telescope, though small, is of excellent quality and has kept alive interest in the subject for many years. It was obtained

in 1904 through the efforts of Dr. M. P. Freeman, former chancellor of the University. Since 1909 the University has been using an eight-inch telescope loaned by Harvard University. This lens is the size of a small dinner plate. The 35-inch mirror which is now possible is the size of a small round dining table.

The benefits of the splendid gift will be, first, instruction to classes and visitors with frequent open nights, free lectures and an exhibit room always open to tourists; second, research, consisting of scientific observations of the most exact kind permitted by the climate; studies of the sun and climatic variations, etc. Such an adjunct to the University will attract attention, stimulate attendance and supply a show place of universal interest to visitors.

What Gift Means.

In an interview, Professor Douglass says:

"When I came here ten years ago, Tucson seemed to be the most logical place for an astronomical observatory. I have heard this fact stated in discussions on the subject among astronomers all over the country. During my residence here many friends of the University have been interested directly in procuring an instrument of large size for this place and several plans have been made to that

\$60,000

ARIZONA DAILY STAR (PAGE 1)
OCT. 19, 1916

end. If these efforts have not hitherto brought the instrument, they have at least shown us the desirability of a large equipment and made us realize more and more how well adapted this location is for astronomical work.

In 1909 Professor E. C. Pickering, Director of the Harvard College Observatory loaned us an eight-inch telescope of excellent quality, because he knew that our conditions were most favorable for astronomical work. This instrument has been used constantly since then, not only with classes but for some very exacting kinds of scientific work. Yet I have felt keenly at all times the lack of an instrument large enough to decide many questions of great interest. For instance, I have been able to see the satellites of Jupiter with this telescope and do much interesting work on them, but have been entirely unable to prosecute studies on certain still smaller bodies which would require an instrument of at least twice that size.

Obligation on Arizona.

"Now Dr. von KleinSmid has succeeded in procuring the funds necessary for an equipment that does justice to the remarkable excellence of our climate. The gift now made will enable us to purchase a magnificent research instrument of about 35-inch aperture of the reflecting type of telescope, together with one or two small instruments such as are absolutely necessary in an observatory. But there is much left for us to do. In the course of time the building should be enlarged and other instruments added, but more particularly this principle must not be wrapped in a napkin and put away, but on the contrary, must be wisely invested to give us new knowledge and win for us the recognition which our exceptionally favorable locality promises.

"My own interest in this observatory is directly proportional to the work which we shall do. It is true that the instrument and equipment will be valuable for classes and for the public, but that is a static rather than a dynamic value.

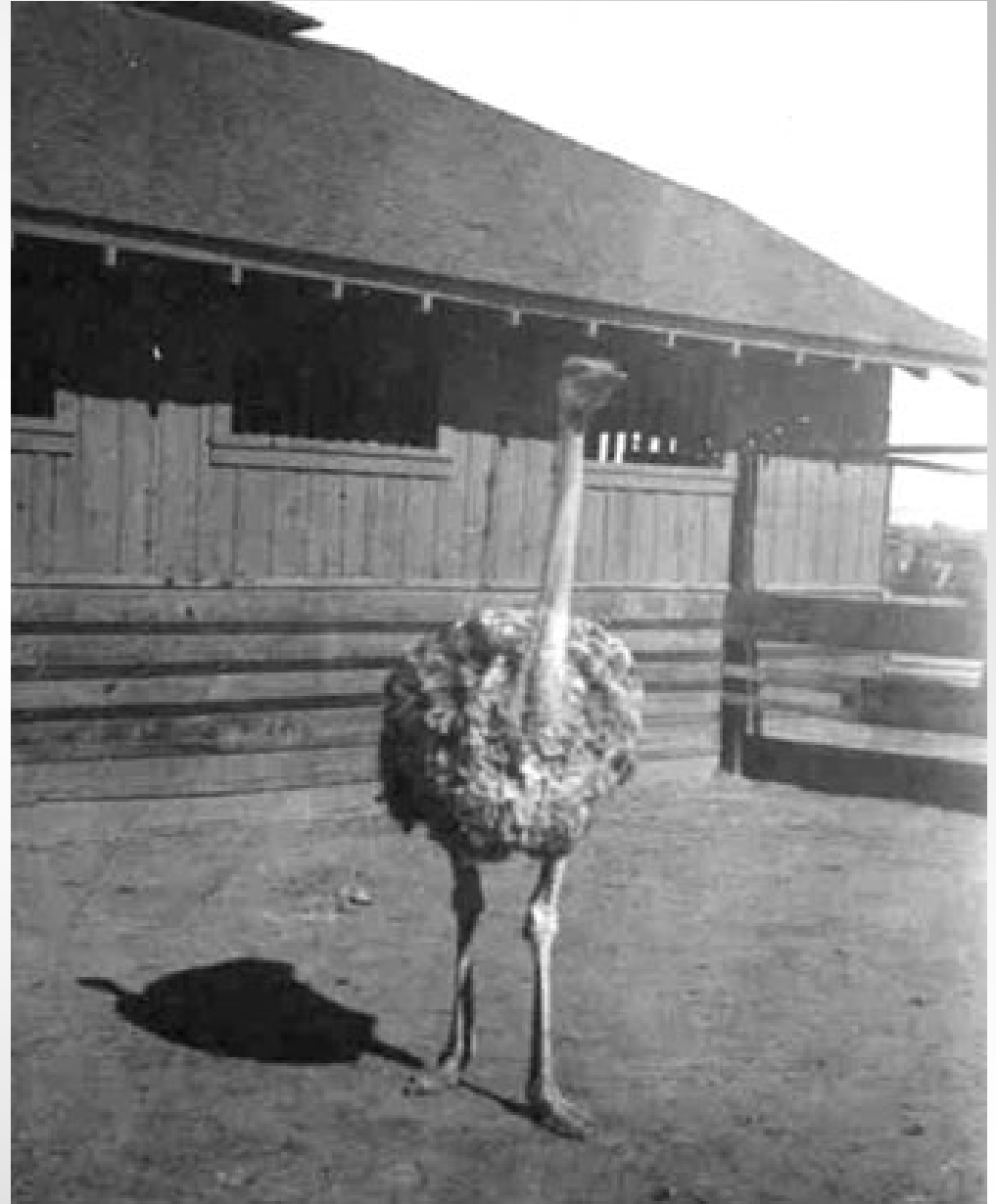
"Professor W. W. Campbell, president of the American Association for the Advancement of Science, writes us:

"A new observatory should start with an equipment designed for productive

(over)

Steward Observatory Through the Years

Prof. Douglass and Pres. Von Kleinschmid disagreed on a site for the new observatory. They finally compromised on an ostrich farm, run by the College of Agriculture, about a quarter mile east of campus.



