NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

114

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Dyer, Arthur J., Observatory

other names/site number NA

2. Location

street & number 1000 Oman Drive NA☐ not for publication

city or town Brentwood ☐ vicinity

state Tennessee code TN county Davidson code 037 zip code 37027

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☒ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set for in 36 CFR Part 60. In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☐ nationally ☐ statewide ☒ locally. (See continuation sheet for additional comments.)

E. Patrick McIlhenny 1-22-09

Signature of certifying official/Title Date

State Historic Preservation Officer, Tennessee Historical Commission

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See Continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

☑ entered in the National Register.
☐ See continuation sheet
☐ determined eligible for the National Register.
☐ See continuation sheet
☐ determined not eligible for the National Register
☐ removed from the National Register.
☐ other, (explain:)

for Edson H. Beall — 3.6.09

Signature of the Keeper Date of Action

5. Classification

Ownership of Property
(Check as many boxes as apply)

- ☒ private
- ☐ public-local
- ☐ public-State
- ☐ public-Federal

Category of Property
(Check only one box)

- ☐ building(s)
- ☒ district
- ☐ site
- ☐ structure
- ☐ object

Number of Resources within Property
(Do not include previously listed resources in count)

Contributing	Noncontributing	
3	1	buildings
		sites
		structures
		objects
3	1	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of Contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

EDUCATION/research facility
DOMESTIC/single dwelling

Current Functions
(Enter categories from instructions)

EDUCATION/research facility

7. Description

Architectural Classification
(Enter categories from instructions)

Classical Revival
Ranch

Materials
(Enter categories from instructions)

foundation CONCRETE
walls BRICK
roof OTHER: aggregate; asphalt
other LIMESTONE; WOOD

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☒ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- ☒ **B** Property is associated with the lives of persons significant in our past.
- ☐ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Areas of Significance
(Enter categories from instructions)

SCIENCE

Period of Significance
Circa 1952/3-1960

Criteria Considerations NA
(Mark "x" in all boxes that apply.)

Property is:

- ☐ **A** owned by a religious institution or used for religious purposes.
- ☐ **B** removed from its original location.
- ☐ **C** a birthplace or grave
- ☐ **D** a cemetery.
- ☐ **E** a reconstructed building, object, or structure.
- ☐ **F** a commemorative property
- ☐ **G** less than 50 years of age or achieved significance within the past 50 years.

Significant Dates
NA

Significant Person
(complete if Criterion B is marked)
Seyfert, Carl K.

Cultural Affiliation
NA

Architect/Builder
Jones, Clarence T. and R. Bruce (architects); Nashville Bridge Company (dome); Rock City Construction (general contractor)

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS): N/A

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ Previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☒ State Historic Preservation Office
- ☐ Other State Agency
- ☐ Federal Agency
- ☐ Local Government
- ☐ University
- ☒ Other

Name of repository:
Dyer Observatory; Vanderbilt University

Dyer, Arthur J., Observatory
Name of Property

Davidson County, Tennessee
County and State

10. Geographical Data

Acreage of Property 9 acres Oak Hill 308 SE

UTM References
(place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	16	517580	3989747	3			
2				4			

☐ See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Scarlett C. Miles, Brian Beadles, and Claudette Stager
organization Metro Historical Commission; Tennessee Historical Commission date December 2008
street & number 3000 Granny White Pk; 2941 Lebanon Rd. telephone 615/862-7970; 615/532-1550
city or town Nashville state TN zip code 37204; 37214

Additional Documentation

submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 0r 15 minute series) indicating the property's location

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items
(Check with the SHPO) or FPO for any additional items

Property Owner

(Complete this item at the request of SHPO or FPO.)

name Vanderbilt University, c/o Sean Scully
street & number 2100 West End Avenue, Suite 750 telephone NA
city or town Nashville state TN zip code 37203

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Also notify:

Christine Bradley
Vanderbilt University Dyer Observatory
1000 Oman Drive
Brentwood, Tennessee 37027

Lynn McDonald
Program Coordinator
Vanderbilt University Dyer Observatory
1000 Oman Drive
Brentwood, Tennessee 37027

Description

Situated in a secluded area at 1,113 feet above sea level and surrounded by residences and the Radnor Lake State Natural Area, the Arthur J. Dyer Observatory is comprised of the 1953 observatory, 1953 residence, 1953 garage, and 2006 star chamber. Located at the crest of a hill, the observatory is in a relatively clear area while the rest of the site is wooded. Historic and modern paths traverse the property and the site is partially surrounded by a gated fence. The historic buildings on the property have had few modern alterations and retain a high degree of integrity.

Observatory

The east façade of the one and two story Classic Revival observatory is dominated by the central entry rotunda, which contains the original telescope on the second level. The building is constructed of concrete block faced with red brick. Floors and ceilings are reinforced concrete. This portion of the façade is multi-planed, with projections extending from the main façade wall. Within this portion, the principal entry is inset slightly and delineated by simple limestone pilasters and a pediment with "THE ARTHUR J. DYER OBSERVATORY" incised in it. A single leaf wood and glass entry door is surrounded by sidelights and capped with a diamond pane transom light. Block glass windows with limestone surrounds are located on the beveled/angled walls that flank the main entry. Although only three sides are visible on the exterior this part of the building is octagonal. Two sets of multi-pane steel pivot windows flank the entry. Windows at the north and south edges of the façade are corner windows and extend to the north and south elevations respectively. Building specifications by architect Clarence T. Jones noted that "All sash shall be of the Architectural Projected type, operated with a rod with a hook."[1] A shallow pitched roof supports the five ton, twenty-four foot diameter dome that contains the telescope. Metal railings on the flat roof are visible from this view and all other elevations. A circa 2002 round concrete and brick patio leads to the building.

The dome holding the Seyfert telescope is visible from the façade and all elevations. Rising about twenty feet from the roof, the steel dome rests on a brick base. The flat roof is multi-level, with several rooftop extensions for offices and telescopes. Building specifications called for much of the roof to be six inch by sixteen inch reinforced concrete slabs. There are modern metal balustrades on each level. Access to the roof is through two single leaf doors. A large roughly square brick rooftop extension houses the (former) planetarium dome. Housing for the DeWitt telescope is also on the roof. Concrete coping is on the exterior parapet wall, while terra cotta coping is on interior parapet walls.

[1] Jones, Clarence T., Architect, and R. Bruce Jones, Associate. Building plans and "Specifications for Observatory Building for Vanderbilt University, Nashville, Tennessee." Plans dated June 26, 1951. On file at Dyer Observatory.

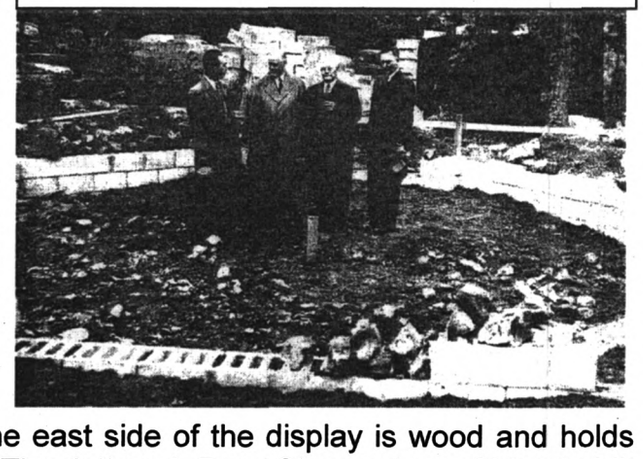
A steel corner window is visible on the south elevation (first story). An eight-light and two six-light pivot windows are on this elevation. West of the windows, the wall of the elevation projects/extends further south. A single leaf door, facing east, capped by a diamond pane transom, provides entry into this part of the building. One six-light and two three-light pivot windows are located at the west part of this elevation. A modern stair/fire escape on the south elevation extends from the roof of the building to the ground.

On the west elevation, two sets of paired wood and glass doors provide entry into the library/lecture room. Narrow transom lights, probably not original, are seen over the doors. The doors are surmounted by a circa 2002 crescent shaped design. Above this the elevation is two stories, the second story housing the planetarium dome. One eight-light steel pivot window is located on the south part of the elevation and two eight-light steel pivot windows are located on the north part of the elevation. A circa 2002 concrete patio is also here.

The north elevation is similar to the south elevation except that modern HVAC systems have been placed here. West of the corner window at the northeast corner there is an eight-light pivot window and two nine-light pivot windows. Two more eight-light pivot windows are located on the projection/extension at the northwest part of this elevation.

Inside, the observatory was constructed with three offices, a visiting astronomer's apartment, shop, telescope and housing, bathrooms, dark room, lecture room/library, and planetarium. The majority of the historic floor plan is intact but uses for the rooms have changed. Some ceiling heights have dropped and the floors are now carpeted in many areas, but few other changes have occurred. Walls are concrete block except for the telescope area on the second floor, where the walls are brick. Most doors are the original wood doors with steel casing. The window surrounds are steel and window sills are marble. Most of the interior wood trim is yellow pine.

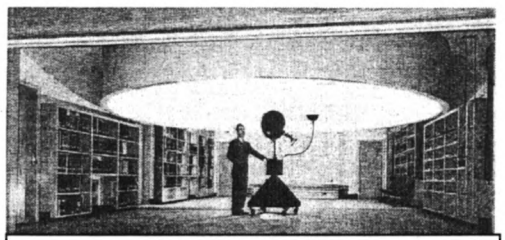
April 1952- Seyfert, W.L Hemingway (chair of board of trust), Dyer, Vanderbilt Chancellor Harvie Branscomb. *Vanderbilt Register*, 1/11/83.



The entry rotunda is octagonal with concrete block walls and a wood chair rail. There are two wood framed display areas that are original. The display on the northwest wall is a single pane of glass with room for artifacts. The display on the southwest wall is back lit with spaces for six different images. The two glass block windows visible from the main entry are in this room. About six years ago (circa 2002) Nashville architect John TeSelle remodeled the center display area. The center display area is a square, primarily glass, with a wood base at the floor level and wood at the ceiling level. Underneath the display case is the telescope's concrete base, which extends down to bedrock. The east side of the display is wood and holds the original building plaque. The building is named The Arthur J. Dyer Observatory of Vanderbilt

University, the date is 1953, Clarence T. Jones and R. Bruce Jones are the architects, and Rock City Construction is the general contractor. The plaque also contains the names of the original contributors to the project. Single leaf wood doors on the north and south of the rotunda lead to offices and bathrooms.

West of the rotunda there is a small hall area that leads to the stairs to the second level, longer halls going to the lecture room/library, and more office space. The longer halls have slightly dropped ceilings and modern lighting. Single leaf wood doors lead to offices and a double leaf and a single leaf wood door provide entry into the library. The most prominent feature of the library room is the "hemispherical projection ceiling," or dome, and it was designed so it could be used as a small planetarium. The dome could be raised or lowered and is closer to the south end of the room. The south end of this large room contains the stage platform. It is slightly elevated and has an oak wood floor and folding curtains that can hide the area. Single leaf wood doors flank the stage. Wood bookcases, most of which appear to be original, line the walls. Only the bookcase between the double leaf doors on the west wall appears new. North of the former planetarium, a cased wood opening holds curtains that can be used to separate the library from the rest of the room. A central wood study carrel with glass display cases is circa 2002. The remainder of the first floor consists of offices and storage rooms. Walls are concrete block and many rooms have chair rails, built-in bookcases, and cove molding.



From *Sky and Telescope*, January 1954. Seyfert with projector in center of planetarium.

A dogleg concrete stair leads to the second level. A glass block window lights the stair and paintings of Arthur J. Dyer and Dr. Carl Seyfert, both painted by Mrs. Seyfert, are on the walls. The enclosed stair is solid concrete block. At the second floor landing a single leaf glass and wood door leads to the roof, a single leaf wood door leads to offices, and a double leaf wood door leads to the observatory.