Steward Observatory Through the Years



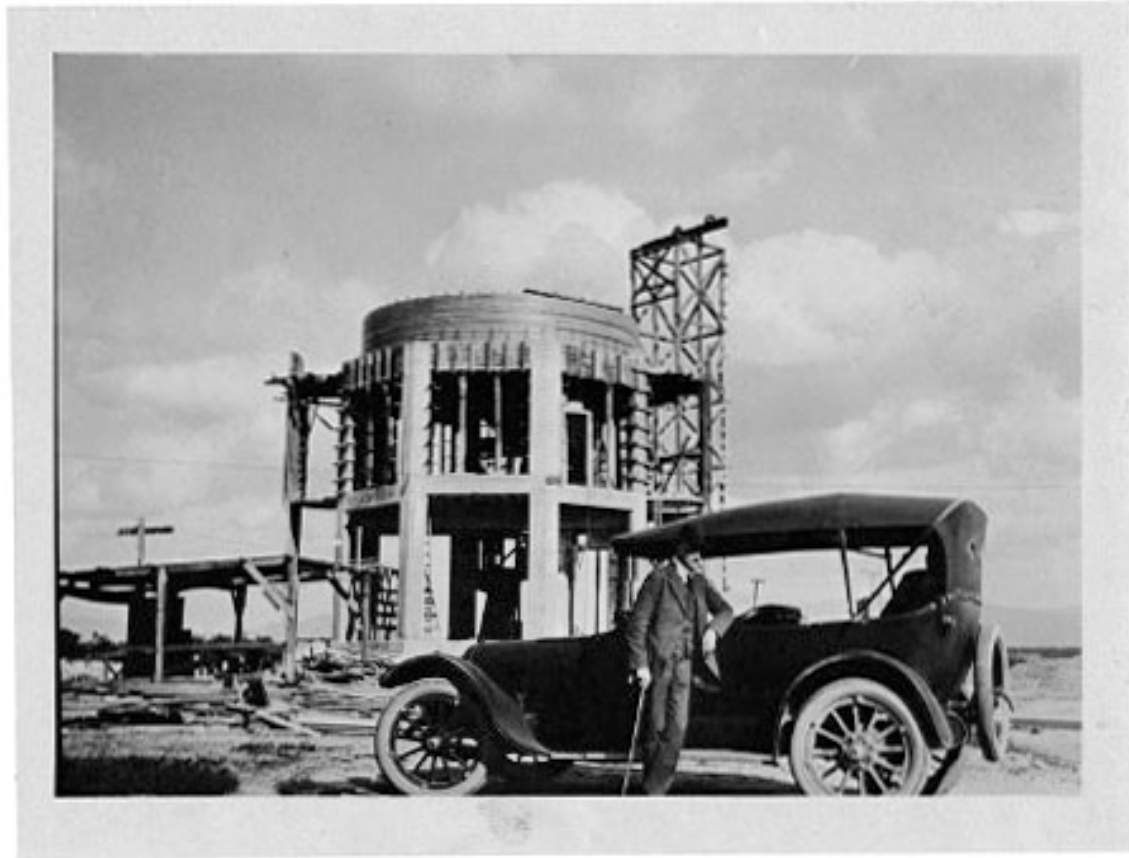
This photo, taken in 1919 from the corner of Cherry Ave. & 2nd St., shows the future site of Steward Observatory. Old Main, College of Agriculture, and “A” Mountain can be seen in the background.

Steward Observatory Through the Years



Steward Observatory Foundation – July 19, 1919

Steward Observatory Through the Years



Prof. Edwin Frost, Director of the Yerkes Observatory, visits the construction site of Steward Observatory in 1920.

Construction of the Steward Dome



Steward Observatory Through the Years



The view of the UA Campus, looking west, from Steward Observatory in February 1921. At that time, Steward was “off-campus”.

Steward Observatory Through the Years



The view of Cherry Ave. in 1922, looking east from the Steward Observatory 2nd story window.

Steward Observatory Through the Years



A picture of the Steward
Observatory building taken
in March 1921

Steward Observatory Through the Years

Prof. A.E. Douglass, the first Director of Steward Observatory, oversees the construction of the 36-inch telescope pier.

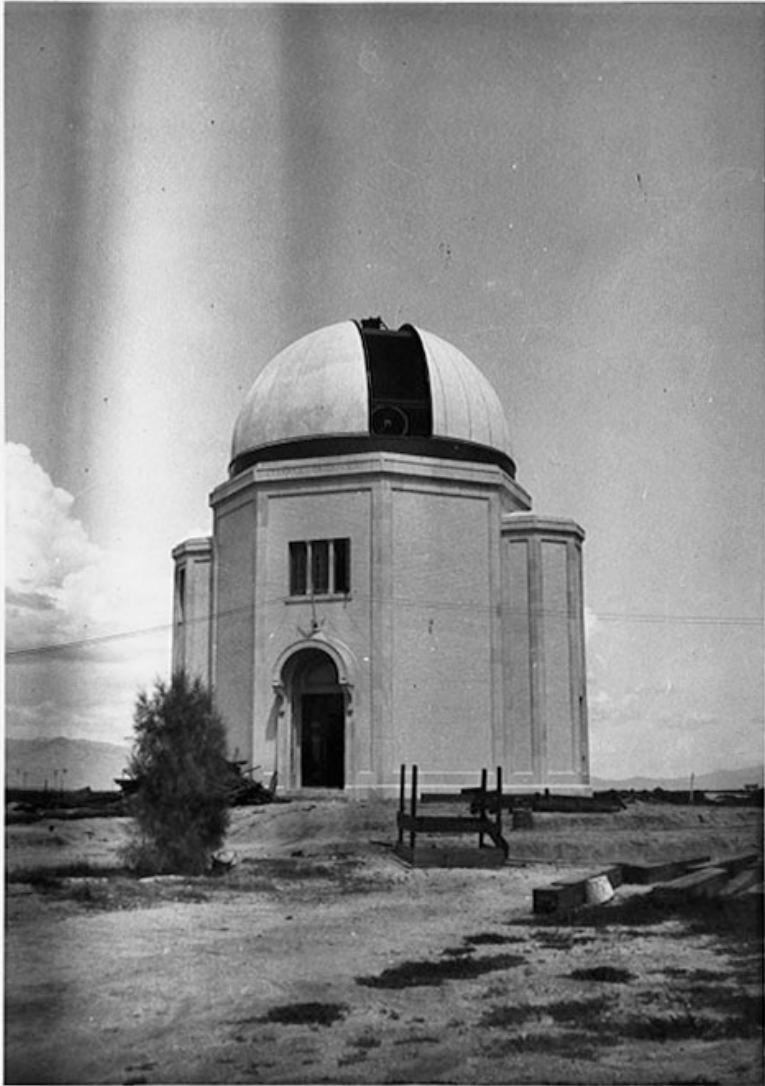


Steward Observatory Through the Years

The Steward 36-inch telescope at the Warner & Swasey factory in Cleveland, OH.