The centerpiece of the brick walled observatory is the original twenty-four-inch Baker Reflector–Corrector telescope that can also be used as a camera. Now called the Carl K. Seyfert Telescope, the telescope is ten feet long and weighs about one ton. The primary telescope mirror is twenty-four-inches in diameter and constructed of Pyrex. The light gathering power of the telescope is 10,000 times that of the human eye. The mirror itself weighs about 175 pounds. The apparatus is counterbalanced and can be readily moved by hand. The telescope is mounted on a concrete pier that is separate from the building foundation and it extends into the bedrock. The dome over the telescope can rotate 360 degrees on a track with eight wheels. It weighs five tons and is twenty-four feet in diameter. The dome opening is six feet wide and is opened and closed by an electric motor.

The former darkroom is on the second level but is now used as an office. The water faucets are still in the room and there is access to the roof from here. The room configuration has changed, with one wall having been removed.

The observatory was designed so that rainwater could be collected in a cistern and used as the water source for the observatory. The remnants of the cistern exist and are visible from the roof of the observatory. In 1960 well water was used for the complex and later city water became available. However, the resource (cistern) is too small to be considered contributing or noncontributing.

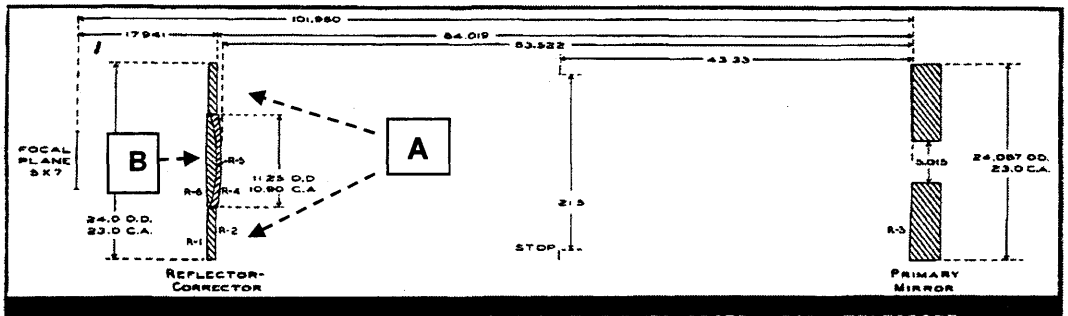
Clarence T. Jones of Chattanooga started the design for the observatory. He died at age 71 while working on Dyer Observatory and his son Bruce Jones completed the project.

Telescope

Note: A glossary of terms follows at the end of section 7.

Developed by Dr. James G. Baker of the Harvard College Observatory, the main telescope at the Dyer Observatory is a modified version of a Schmidt telescope known as a Baker-Schmidt telescope or Baker Reflector-Collector. Additionally it can also be configured to work as a Cassegrain or as a Newtonian reflecting telescope. It is very unusual in its versatility and was one of the first of its kind to be constructed. Its design allows the telescope length to be half as long as a comparable Schmidt telescope with the same optical capabilities.

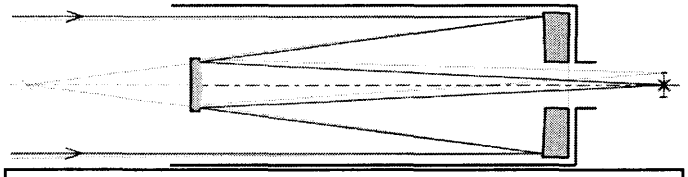
A Baker-Schmidt telescope is catadioptric, meaning that it uses both lenses and mirrors. In this configuration, there is a twenty-four-inch primary mirror placed at the lower end of the telescope. Near the upper end of the telescope is the reflector-collector plate. This consists of a twenty-four-inch ring-shaped glass plate (A) with an eleven-inch achromatic lens (B) centered in the plate. In this system light from the stars and the sky passes through the glass plate (A) to the bottom end of the telescope where it is reflected off the primary mirror. The light then passes through the eleven-inch achromatic lens (B), which focuses the light to a point near the top of the telescope. A



REFLECTOR-CORRECTOR ARRANGEMENT OF THE DYER OBSERVATORY TELESCOPE

photographic plate, or any other kind of light sensor, can be placed in the focal plane to produce photographs.[2]

The shape and position of the reflector-collector plate helps to correct some visual irregularities that commonly occur in telescopes. The shape of the plate is designed to correct for astigmatism and spherical aberration, while its position helps to reduce coma. Additionally the achromatic lens used in the reflector-collector plate helps to eliminate chromatic aberration.



Light path in a Cassegrain telescope.

In order the convert the telescope to work as a Cassegrain or Newtonian reflecting telescope the reflector-collector plate (A and B) is removed and replaced with a secondary mirror. In the Cassegrain configuration light is reflected off the primary mirror to the secondary mirror. The light is then reflected off the secondary mirror back down the telescope tube and passes through a five-inch hole in the center of the primary mirror to an eyepiece for viewing. In the Newtonian configuration the secondary mirror is angled so that the reflected light is directed to an eyepiece on the side of the telescope.

Originally the mirrors were to be made from fused quartz, however, the first mirrors produced from quartz were found not to be suitable for the telescope. Instead, the primary mirror, as well as the Cassegrain and Newtonian secondary mirrors, was made with Pyrex. The Pyrex primary mirror alone weighs approximately 175 pounds. The entire telescope weighs about one-half ton, and is counterbalanced by weights to bring the full weight of the total apparatus to approximately one ton (not including the mounting). The counterbalances allow the telescope to be moved by hand. Additionally, two small precision motors move the telescope on two different axes "at a rate of only a quarter of a degree per minute, a rate which is half that of the hour-hand of a normal watch."[3]

The telescope is mounted onto a concrete pier that rests on its own foundation independent of the rest of the building. The mounting mechanism was constructed by the J. W. Fecker Company of Pittsburgh, Pennsylvania. The optical elements of the telescope were made by the Perkin-Elmer Corporation of Norwalk, Connecticut.

In addition to visual observations, the telescope can be used for activities such as spectroscopy and photometry. Spectroscopy is a study of spectral lines, or the different components of light. An objective prism is placed in front of the reflector-collector plate to produce the spectral lines. This is "very useful in studies involving the classification of stars according to temperature, emission features, and other criteria."[4] Photometry is the measurement of the brightness or intensity of

[2] Carl Seyfert. "The Baker-Schmidt Telescope of the Arthur J. Dyer Observatory," *Mitteilungen der Astronomiscoen Gesellschaft*. Vol 7, 1956. p. 77-8.
[3] Arthur J. Dyer Observatory. *Astronomy at Vanderbilt and the Arthur J. Dyer Observatory*, Nashville. p. 9.
[4] Ibid, p. 10.

light. The photometer is used to measure the brightness of light from a star. The photometer is able to isolate the light from a single star by use of a diaphragm in the focal plane. The light then passes through certain filters placed according to the research needs of the astronomer and is recorded and measured. It has been reported that "the photometer at the Dyer Observatory is capable, in principle, of detecting the light of a candle 1,000 miles away and measuring its temperature."[5]

A major research program that was undertaken at Dyer Observatory by Carl Seyfert was the study of emission B stars, or Be stars. A Be star is a B class star that has prominent lines in its spectra. In 1956 Seyfert wrote that "a search of thirteen regions has added 213 new Be stars to the 114 already known."[6] Additionally, Seyfert was known for his work in classifying a particular group of galaxies now known as Seyfert Galaxies. In 1943 Seyfert identified this class of galaxies, many of which are now thought to have giant black holes at their centers. These galaxies comprise ten percent of all galaxies and are among the most studied objects in astronomy.[7]

House (contributing)

The one story ranch house is generally rectangular in plan, has an asphalt shingle gable and hip roof, wide wood eaves, and numerous multi-light steel windows. The house is constructed of concrete block with brick facing. Constructed at the same time as the observatory, the Seyferts were supposed to have lived in the guest rooms of the observatory until the house was completed. The house is nested in a wooded area about 125 feet from the observatory. Bricks from the original observatory on the Vanderbilt University campus are believed to have been used to build the house.

The east façade is multi-planed and fronts a modern wood deck and handicap accessible ramp. The principal entry is through an original single leaf paneled wood door. Twelve-light pivot windows flank the door. This part of the house has a gable roof. South of this plane of the house is a hip roof section that contains a corner window just like those on the observatory. A second hip roof extension contains a single-leaf glass and wood panel door (circa 1978) on the north and two casement windows. There is a window and eight-light (four by four) paired casement windows south of the hip roof extension.

The south elevation has three steel casement windows. Two of the windows are eight-light casements and one is a six-light casement. The hip roof is visible from this elevation and there is also a small gable (or gablet) vent.

Two sets of paired eight-light casement windows are seen on the south part of the west or rear elevation. French doors (2008) enclose an area that was once an open patio. Prior to the French

[5] Ibid, p. 11.
[6] Seyfert, p. 80.
[7] www.seyfertgalaxies.com. Web site accessed 11/21/2008.

doors, sliding glass doors enclosed the space. North of this are two windows. The chimney is visible from this elevation. A concrete patio leads from the house. Originally there was a outdoor built-in swimming pool built using bricks from the observatory that was on the Vanderbilt campus. The pool was partially filled in 2006.

The north elevation is dominated by a large sixteen-light fixed wood window. This part of the house is under the gable roof and the gable field is sheathed in wood shingles that match those on the garage.

Inside the house, walls are plaster over the concrete block, most windows are steel casements with brick sills, and floors are carpeted or tiled. There are wood baseboards and narrow cove molding in most rooms.

The main entry into the house leads into the family room/den. A brick wall with a fireplace and two door openings is the west wall of the living room. To the north of this is a small room with a large multi-light picture window and built-in shelving in a closet alcove. This room was Mrs. Seyfert's studio. A small bathroom is to the west of the studio has recently undergone rennovation. South of the bathroom and west of the fireplace is an area that was originally open but was later enclosed with sliding glass windows.

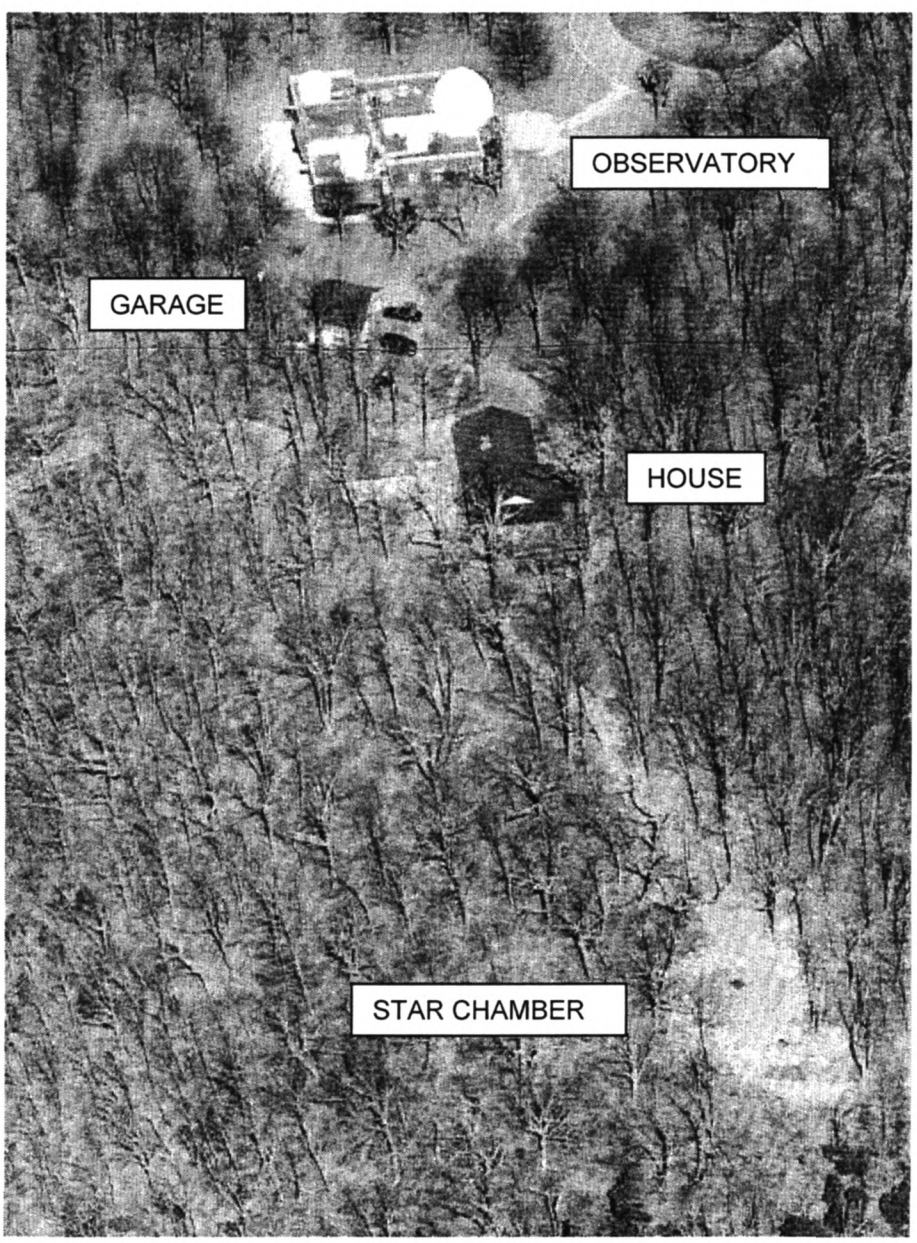
The bedrooms, main bathroom, and kitchen are located in the south half of the house. There is a hallway with rooms off to the side and the bathroom at the south end. The room and hall configuration of the house is historic but the bathroom and closet spaces are in the process of being remodeled. The bathroom retains some original features but is currently undergoing modernization to make it handicapped accessible. Ceramic tiles and a mirrored cabinet flanked by wall lights are historic elements that remain in the bathroom. The kitchen can be accessed through the hall. It has an original wall fan and metal cabinets are original but appliances have been updated. The wall of the breakfast nook has a telephone nook that opens into the living room. A casement window in the kitchen opens into an enclosed porch. The exterior brick wall is visible in the porch; the interior walls of the porch are concrete block.