Steward Observatory Through the Years



This picture of the SW side of Steward Observatory was taken soon after the 36-inch telescope was installed in July 1922.

Steward Observatory Through the Years

In September 1922, the *Tucson Citizen* announces the first Steward Observatory Public Evening.

Public Invited To Observatory Thursday Night Sept. 1922

Public night at Steward Observatory will be Thursday evening, according to the statement of Director A. E. Douglass, who has been making extensive preparations for the first visit of Tucsonans to see the heavens via the large instrument recently installed at the university.

A platform has been erected so that visitors can thoroughly examine the new instrument from all angles. Investigation of the instrument has been very thorough on the part of Director Douglas and he has pronounced it to be in very good condition. The lens was installed July 17 and has been used since that time only by members of the observatory staff. Several pictures have been taken by Dean A. E. Douglas which will be used in classes of astronomy at the University.

According to the statement of Director Douglas, the moon and several of the more prominent stars will be spotted by the instrument on its opening night to the public. There are many other startling things to be observed by one acquainted with the use of such instruments, but for the public, the more common sections of the sky will be selected.

The present glass in the instrument is a 36-inch reflecting telescope and was made for the local observatory by the Spencer Glass company of Buffalo. It is the largest ever made in the United States. The former lens, an eight inch refracting glass, was sent back to Harvard, who loaned it to the University in 1908. It is being sent on to an observatory in Poland at the present time for use there.

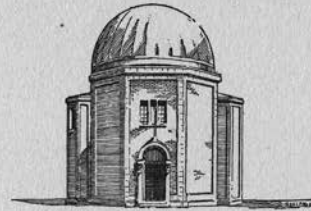
Students' night at the observatory will be Wednesday night.

Steward Observatory Through the Years



This platform was erected on the NW side of Steward Observatory for the dedication ceremony on April 23, 1923.

Steward Observatory Through the Years



THE DEDICATION OF
THE STEWARD OBSERVATORY
UNIVERSITY OF ARIZONA
APRIL TWENTY - THIRD, NINETEEN
HUNDRED AND TWENTY - THREE

PROGRAMME

PROCESSIONAL MARCH (<i>Seitz</i>)	UNIVERSITY BAND
ADDRESS OF WELCOME	CLOYD HECK MARVIN, PH. D. <small>PRESIDENT OF THE UNIVERSITY OF ARIZONA</small>
RESPONSE	VESTO MELVIN SLIPHER, PH. D. <small>DIRECTOR OF THE LOWELL OBSERVATORY</small>
MUSIC	UNIVERSITY QUARTET
ADDRESS	ROBERT GRANT AITKIN, SC. D. <small>DIRECTOR OF THE LICK OBSERVATORY</small>
MUSIC	UNIVERSITY QUARTET
ADDRESS	ANDREW ELLICOTT DOUGLASS, SC. D. <small>DIRECTOR OF THE STEWARD OBSERVATORY</small>
ADDRESS OF ACCEPTANCE	JOHN HENRY CAMPBELL, LL. M. <small>CHANCELLOR OF THE BOARD OF REGENTS OF THE UNIVERSITY OF ARIZONA</small>

STEWARD OBSERVATORY FORMALLY

Main Address at Ceremony Made By Director of Lick Observatory, Robert Aitkin

Gift Is Formally Accepted For U. of A. By Chancellor

Steward observatory, the gift of Mrs. Lavinia Steward to the University of Arizona, was formally dedicated with appropriate ceremonies last evening. Over 1,000 people gathered at the open air theatre formed on the northwest side of the observatory. Music was furnished by the University band and the Glee club quartet. President Marvin presided on a decorated platform erected with the white wall of the observatory as a background.

A clear moon and thousands of stars shone brightly overhead, a further appreciation of the building that was being dedicated to a study of their mysteries and activities.

"As we approached this building this evening," said President Cloyd Heck Marvin, "I was wondering what the early pioneers of this country would have thought if they could have seen the wonderful sight that was before us."

Speaking of the observatory as a part of the University, he stated that it was but one part of the program that the University of Arizona was pledged to carry out. The challenge of making over the land is greater out here, said the president, and we can appreciate the help of scientific research more than ever. He stressed the value of the scientific approach of the problems facing the people of the state, and expressed the hope that all problems of the commonwealth would be considered from this scientific approach.

Greetings from Lowell.

Representing the "sister observatory" in the northern part of the state was Vesto Melvin Slipher, director of the Lowell observatory of Flagstaff, Ariz. He extended greetings and best wishes on behalf of his institution, saying: "It is a rare event in the eyes of those of us who love the stars, to be present at the dedication of a large observatory devoted to this work. The study of astronomy has broadened man's horizon and stimulated his endeavors." He praised the spirit of Mrs. Lavinia Steward in presenting the gift and wished the institution and Director A. E. Douglass a measure of success that will bring distinction to the University in



STEWARD OBSERVATORY.

the years to come.

Mt. Hamilton, Cal.

Robert Grant Aitkin, director of Lick observatory of Mt. Hamilton, Cal., delivered an extensive address on the progress and nature of astronomy. The work has been developing for 425 years since the start given it by Copernicus and the progress, he stated, has not only been continuous, but it has been at an ever increasing velocity. Four observatories of a large size have been dedicated in the United States since the installation of Lick observatory in 1888, and with those of other countries, the number would be increased to a score, and facilities have been developing at a great rate, said the speaker, and the astronomers have perfected plans so that their work is cooperative and not overlapping. Astronomers of the United States and of the Pacific coast region have been leaders in the development of the age old science in their study of the 1,000,000,000 stars that surround the earth. He described the methods of the astronomers and the classification of the various groups as to distance, color, and brilliance.