Garage (contributing)
The two car garage is believed to have been built around the same time the house was built. It is one story with a front gable roof and is constructed of concrete block. Wide wood siding with narrow battens is on the west elevation. The gable field is covered in wood shingles. The gable roof is covered with asphalt shingles and windows on the side elevations are an eight-over-eight double hung and an eight-light pivot window. The garage has open attic space.

Star Chamber (noncontributing)
Completed in 2006 at the southern part of the property, the Star Chamber was designed and built by U.K. artist Chris Drury. Stone from the main Vanderbilt campus was used to build the domed structure which acts as a sundial and camera obscura. There are several stones outside the

structure that are used for the yearly solstice and equinox days. Also, surrounding the chamber is a spiral or galaxy like formation of stones.

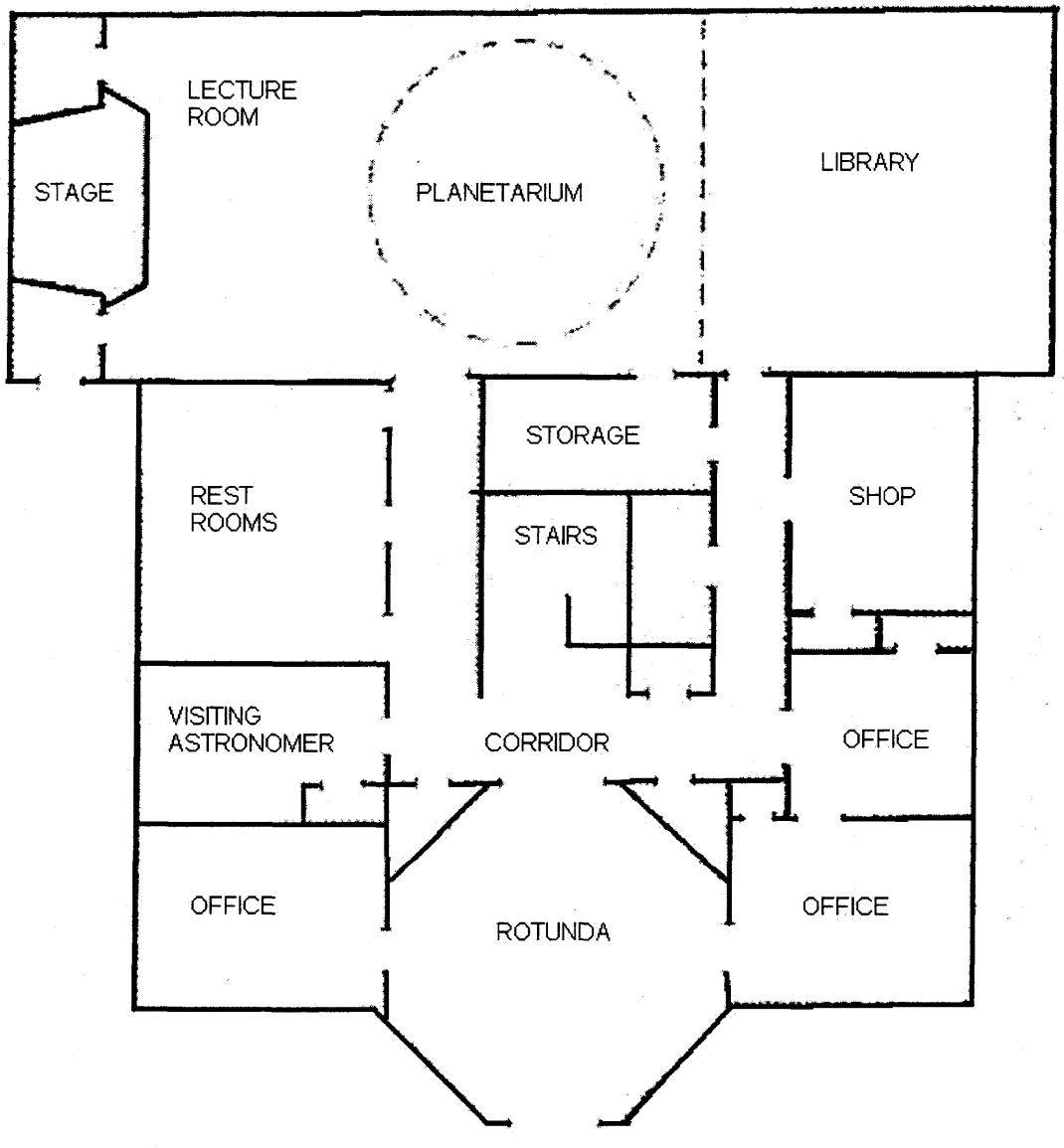
The fence gate dates to 2003 and used to be a farm gate. The barbed wire fencing is original.



Site Plan ⇧

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet



Observatory plan adapted from *Sky and Telescope*, January 1954

United States Department of the Interior
National Park Service

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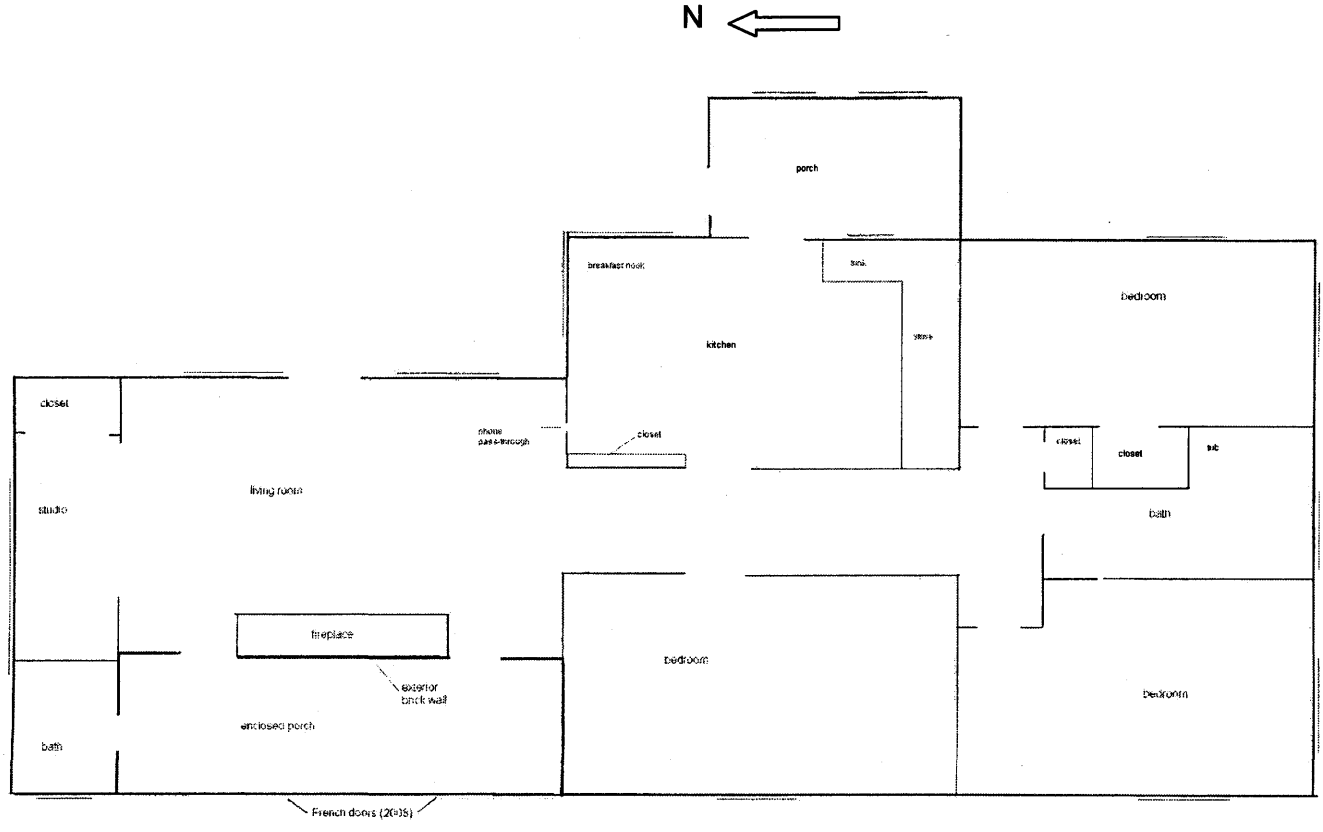
Sketch plan of house. Not to scale.



Glossary of terms[8]

astigmatism
Results from a mirror that is not ground symmetrically about its center; star images focus to crosses rather than to points.

Be stars
A B class star with prominent emission lines of hydrogen in its spectrum. Be stars are commonly thought to rotate rapidly.

catadioptric
An optical system that uses both lenses and mirrors.

chromatic aberration
Caused by a lens having a different refractive index for different wavelengths of light. Results in a rainbow halo that appears around images.

coma
Stars near the edge of the field of vision look elongated, while those in the center are sharp points of light.

photometer
An instrument for measuring the intensity of light, commonly used for comparing the relative intensities of different lights.

Seyfert galaxy
A spiral galaxy whose nucleus shows bright emission lines; one of a class of galaxies first described by C. Seyfert.

spectral line
Light given off at a specific frequency by an atom or molecule. Every different type of atom or molecule gives off light at its own unique set of frequencies; thus, astronomers can look for gas containing a particular atom or molecule by tuning the telescope to one of the gas's characteristic frequencies. For example, carbon monoxide (CO) has a spectral line at 115 Gigahertz (or a wavelength of 2.7 mm).

[8] Definitions were derived from a variety of internet sources including: www.dictionary.reference.com, www.imagine.gsfc.nasa.gov/docs/dictionary.html, www.science.howstuffworks.com/telescope. Web sites accessed 11/20/2008.

spectrometer
The instrument connected to a telescope that separates the light signals into different frequencies, producing a spectrum.

spectroscopy
The study of spectral lines from different atoms and molecules. Spectroscopy is an important part of studying the chemistry that goes on in stars and in interstellar clouds.

spherical aberration
Light reflected from a mirror's edge gets focused to a slightly different point than light reflected from the center.

Statement of Significance

The Arthur J. Dyer Observatory is being nominated to the National Register of Historic Places under criteria A and B for its local significance in science. Built under the guidance of well-known known astronomer Carl K. Seyfert, the 1953 observatory has been an important research facility for Vanderbilt University. It continues today to be used for research and public outreach. While under Seyfert's tenure the observatory was built and the innovative telescope was completed. Although his life was cut short by an automobile accident in 1960, Seyfert was responsible for constructing the observatory and conducting his own scientific research while there. The Classical Revival observatory and modern Ranch house retain architectural and historic integrity.