End of Early Hopes.

"The dedication of this observatory is the culmination of my ideas and hopes for a long time," said Director A. E. Douglass, in speaking of the

historical aspect of the building. The start for an observatory was made for the University early in the present century when Mr. Freeman, a staunch friend of the University bought a four-inch telescope for the use of the University. By 1909 an eight-inch telescope was borrowed from Harvard University and it was used until the installation of the present lens and equipment. The plans for a real observatory were pursued by Director Douglass and Dr. von Kleinsmig during 1914 and 1915 but no action resulted. Mrs. Lavinia Steward made a gift of \$50,000 in 1917 and the work of constructing the building went forward from that time.

The questions of locating the building and securing the proper instru-

ments was explained by the director in an interesting manner. With numerous delays resulting from the war, the building and instruments were finally completed in the early part of 1922 and sent to Tucson where they were installed with great care. This dedication is symbolic of the completion of a material part only, but the real work goes on forever," said the dean. He expressed a desire that the University instrument live and produce real scientific results, which is the business foresight method of such a work.

Acceptance of the building was made by Chancellor John Henry Campbell of the University board of regents. He expressed the hope that Steward observatory would be but one of many gifts of interested citizens for the benefit of the local University and education. "It is a natural desire in man to do something worth while," he said, "and while we cannot all do things in the same line, there is no better thing than to make such a gift to this institution." On behalf of the board of regents, I accept this observatory which shall be known as Steward observatory."

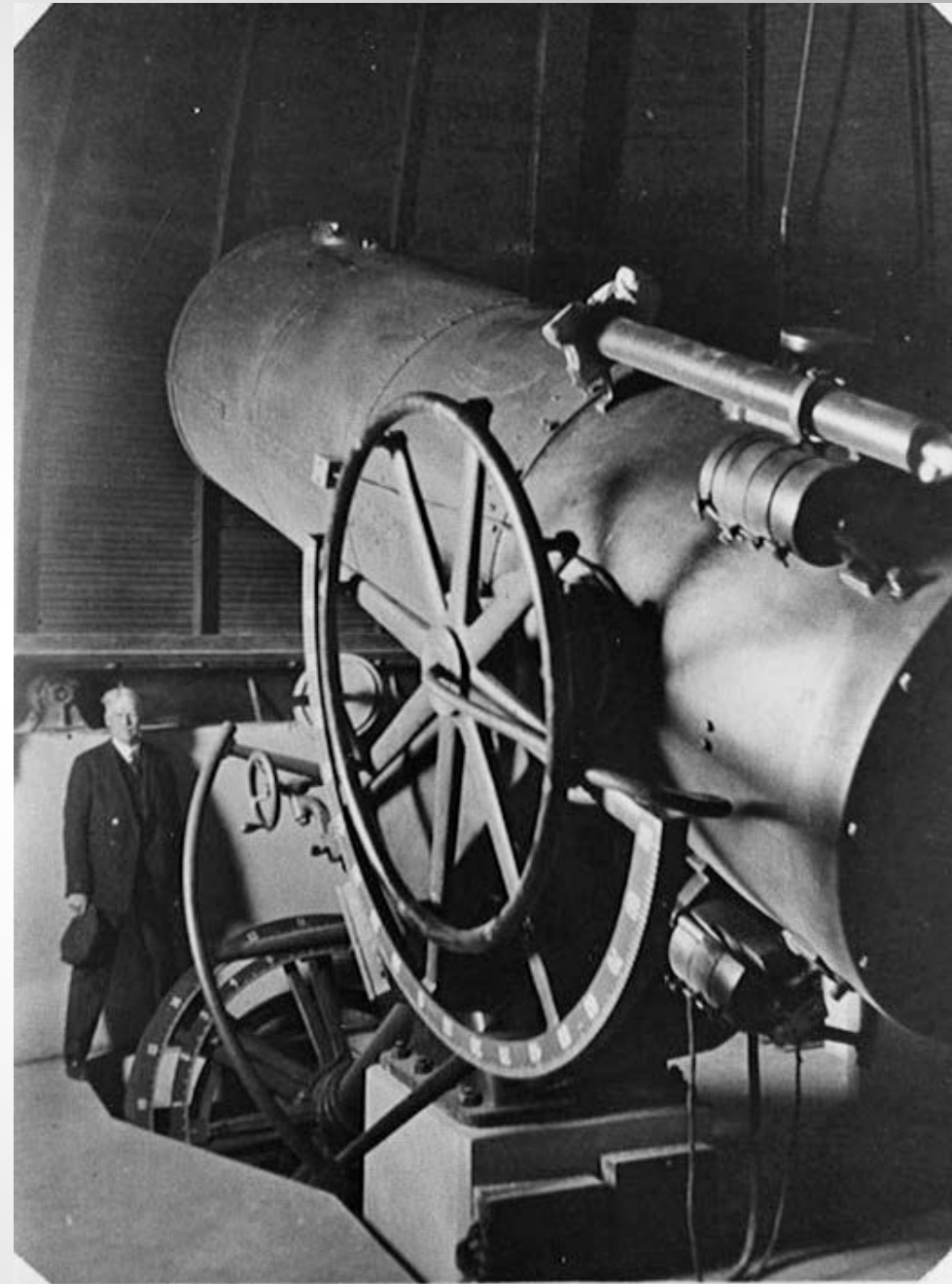
Following the program the guests and all present were invited to inspect the observatory and look through the lens at Saturn. A large number of the delegates and visitors availed themselves of this opportunity and inspected the building.

DEDICATED WITH APPROPRIATE CEREMONIES AT U. OF A.

Tucson Citizen - Apr. 24, 1923

Steward Observatory Through the Years

Prof. A.E. Douglass, first Director of Steward Observatory, poses with the 36-inch reflector. Known as the “All-American Telescope”, it was the first professional telescope in the United States to have all of its parts manufactured in the USA.



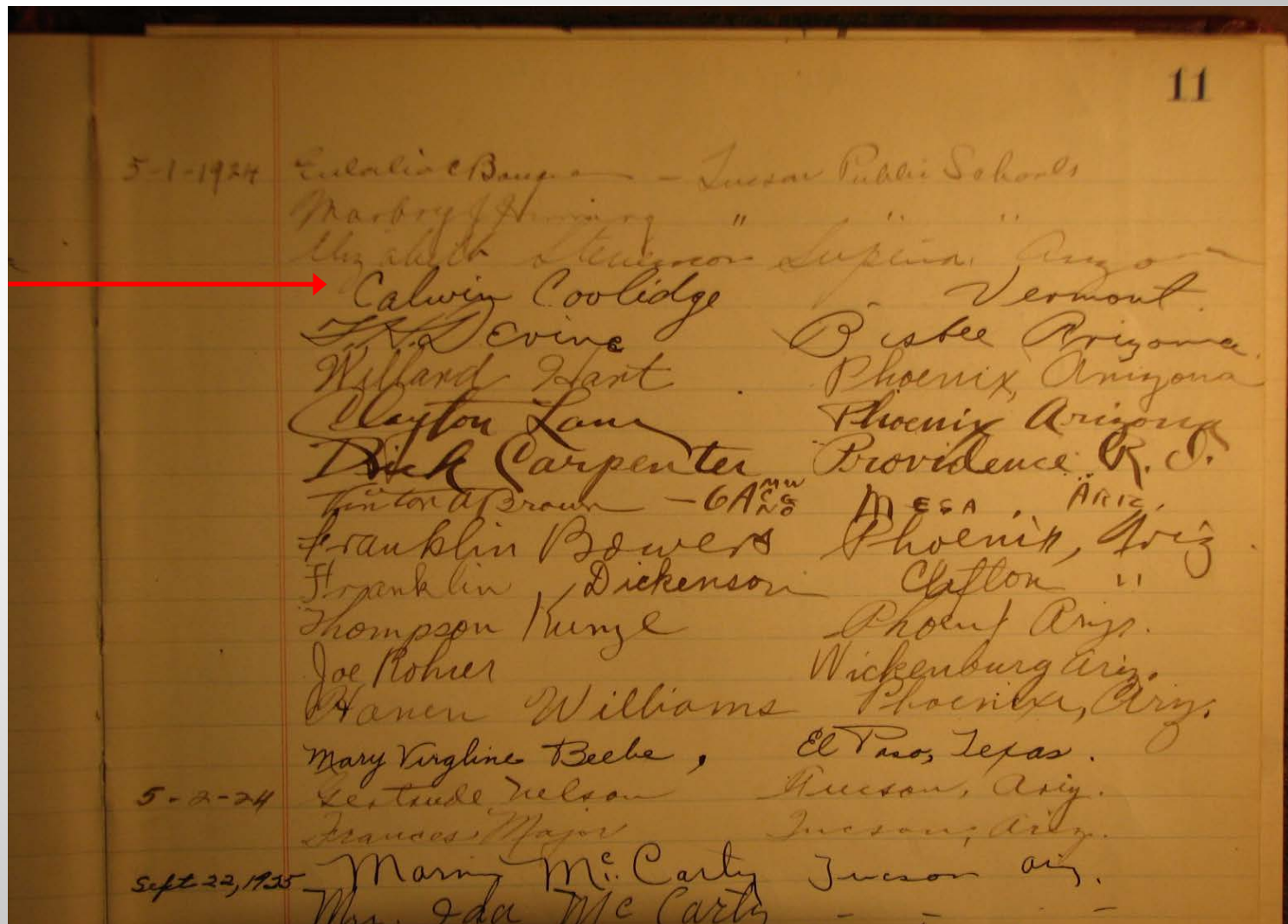
A.E. DOUGLASS

Steward Observatory Through the Years



Aerial shot of the UA Campus taken in 1924

Steward Observatory Through the Years



May 1, 1924: Steward Observatory's only Presidential visit!