History of Astronomy at Vanderbilt University

A year after admitting its first students in 1875, Vanderbilt University in Nashville, Tennessee, established its first astronomical observatory in the third building to be erected on the growing campus, suggesting the high priority of the department for Vanderbilt's first Chancellor, and Professor of Physics and Astronomy, Landon C. Garland. The observatory was equipped with a six-inch aperture refracting telescope built by the firm of Thomas Cooke of York, England, and a four-inch Merz meridian circle telescope also acquired in Europe. Despite being well-equipped, however, the observatory did not have an astronomer and was not well utilized. In 1883, at the urging of the Dean of Engineering and a group of local citizens, the university placed Nashville native Edward Emerson Barnard in charge of the observatory. Although Barnard lacked formal education and was only twenty-six years of age, his training in a local photography studio and his growing reputation as an amateur astronomer with several prize-winning discoveries to his name made the young Barnard the ideal candidate to oversee the observatory. Along with taking his first courses in mathematics, physics, and foreign languages, Barnard furthered his astronomical research and made several key discoveries, including seven comets and new nebula, during his career at Vanderbilt. In 1887, he joined the staff of the newly formed Lick Observatory in California and relocated to the Yerkes Observatory of southern Wisconsin in 1896.[9] Barnard remains one of America's most noted astronomers for his discovery of sixteen comets, the fifth satellite of Jupiter, and Barnard's Star, as well as his successful application of photography to stellar astronomy, his micrometer measurements of stellar positions, and his research of dark nebulae.[10] After Barnard's departure from Vanderbilt, the university remained proud of its early association with E. E. Barnard. Although he never graduated Vanderbilt, Barnard did receive the only honorary academic degree Vanderbilt has ever awarded.

The Barnard Observatory, named by the Vanderbilt Board of Trust in 1942, was razed in 1952 and its telescopes placed in storage. The six-inch telescope, now known as the Barnard telescope, remained in storage until 1973, when it was installed in the dome of the Stevenson Center on the

[9] C. R. O'Dell. "E. E. Barnard: Nashville's Most Famous Astronomer." Unpublished article. December 2007.
[10] www.dyer.vanderbilt.edu/dyer_history.htm. Web site accessed 10/17/2008.

Vanderbilt University campus. Newly refurbished in 2007, the Barnard Telescope is now at the Dyer Observatory. Bricks from the Barnard Observatory were used in the construction of the director's residence at the Dyer site.

The Ferguson Fused-Quartz Disk

Vanderbilt University's acquisition of the Ferguson fused-quartz disk (also known as the Ferguson Telescope) began around June 1943. At that time, Dr. Harlow Shapley of the Harvard College Observatory in Cambridge, Massachusetts approached fellow faculty member Dr. William Yandell Elliott about the likelihood of financial support from Vanderbilt University (specifically from an alumnus or a trustee) for the construction and maintenance of a telescope, if the mirror and mounting were donated to the school. Elma Ferguson and Grace Ferguson Haugh, daughters of John Ferguson, who had worked on the development of a fused-quartz mirror for General Electric (GE) in Lynn, Massachusetts, were interested in donating the mirror to a university as a memorial to their father. In 1943, the mirror was already fifteen years old and was located in a barn at the former family farm in Eldora, New Jersey, with the mounting in another location.[11] Elliott, a professor in Harvard's Department of Government and Vanderbilt alumnus, contacted Vanderbilt's Chancellor Oliver C. Carmichael about the proposal. Carmichael responded with interest in the donation of the mirror, yet admitted the university's reluctance to accept the gift due to the lack of a suitable building on the campus to house the telescope. The Vanderbilt astronomy department's concerns, as relayed by Carmichael, included the atmospheric conditions on the campus and the small size of the existing Barnard Observatory. A new building to house the telescope would be ideal, but the cost involved in its construction, without significant financial assistance, could preclude the university from accepting the gift. To help alleviate some of these concerns, Carmichael suggested establishing a time-limit for the donation; the university would construct a building for the telescope by five years after the end of the war. The Ferguson sisters agreed to the terms and asked Vanderbilt to go ahead and take possession of the gift, to which the university agreed. On March 16, 1944, Carmichael wrote to Elma Ferguson confirming Vanderbilt's receipt of all of the various parts of the donation, including the mirror and mountings.

The Campaign for the New Observatory

Carl K. Seyfert joined the physics and astronomy department of Vanderbilt University in 1946. Although, Seyfert was charged with building an observatory to house a telescope using the donated twenty-four-inch fused quartz disk, correspondence regarding the terms of his employment indicated that the endeavor would prove challenging:

[11] One condition of the sale of the Ferguson's family farm was the continued storage of the mirror by the new owner until the mirror could be shipped to the chosen recipient. Elma Ferguson was living in Cleveland, Ohio and Grace Ferguson Haugh was in Indianapolis, Indiana. Correspondence, Vanderbilt University Archives, College of Arts and Science, Record Group 510, Dyer Observatory vertical file.

> "We foresee some difficulty in this undertaking and simply want to be sure that you understand the situation in order that you will not be too disappointed if this project does not materialize at once. We are all enthusiastic about the prospect of having the new telescope properly installed and housed, and we feel that if anyone can accomplish this you will be able to do so."[12]

While the school would not be able to fund a new building or actively campaign for donations, Dr. Francis Slack with Vanderbilt's Department of Physics, explained to Seyfert that the administration would gladly connect him with members of the Barnard Astronomical Society and interested alumni. The donation of the fused-quartz disk had helped to renew the university's interest in its astronomy program.[13]

Seyfert began his campaign by giving lectures on astronomy and the proposed observatory to various civic groups. Three years later, after hearing Seyfert speak at a Rotary Club meeting, Arthur J. Dyer contacted Seyfert to request his assistance with building a sundial at his home. Dyer, head of the Nashville Bridge Company, ended up being a major source of funding for the observatory and an integral part of the development campaign. As Seyfert once joked, "This was probably the most expensive sundial ever built, since Mr. Dyer, for whom the observatory is named, and his bridge company became our largest contributors" to the construction of the observatory.[14] Together, Dyer and Seyfert found the ideal location for the new observatory about ten miles south of the main campus. For nominal fees, Carl and Eileen Gardner contributed 7.8 acres and the Louisville and Nashville Railroad Company contributed 1.2 acres on a secluded hilltop in southern Davidson County for the observatory site.[15] As originally intended, the setting was important to the functioning of the facility. Located 1,131 feet above sea level, the shade of the wooded site protected the observatory from direct sunlight, which could negatively impact the clarity of the telescopic image. The distance and hills separating the site from the city reduced the atmospheric conditions of smoke, dust and haze, which were becoming increasingly problematic for astronomers working at the Barnard Observatory on the Vanderbilt campus. Additionally, illumination from the Nashville city lights was minimal.

Seyfert, Dyer, and their supporters took what was thought to be an unusual tactic in developing the observatory. Instead of asking for money to finance the construction, they requested in-kind services and donation of materials. In all, eighty firms and foundations were involved in the

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[12] Dr. Slack was working at the Pupin Physics Laboratories, Columbia University, when Vanderbilt acquired the telescope. Correspondence, Vanderbilt University Archives, College of Arts and Science, Record Group 510, Seyfert faculty file.

[13] Robert Hardie. "Carl Keenan Seyfert [obituary]," *Quarterly Journal of the Royal Astronomy Society*, Vol. 2, March 1961, p.124. The Barnard Astronomical Society is an organization of amateur astronomers.

[14] Carl K. Seyfert. "The New Arthur J. Dyer Observatory," *Sky and Telescope*, Vol. XIII, No. 3, January 1954, p. 72. Dyer was a Vanderbilt engineering graduate and the founder and first president of the Nashville Bridge Company, *Astronomy at Vanderbilt and the Arthur J. Dyer Observatory*, Nashville, p. 6.

[15] Ten dollars to the Gardners, Deed Book 1968, page 84. One dollar to L & N Railroad, Deed Book 2196, page 332. Davidson County Register of Deeds.

construction of the observatory, some donating specific services, others donating time or materials, including sand and gravel, concrete blocks, bricks, reinforcing steel, electrical materials, doors, glass, hardware, and a large septic tank. Oman Construction Company built the road to the site in memory of John Oman, Jr., while the DuPont Co. donated the dynamite for blasting, Tennessee Metal Culvert Co. donated the metal culverts, Mr. DeWitt Thompson donated the equipment and labor for the blasting, Ralph Rodgers Corp. donated the crushed stone, and Southern States Paving Co. donated the asphalt surface. Nashville Electric Service installed the 2,000 feet of power line to the building, Southern Bell Telephone and Telegraph Co. contributed the telephone line, and Nashville's Rock City Construction Co. charged a nominal $1.00 fee for general contracting services. Chattanooga architect Clarence T. Jones and son Bruce Jones completed the plans and engineering drawings for a reduced fee.[16] Dyer's Nashville Bridge Company built the five ton, twenty-four-foot revolving dome of one-quarter inch steel for the telescope and the twenty-two-foot steel planetarium dome for the auditorium.[17] Local well-digger G. K. Anderson contributed fifty feet of what was originally designed to be a 200-foot well. When drilling proved unsuccessful, a 28,000 gallon cistern was constructed to collect rain from the observatory roof.[18] The Corning Glass Company donated a piece of twenty-four-inch optical glass for a large objective prism.[19] Together, the Research Corporation of New York and the Perkin-Elmer Corporation of Norwalk, Connecticut helped fund the telescope. The Research Corporation donated $10,000 for optical work on the telescope, and the University requested estimates for the work from various firms. Upon learning that Vanderbilt did not have sufficient funds to meet his company's estimate for the optics, Richard Perkin, head of the Perkin-Elmer Corporation, contributed $5,000 to add to the Research Corporation's grant. This donation enabled the University to accept the Perkin-Elmer's $15,000 bid to complete the optical work for the telescope. To ensure the successful completion of the observatory, Vanderbilt University and Mr. Dyer contributed funds to cover the remaining costs for labor and miscellaneous materials and the National Science Foundation provided the final $12,000.[20]

Construction of the observatory commenced in March 1952, after a six-year campaign described by Seyfert as being "the most exciting, sometimes heartbreaking and certainly backbreaking days

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[16] Early list of contributions found in "Vanderbilt University Observatory 1951, Contributor of Materials and Services" page 3 of Carl K. Seyfert, "Progress Report on the New Vanderbilt Astronomical Observatory, January 8, 1852," Vanderbilt University Archives, College of Arts and Science, Record Group 510, Dyer Observatory vertical file. Clarence T. Jones was an amateur astronomer and friend to Carl Seyfert. He also designed the Clarence T. Jones Observatory (1936) in Chattanooga, Tennessee. The Jones Observatory is affiliated with the University of Tennessee at Chattanooga. Seyfert, 72.

[17] Complete with a stage, the auditorium is a multi-purpose space designed to serve as a lecture room, planetarium and library. It measures 70-feet by 24-feet. "New Observatory Southeast's Best," *New York Times*, December 24, 1953. The lower four feet of the dome in the auditorium may be raised flush with the ceiling when not in use as a planetarium, Seyfert, 72. The telescope and planetarium domes were made using left over steel remaining from Nashville Bridge Company's contract to build Liberty ships during World War II. The metal is coated with sand grit. Dyer Observatory staff, interview by authors on 10/28/2008.

[18] *New York Times.*

[19] Ibid.