Steward Observatory Through the Years



The road to Steward
Observatory from main
campus ca. 1925

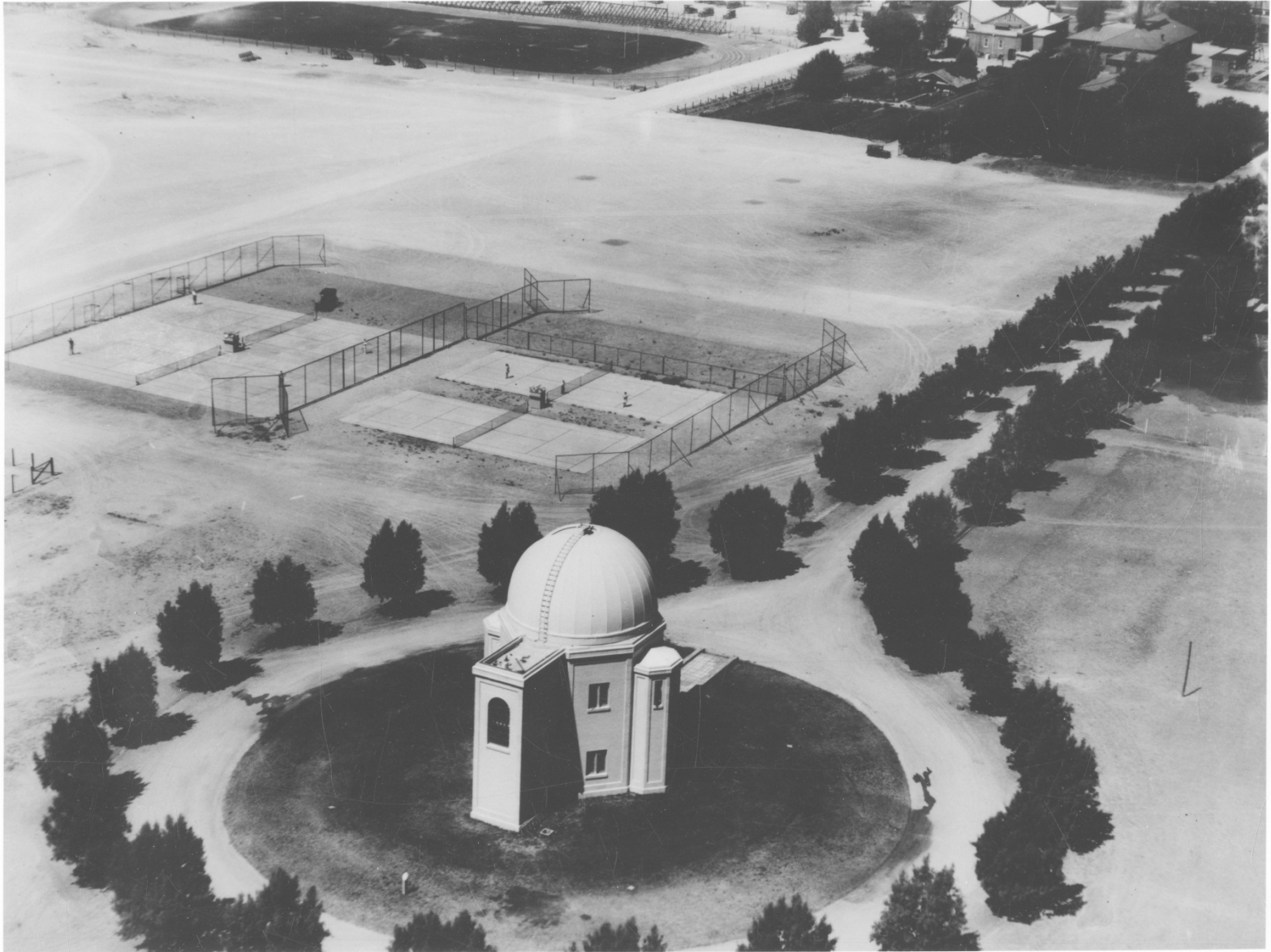
Steward Observatory Through the Years

The original Steward Obs. lobby, which doubled as a classroom until 1960.

Today it is divided into cubicles and used for graduate student offices.



Steward Observatory Through the Years



1928 aerial photo of the UA campus taken from the northeast.

Steward Observatory Through the Years



The west (main) entrance to Steward Observatory ca. 1930...

Steward Observatory Through the Years



...contrasted to today. The original entrance is closed.

Steward Observatory Through the Years



Astronomy undergrad John Williams, visiting Swedish astronomer Karl Lundmark, and A.E.D. in the spring of 1933. Skilled in mathematics, Williams went on to write a book on game theory and co-found the Rand Corporation.

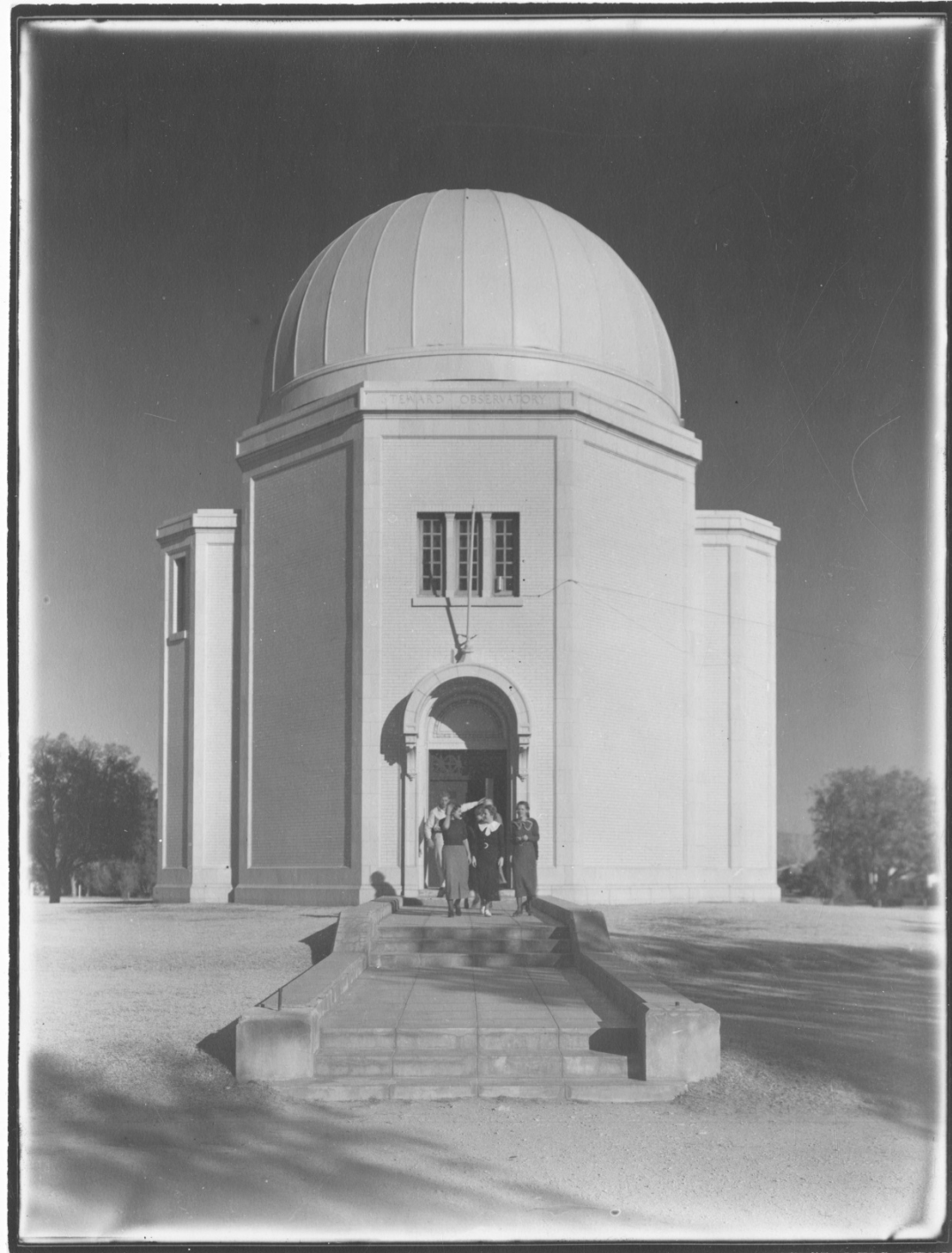
Steward Observatory Through the Years

In the 1930s, Douglass and Carpenter were already making plans to move the 36-inch telescope off campus.