[20] Ibid. Seyfert, 73.

of my life."[21] The Arthur J. Dyer Observatory and its telescope were dedicated on December 27, 1953. Arthur J. Dyer, representing the eighty firms and foundations that provided $200,000 for the observatory, presented the observatory to Vanderbilt University on this date.[22] Chancellor Harvie Branscomb presided over the dedication and "received" the Observatory from Dyer. The 90th Annual meeting of the American Astronomical Society (AAS) commenced for three days after the dedication. It was the first AAS meeting ever held in Nashville.[23] Many of the members of the society attending the annual meeting also attended the Dyer dedication. Regarding the new observatory, Dr. Robert McMath, AAS President, commented, "astronomers the nation over will be watching closely to see what you find here."[24] Dr. Harlow Shapley, astronomer with Harvard University, hailed the Dyer Observatory as "one of the ten highlights of the astronomical world" for the year of 1953.[25] Dyer Observatory was the only graduate research observatory in the southern region and was to be equipped with "the only telescope of its kind in the world."[26] Vanderbilt University planned to hold most of the graduate level astronomy courses at the new observatory. The observatory's auditorium was designed to seat ninety people and would be available for public use and for navigation training by the Naval Reserve Office Training Corps (NROTC) program.[27] Although the primary purposes of the Dyer Observatory were research and graduate training in astronomy and astrophysics, because the community at large played such a significant part in its construction, the observatory was committed to serving the public as well. Just as when it first opened, the observatory is regularly open to the public for school tours, popular lectures, observation nights, and other programs.

During the construction of the Dyer Observatory, Seyfert, his wife, and two children, lived in a trailer on the site. Once the director's residence was completed, the family lived there until Seyfert's death in 1960.

The Baker-Schmidt Telescope

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[21] Seyfert, 72.
[22] Seyfert, 74.
[23] Ibid.
[24] "A.J. Dyer Observatory Dedicated; New Design Featured in Telescope, " *Nashville Banner,* 12/28/1953. The meeting's proceedings took place at Furman Hall on the Vanderbilt Campus, with at least one public lecture held in Neely Auditorium.
[25] *New York Times.* Shapley was Seyfert's advisor at Harvard.
[26] Ibid. In this article, "southern" refers to the region south of the Ohio River, from eastern Virginia to western Texas. This area, according to Dr. Seyfert as quoted in the article, was particularly favorable for astronomical observation when compared to the eastern or northern regions. The western region, however, is ideal.
[27] Carl K. Seyfert, "Progress Report on the New Vanderbilt Astronomical Observatory, January 8, 1852," p. 2. Vanderbilt University Archives, College of Arts and Science, Record Group 510, Dyer Observatory vertical file. Also noted, "A building authorization and priority has just been assigned to this project by the United States Office of Education, Federal Security Agency."

The twenty-four-inch fused-quartz disk donated to Vanderbilt University by Elma Ferguson and Grace Ferguson Haugh was made by their father John Ferguson as part of an experimental project with GE. Although GE had hoped to produce a 200-inch fused-quartz disk for a telescope for the Mount Palomar Observatory, the twenty-four-inch disk was the largest that could be made. A fused-quartz disk was thought to be ideal for use in telescopes because it would expand less when subjected to heat than other types of glass, including heat-resistant glass, minimizing the amount of distortion (expansion creates distortion).[28] Unfortunately, the twenty-four-inch fused-quartz disk did not work in the specially designed telescope for the Dyer Observatory and the final twenty-four -inch mirror was made of Pyrex. "Thus, although the attractive thermal properties of quartz were not to be had, the mirror blank nonetheless made a singular contribution to astronomy by being initially responsible for bringing Seyfert and an active observatory to Vanderbilt University."[29] The photometer, used at the Cassegrain focus, was built by Jack (John H.) and Ward DeWitt. The brothers originally used the photometer with their twelve-inch telescope located in northern Williamson County.[30]

Carl K. Seyfert (February 11, 1911-June 13, 1960)

Carl Keenan Seyfert was born in Cleveland, Ohio in 1911. He began his studies at Harvard University in 1929. Although he intended to study medicine, he soon found a greater interest in astronomy.[31] Seyfert completed three degrees while at Harvard, including his B. S. and M. S. (1933), and in 1936, he received his Ph.D. in astronomy from the university. His dissertation was "Studies of the External Galaxies," which was about the colors and magnitudes of galaxies. Seyfert's advisor at Harvard was Harlow Shapley, who would later assist with facilitating the donation of the telescope to Vanderbilt University. Seyfert married Muriel E. Mussells in 1935 and the next year joined the Yerkes Observatory as part of a team of astronomers assembled to establish the new McDonald Observatory in Texas.[32] He remained on staff at McDonald from 1936 to 1940, continuing his work on the distribution of color in spiral galaxies and collaborating with Daniel M. Popper on the properties of faint B stars.[33] Seyfert then went to Mount Wilson Observatory as a National Research Council Fellow from 1940 to 1942 and studied a "class of active galaxies" now known as *Seyfert galaxies*.[34] Returning to Cleveland in 1942, he taught navigation to the military at the Case School of Applied Science and worked on secret military research, while continuing his astronomical studies at Case's Warner and Swasey Observatory. While at the Case School, he and colleagues J. J. Nassau and S. W. McCuskey used a new Schmidt telescope and objective prism for astronomical research. Nassau, like Shapley, would soon prove instrumental in connecting the donated telescope with Vanderbilt University.

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[28] *New York Times*, 12/24/1953
[29] Hardie, 124.
[30] "A.J. Dyer Observatory" Arnold M. Heiser.
[31] www.maa.clell.de/Messier/E/Xtra/Bios/seyfert.html. Website accessed 12/4/08.
[32] Ibid.
[33] Ibid.
[34] Ibid.

Seyfert had a distinguished career with many important contributions to the field of astronomy before his tenure at Vanderbilt. By the time of his appointment, Seyfert had published thirty papers in the field with an emphasis on photometry and spectroscopy of stars.[35] He was well-known for his 1943 research paper "Nuclear Emission in Spiral Nebulae." This class of galaxies is named *Seyfert galaxies* in his honor. Additionally, three of his color photographs of nebulae and stellar spectra, part of his work with Nassau and the first to be successfully obtained, appeared in an issue of *Encyclopædia Britannica*.[36]

Seyfert's career at Vanderbilt University began in 1946. At that time, the university had a small teaching program in astronomy and still relied on the six-inch refractor first used by E. E. Barnard. Charged with reinvigorating the school's astronomy program, Seyfert proceeded to add new courses the astronomy program and to lobby for a new observatory. Along with his university duties, he lectured to the public and was a television weatherman. These engagements enabled Seyfert to campaign for the observatory throughout the community. Once the new Dyer Observatory opened, Seyfert became its first director. Research at the new observatory focused on stellar and galactic astronomy and new instrument techniques. In addition to his innovative work with the telescope at Dyer Observatory, Seyfert worked on numerous other projects. His research included photometric investigation of photographic plates from Barnard Observatory as well as Shapley's plates from Harvard. Seyfert first observed what is now called "Seyfert's Sextet" in 1951. He was innovative in the use of telescopes, photography, and colors in order to get clear images through the telescope.

Seyfert was elected a fellow of the British Royal Astronomical Society in 1946 and served on the council of the American Astronomical Society from 1955 to 1958. Seyfert's other professional affiliations included the Association of Universities for Research in Astronomy (AURA), where he served on the Board of Directors, the Astronomy Advisory Panel of the National Science Foundation (NSF), and trustee-at-large with the Associated Universities Incorporated. Carl K. Seyfert died in an automobile accident in Nashville in 1960 at the age of forty-nine. He was active in the field of astronomy up until his death. The Vanderbilt University Board of Trust named the observatory telescope in Seyfert's honor shortly after his death.[37] In 1970, the astronomical community named a Moon crater Seyfert (29.1N, 114.6E, 110 km diam) in his honor. Carl Seyfert's contributions to the field of astronomy are also noted through the "Seyfert Sextet," referring to a group of galaxies he studied, and the "Seyfert Galaxies" or "Seyfert AGNs," referring to a class of active galaxies that he discovered.[38]

Carl Seyfert is the astronomer most identified with the Dyer Observatory, but at least two other individuals should be noted. Both were amateur astronomers who worked with Seyfert before and

[35] Correspondence, Vanderbilt University Archives, College of Arts and Science, Record Group 510, Seyfert faculty file.
[36] Hardie, 124.
[37] *Astronomy at Vanderbilt and the Dyer Observatory*, 6.
[38] www.maa.clell.de/Messier/E/Xtra/Bios/seyfert.html. Web site accessed 12/9/08.

after the current Dyer Observatory was built. Arthur J. Dyer, whose company constructed the dome, established the Nashville Bridge Company around 1902-3 and it became one of the most influential bridge building companies in the southeast. The company specialized in truss bridges but also built concrete arch bridges. The Nashville Bridge Company diversified in the 1910s and began working in the marine field and during WWI, it made oil tank barges. The 1930s saw the company expand into general construction. Dyer ceased day-to-day operations of the company in 1940 but remained chairman of the board. Dyer was also a vice-president of the American Society of Civil Engineers and on the board of the American Institute of Steel Construction. He was a member of the State Planning Board and involved in many civic organizations.

Another prominent Nashvillian, John (Jack) DeWitt, donated a twelve-inch telescope to the observatory. DeWitt helped with the installation of WSM's first radio transmitter while still an engineering student at Vanderbilt. He left school in 1929 (he eventually returned and received his degree) to work for Bell Laboratories and in 1932 he became WSM's chief engineer. During WWII he worked on radar designs in Washington DC and after the war he applied radar technology to astronomy. Returning to Nashville in 1947, he became president of WSM radio and television. DeWitt and Seyfert collaborated on several papers based upon some of their joint research projects. DeWitt is also recognized for his work reflecting radar off the Moon's surface, which was the beginning of radar astronomy.

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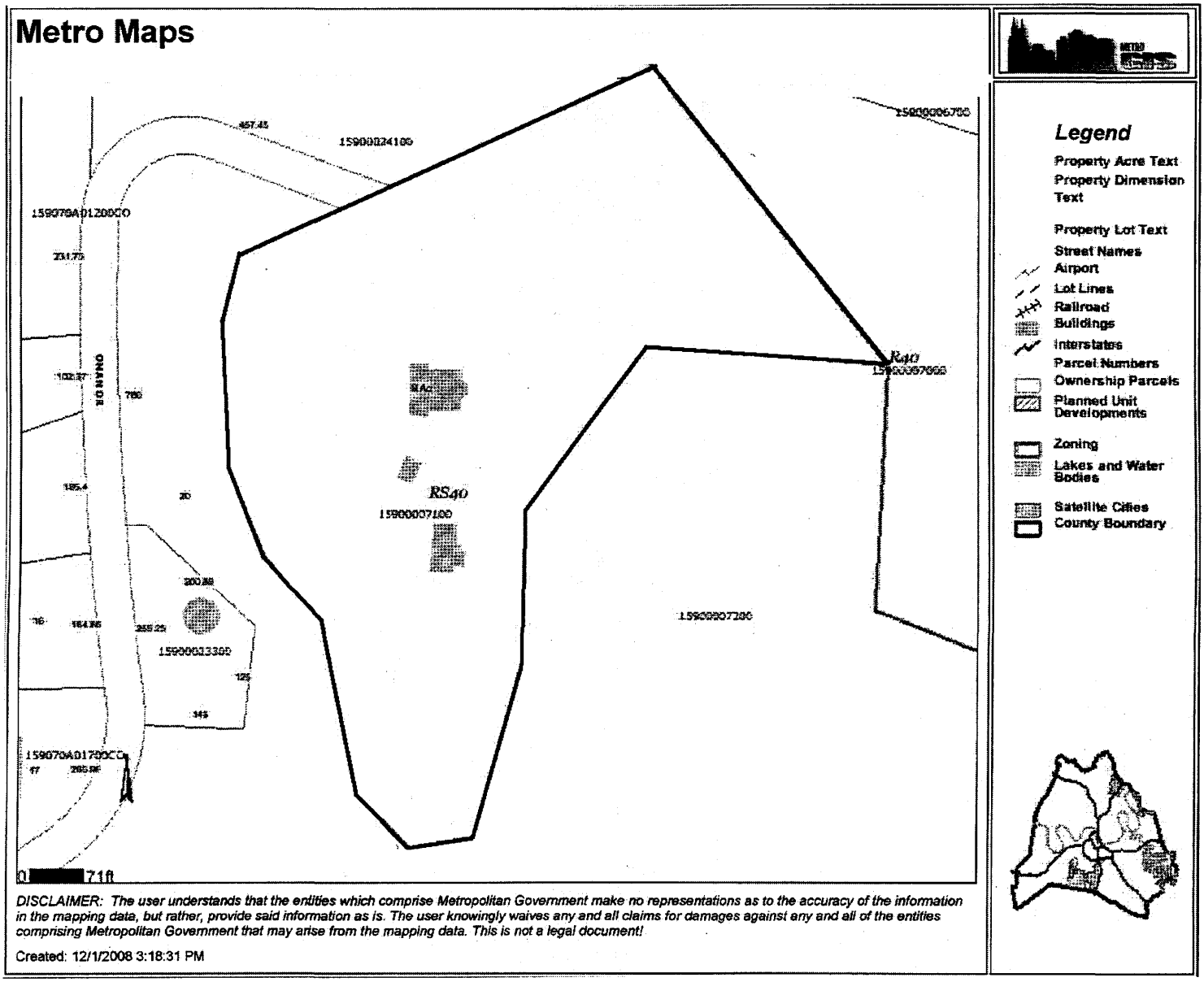
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Verbal Boundary Description and Justification

The property consists of parcel 159 00 0 071.00, which contains nine acres. This is the entire parcel associated with the Arthur J. Dyer Observatory.



United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Photos by: Brian Beadles and Claudette Stager
Date: October 2008
Digital image: Tennessee Historical Commission

Dyer Observatory east façade, facing west
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Dyer Observatory east façade and south elevation, facing northwest
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Dyer Observatory south elevation, facing north
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Dyer Observatory detail of south elevation showing Seyfert Telescope dome
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Dyer Observatory detail of south elevation facing northwest
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Dyer Observatory west elevation, facing east
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Dyer Observatory north elevation, facing south
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Dyer Observatory north elevation facing southeast
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Dyer Observatory east façade detail of corner window, facing southwest
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Dyer Observatory Seyfert Telescope dome
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Dyer Observatory rooftop, facing west
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Dyer Observatory entry rotunda, facing southwest
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Dyer Observatory entry rotunda, facing northwest
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United States Department of the Interior
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National Register of Historic Places Continuation Sheet

Dyer Observatory first floor office/storage
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Dyer Observatory first floor office, facing southeast
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Dyer Observatory first floor office
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Dyer Observatory first floor hall
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Dyer Observatory library/lecture room showing former planetarium, facing north
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Dyer Observatory library/lecture room showing former planetarium, facing northeast
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Dyer Observatory library/lecture room, facing south
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Dyer Observatory library/lecture room, facing west
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Dyer Observatory first floor hall, facing east
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Dyer Observatory hallway west of rotunda, facing west
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Dyer Observatory stairs to second floor, facing west
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Dyer Observatory second floor hall showing wall change
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Dyer Observatory former darkroom on second floor
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Dyer Observatory Seyfert Telescope eyepieces
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Dyer Observatory Seyfert Telescope counterweights
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Dyer Observatory Seyfert Telescope eyepieces
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Dyer Observatory Seyfert Telescope tube
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Dyer Observatory Seyfert Telescope mount
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House north elevation, facing south
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House west façade, facing east
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House west façade, facing southeast
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House south elevation detail, facing northwest
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House south elevation, facing north
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House west elevation, facing northeast
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House west elevation, facing southeast
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House west elevation, facing east
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Filled in pool behind house, facing west
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House living room, facing southwest
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House looking into Mrs. Seyfert's studio, facing north
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House studio closet, facing northeast
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United States Department of the Interior
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House showing area enclosed, facing southwest
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House kitchen nook, facing northeast
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House kitchen, facing east
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House detail of enclosed area looking into kitchen, facing west
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House hall, facing south
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House interior
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Garage, facing west
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House and garage from observatory yard, facing, south
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Setting, showing cistern, from roof of observatory, facing southwest
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Setting behind house, facing southwest
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Path to Star Chamber
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Star Chamber
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Star Chamber
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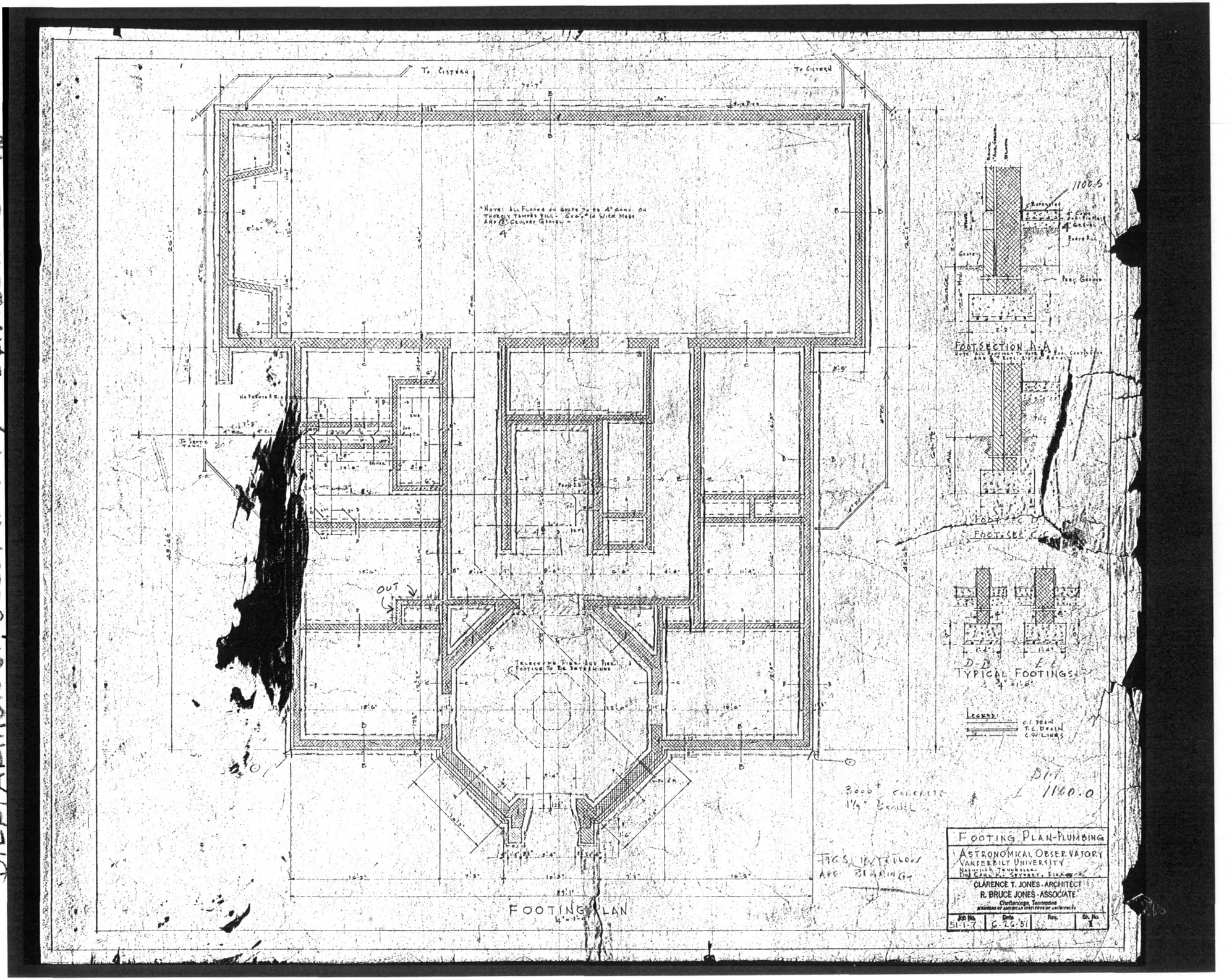
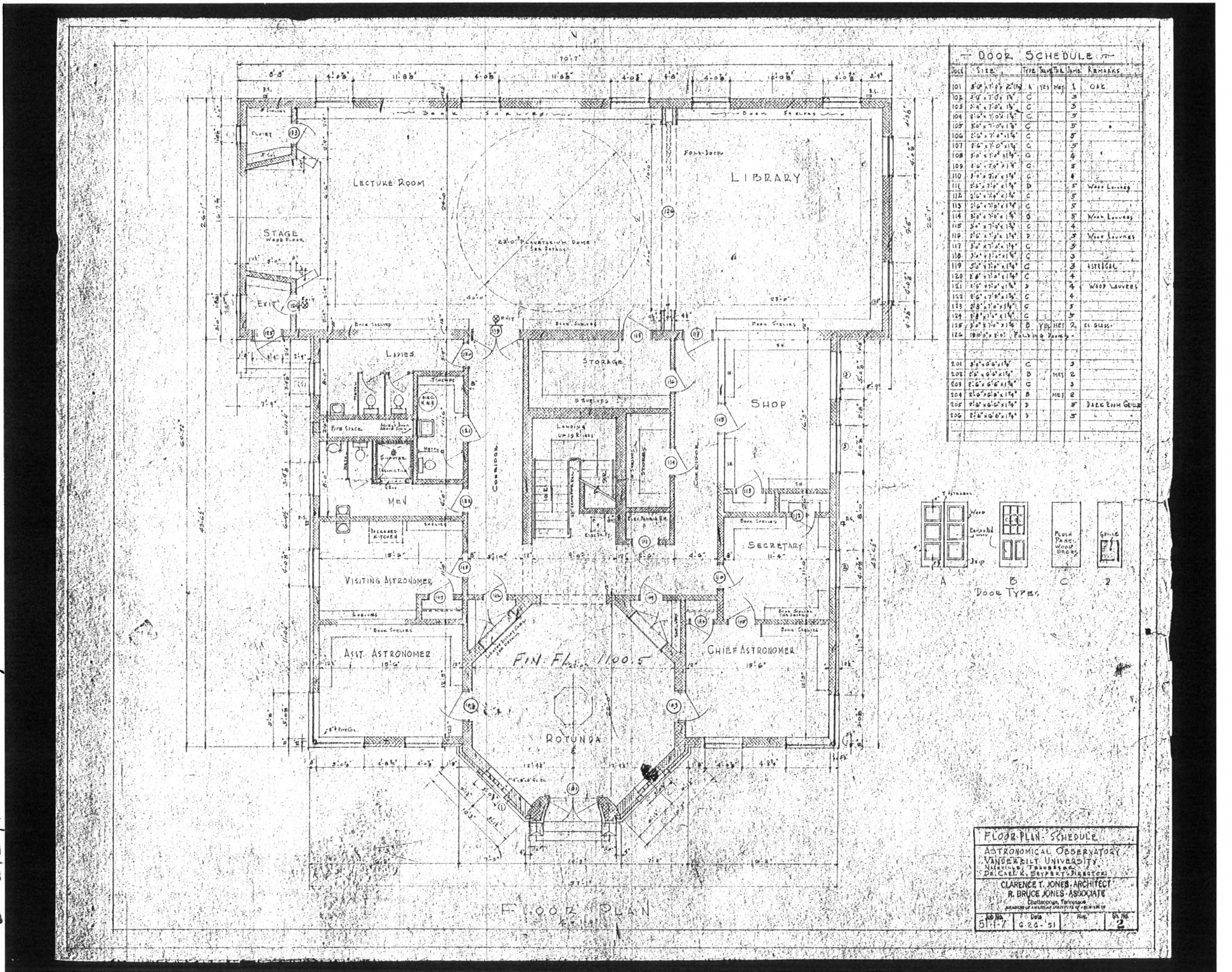
DYER, ARTHUR J., OBSERVATORY DAVIDSON CO TN