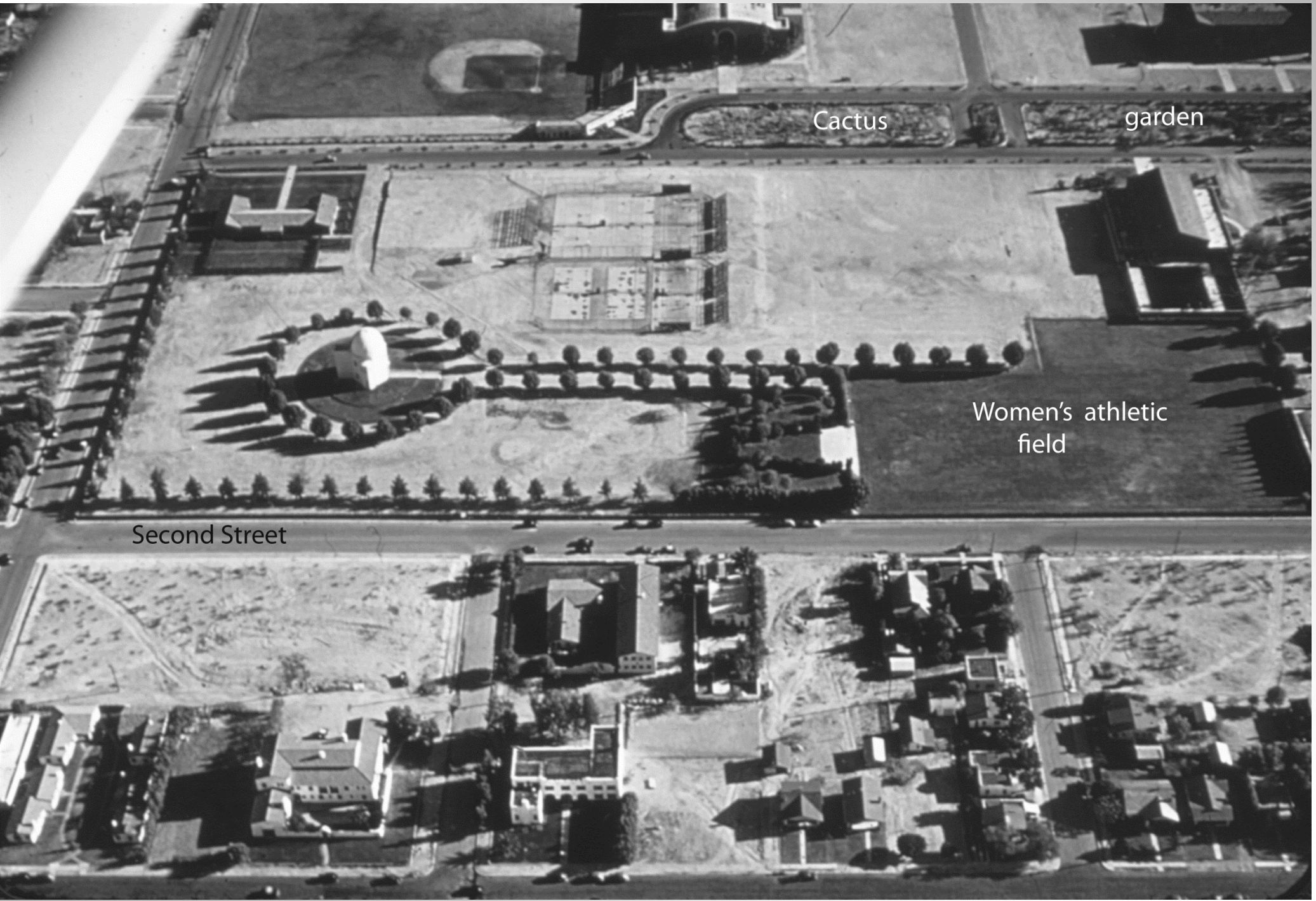
Here is a photo of (l-r) E. F. Carpenter, A. E. Douglass, UA President Homer Leroy Shantz, and visiting astronomer Karl Lundmark inspecting a possible site for the telescope east of Tucson, in what is now Saguaro National Park East.

Steward Observatory Through the Years



Students leaving the
observatory in April 1934

Steward Observatory in 1940



Cactus

garden

Women's athletic
field

Second Street

Steward Observatory Through the Years



The previous photo, shown here in color, was taken in 1940 by Carolyn Royalty, a secretary at Steward Obs., while taking flying lessons. The only structures that remain today are Steward, Bear Down Gym, and the Campus Infirmary, which is now the Charles Sonnett Bldg. of LPL since Campus Health moved in 2004.

Steward Observatory Through the Years



This picture of the South side of Steward Observatory was taken in January 1949. The small domes, located on the site of the present-day Psychology Bldg., housed a 14-inch photographic reflector (l) and the 4.3-inch James refractor (r).

Steward Observatory Through the Years



A. E. Douglass returned to the Lowell Observatory in August 1949. He is pictured here with Earl Slipher, brother of Vesto Slipher.

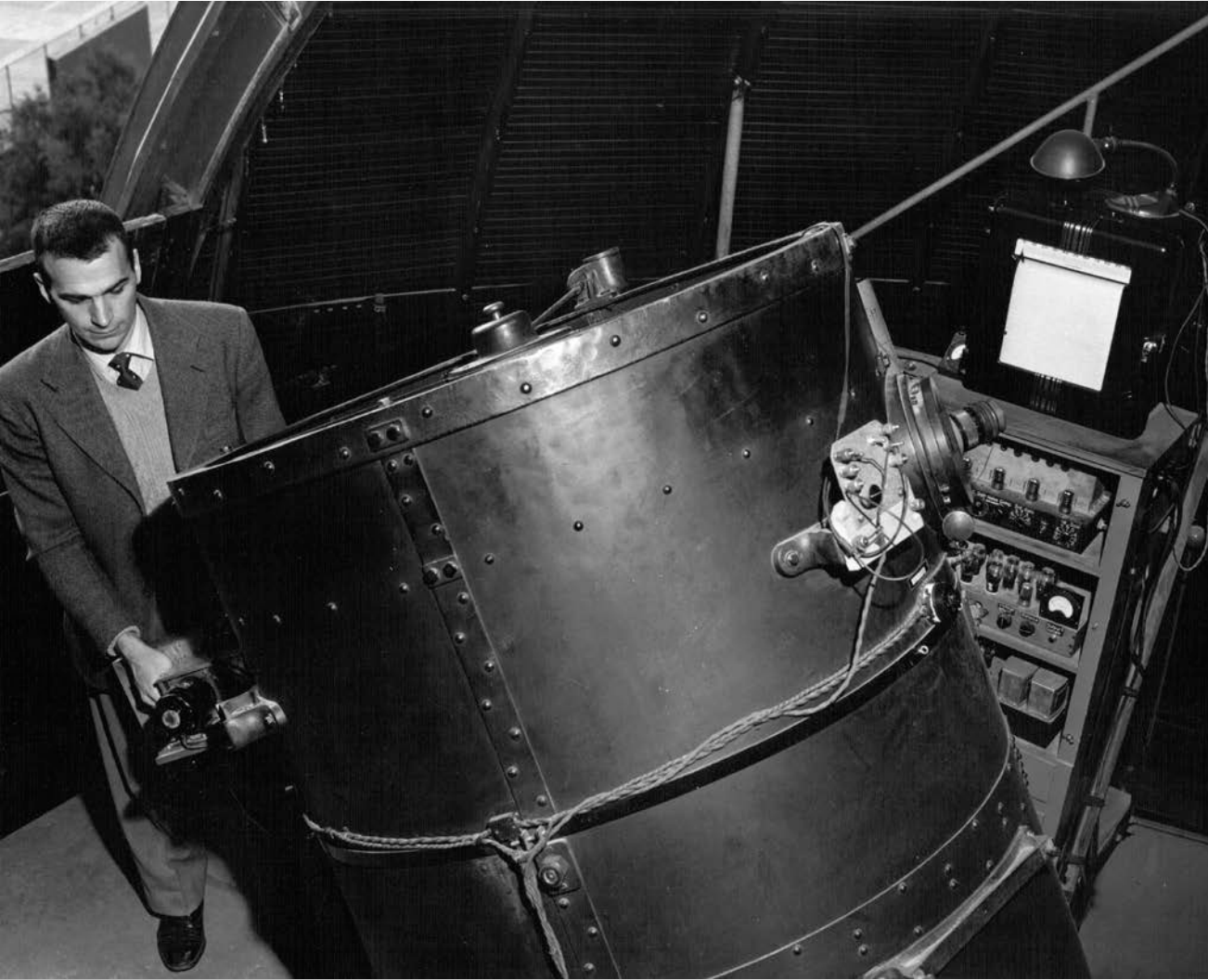
Earl was the principle Mars observer at Lowell after Percival's passing. He also served as mayor of Flagstaff and a member of the Arizona legislature.