DYER, ARTHUR J., OBSERVATORY DAVIDSON CO TN



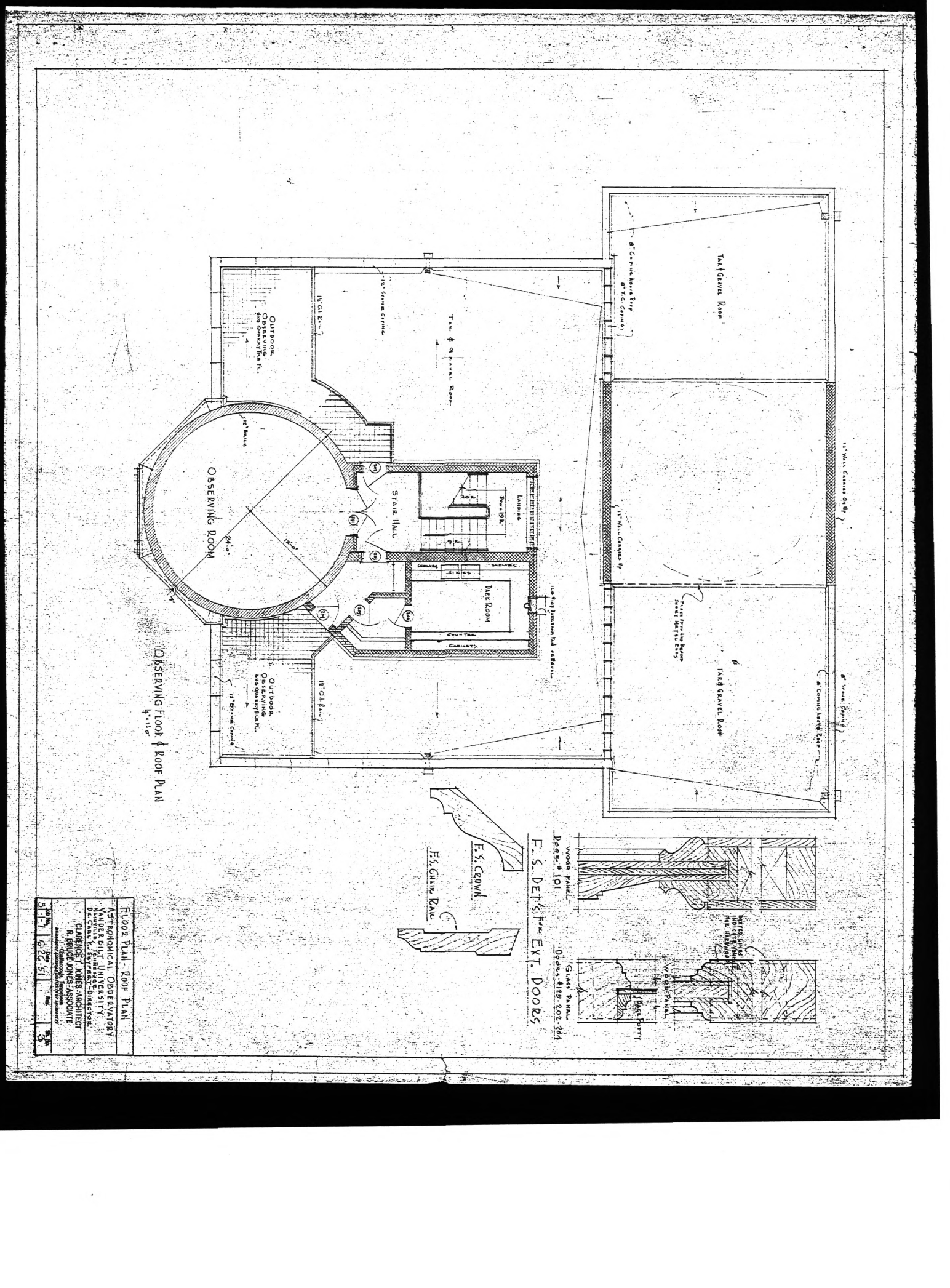
DOOR SCHEDULE

DOOR	SIZE	TYPE	TRANSOM	TRANSOM	JAMB	REMARKS
101	3'0" x 7'0" x 2"	A	YES	MET	1	OAK
102	2'6" x 7'0" x 1¾"	C			3	
103	2'6" x 7'0" x 1¾"	C			3	
104	2'6" x 7'0" x 1¾"	C			3	
105	2'6" x 7'0" x 1¾"	C			3	
106	2'6" x 7'0" x 1¾"	C			3	
107	2'6" x 7'0" x 1¾"	C			3	
108	3'0" x 7'0" x 1¾"	C			4	
109	2'6" x 7'0" x 1¾"	C			3	
110	3'0" x 7'0" x 1¾"	C			4	
111	2'6" x 7'0" x 1¾"	D			3	WOOD LOUVERS
112	2'6" x 7'0" x 1¾"	C			3	
113	2'6" x 7'0" x 1¾"	C			3	
114	3'0" x 7'0" x 1¾"	D			3	WOOD LOUVERS
115	3'0" x 7'0" x 1¾"	C			4	
116	2'6" x 7'0" x 1¾"	D			3	WOOD LOUVERS
117	3'0" x 7'0" x 1¾"	C			3	
118	3'0" x 7'0" x 1¾"	C			3	
119	3'0" x 7'0" x 1¾"	C			3	ASTERICAL
120	3'0" x 7'0" x 1¾"	C			4	
121	2'6" x 7'0" x 1¾"	D			4	WOOD LOUVERS
122	2'6" x 7'0" x 1¾"	C			4	
123	2'8" x 7'0" x 1¾"	C			5	
124	2'8" x 7'0" x 1¾"	C			5	
125	3'0" x 7'0" x 1¾"	B	YES	MET	2	GLASS
126	180'0" x 20'0"	Rolling Doors				
201	3'0" x 6'6" x 1¾"	C			3	
202	2'6" x 6'6" x 1¾"	D		MET	2	
203	2'6" x 6'6" x 1¾"	C			3	
204	2'6" x 6'6" x 1¾"	B		MET	2	
205	2'6" x 6'6" x 1¾"	D			5	DARK ROOM DOOR
206	2'6" x 6'6" x 1¾"	D			5	

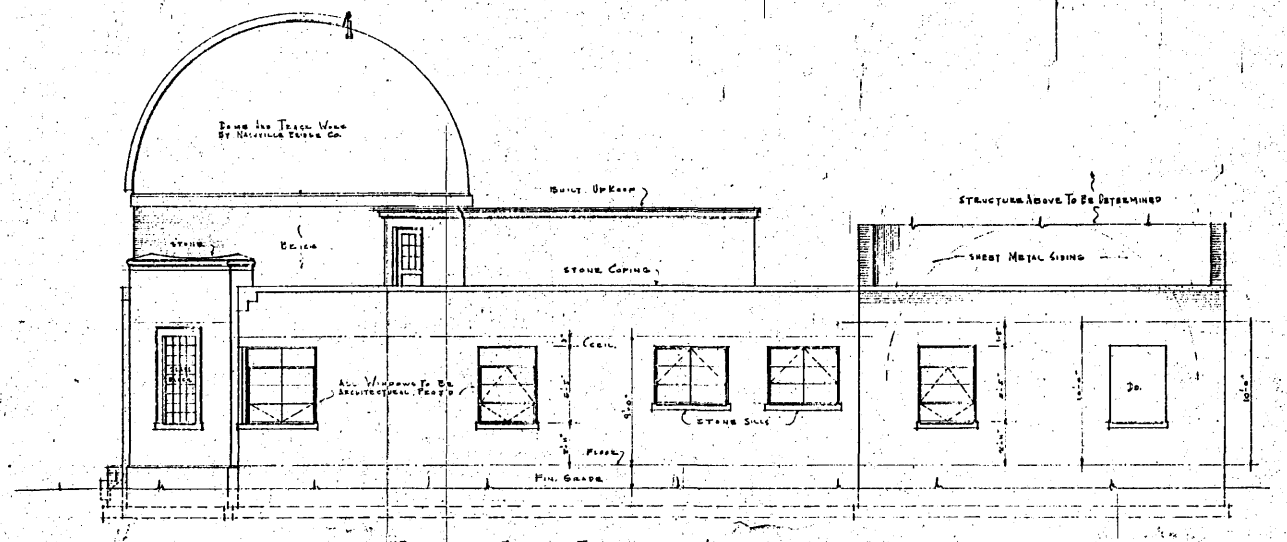
FLOOR PLAN SCHEDULE
ASTRONOMICAL OBSERVATORY
VANDERBILT UNIVERSITY
Nashville, Tennessee
DR. CARL K. SEYFERT, DIRECTOR
CLARENCE T. JONES, ARCHITECT
R. BRUCE JONES, ASSOCIATE
Chattanooga, Tennessee
MEMBERS OF AMERICAN INSTITUTE OF ARCHITECTS

Job No.	Date	Rev.	Sht. No.
51-1-1	6-26-51		2

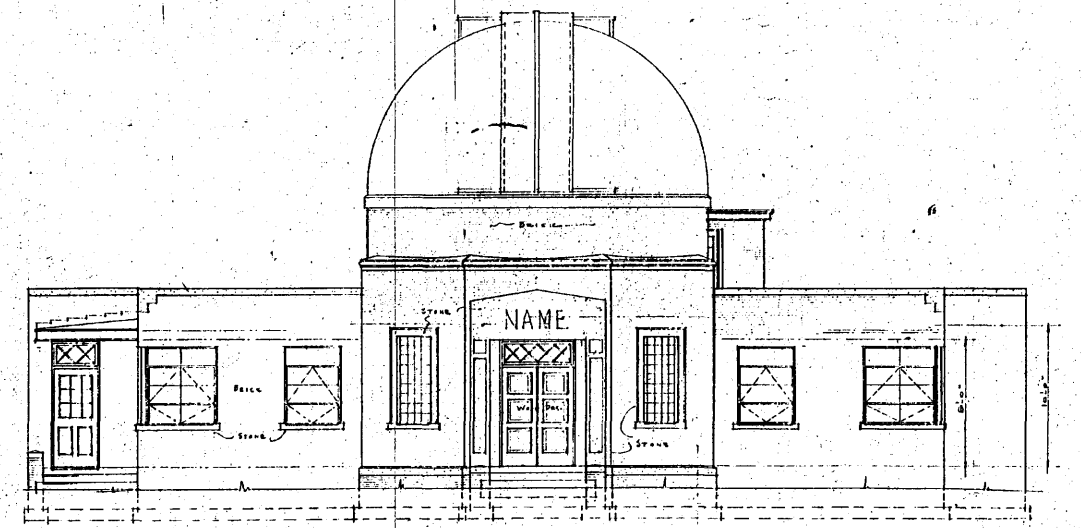
DYER, ARTHUR J., OBSERVATORY DAVIDSON CO. TN



DYER, ARTHUR J., OBSERVATORY / DAVIDSON CO TN



RIGHT SIDE ELEVATION
4"=1'-0"



FRONT ELEVATION
4"=1'-0"