Steward Observatory Through the Years

The first two Directors of Steward Observatory, Prof. A. E. Douglass and Prof. E. F. Carpenter, posed for these pictures in 1951.



Steward Observatory Through the Years



Prof. Walter S. Fitch demonstrates the use of a new photoelectric photometer in 1953. Astronomers could now do photometry without photography!

Steward Observatory Through the Years



This posed picture was taken for a commercial UA post card in 1955.

Steward Observatory Through the Years

Prof. Edwin F. Carpenter, the second Director of Steward Observatory, demonstrates the operation of the 36-inch telescope to a group of students in 1957.

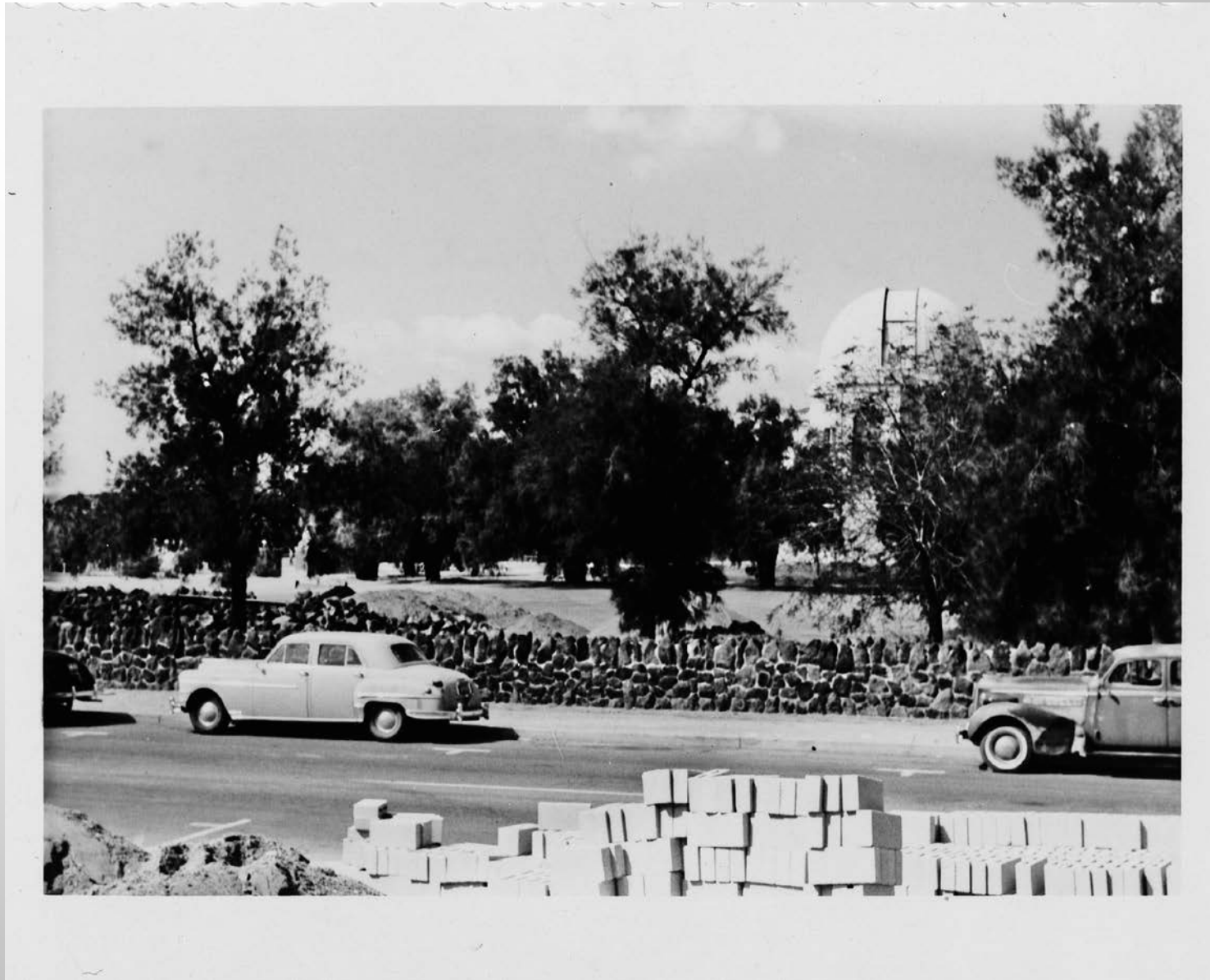


Steward Observatory Through the Years



A student observing at the Newtonian focus of the 36-inch telescope in 1957

Steward Observatory Through the Years



The view from Cherry Avenue in October 1959

Steward Observatory Through the Years



In 1960, the first addition to the original Steward building was completed.

Steward Observatory Through the Years

The Steward 36-inch telescope in February 1960, just three years before it was moved to Kitt Peak.

Poor seeing and bright lights made it impossible to do state of the art research from campus anymore.