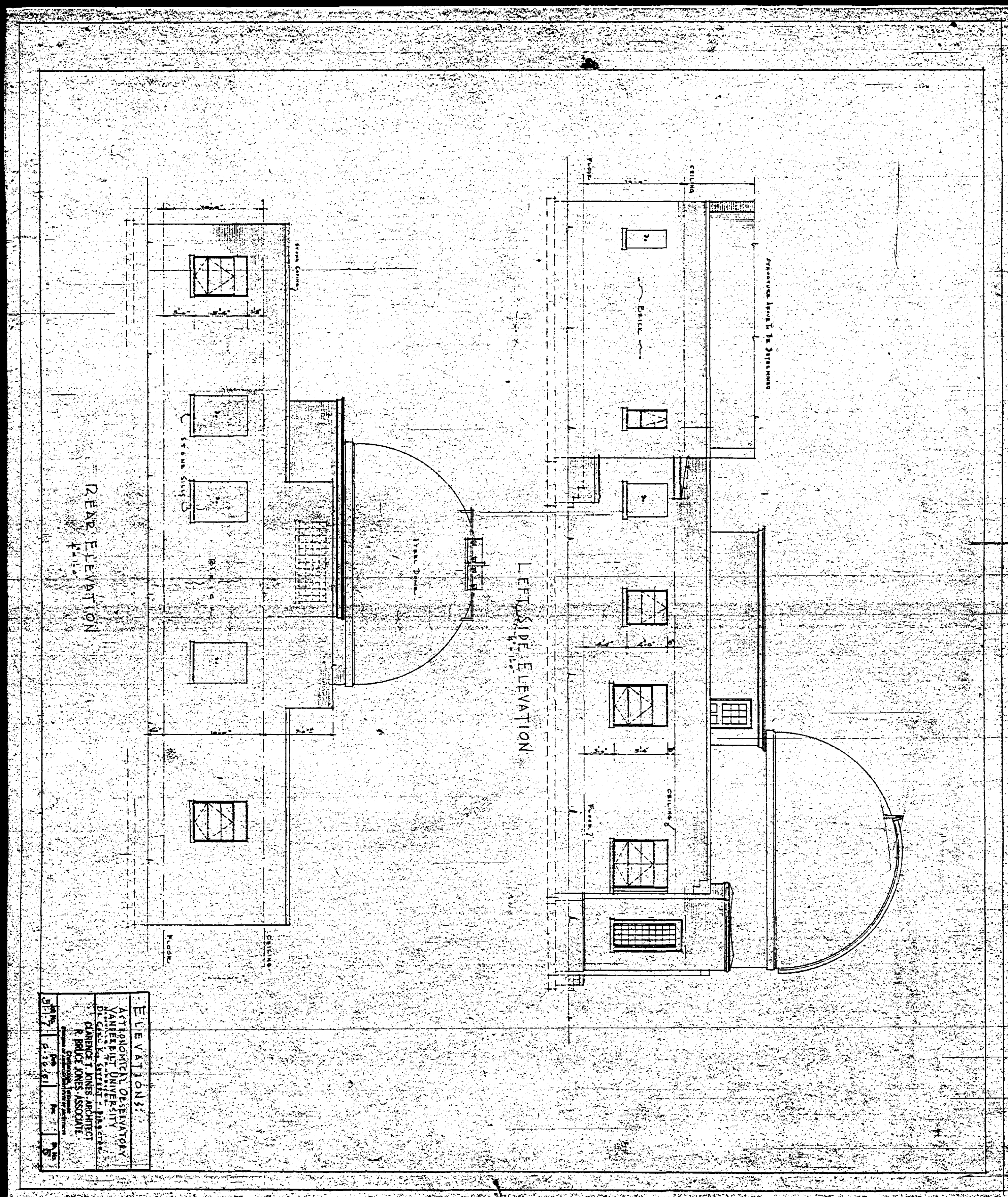
ELEVATIONS

ASTRONOMICAL OBSERVATORY
VANDERBILT UNIVERSITY
NASHVILLE, TENNESSEE
DR. CARL K. SEYFERT - DIRECTOR

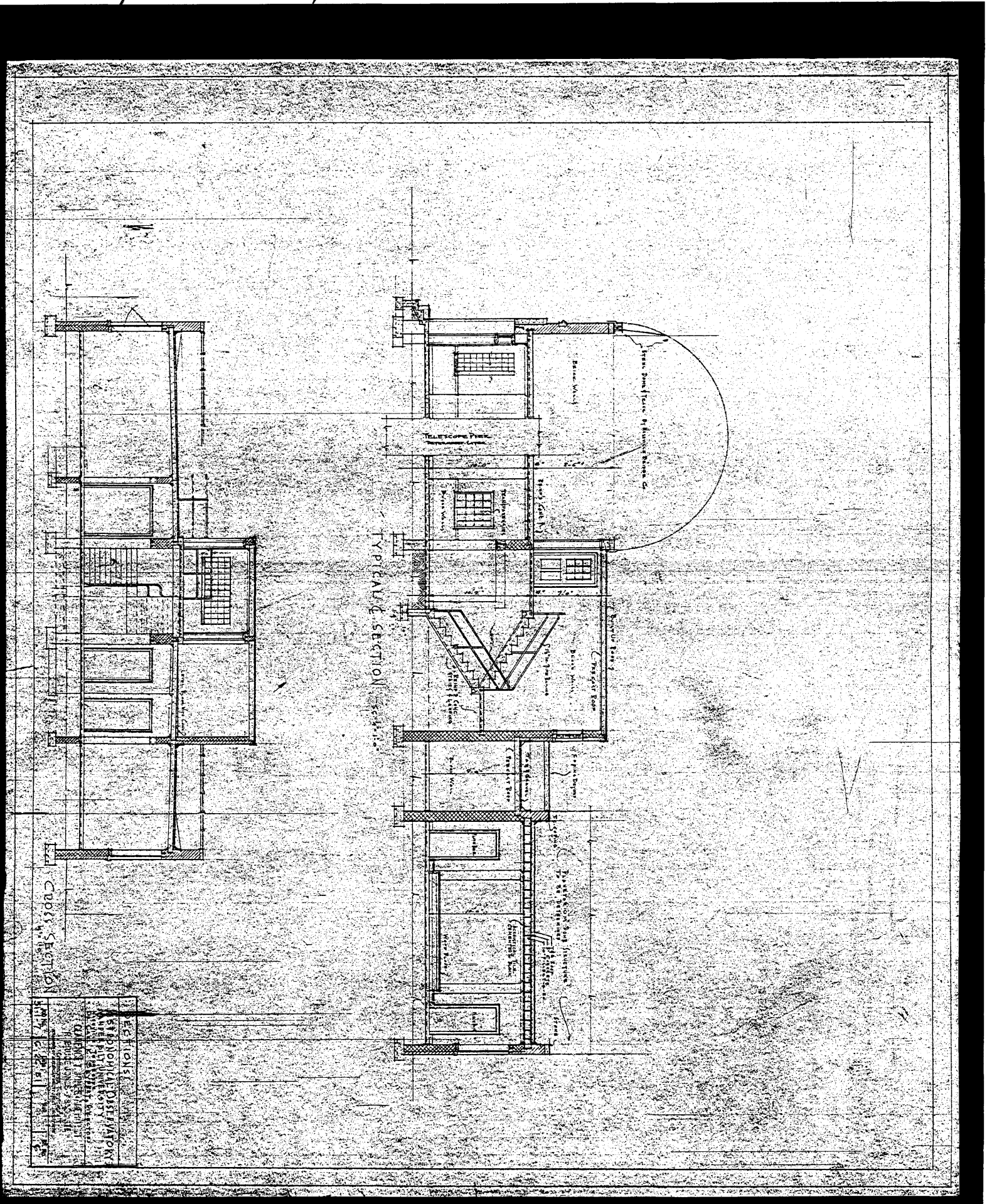
CLARENCE T. JONES - ARCHITECT
R. BRUCE JONES - ASSOCIATE
Chattanooga, Tennessee
Members of American Institute of Architects

Job No.	Date	Rev.	Sh. No.
5111-7	C 20-51		4

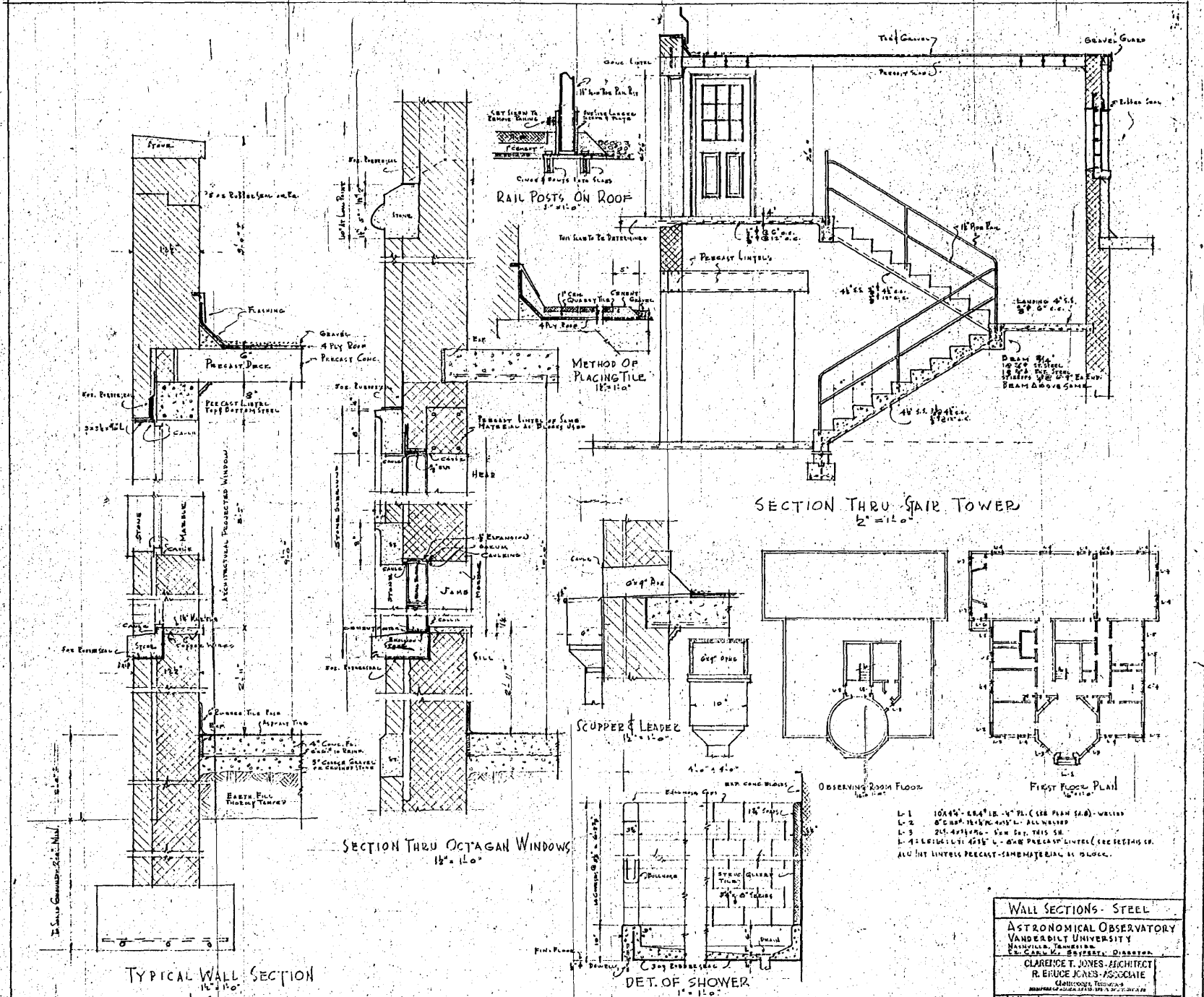
DYER, ARTHUR J., OBSERVATORY DAVIDSON CO. TN



DYER, ARTHUR J., OBSERVATORY DAVIDSON CO. TN

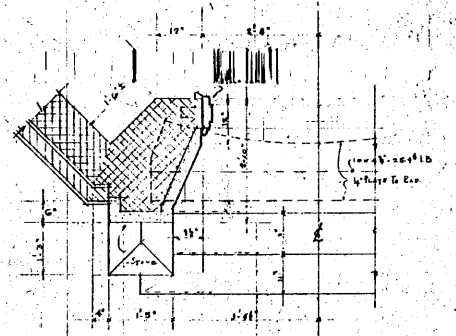


DYER, ARTHUR J., OBSERVATORY / DAVIDSON CO., TN

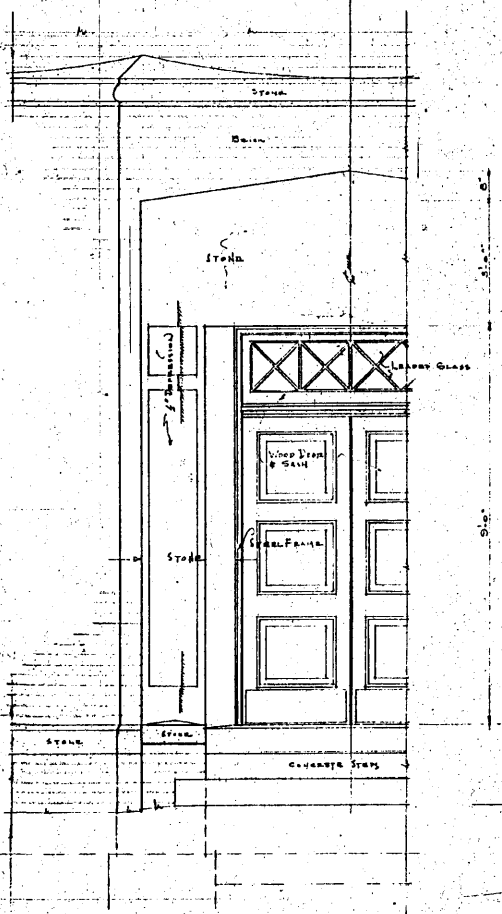


DAVIDSON CO. TN

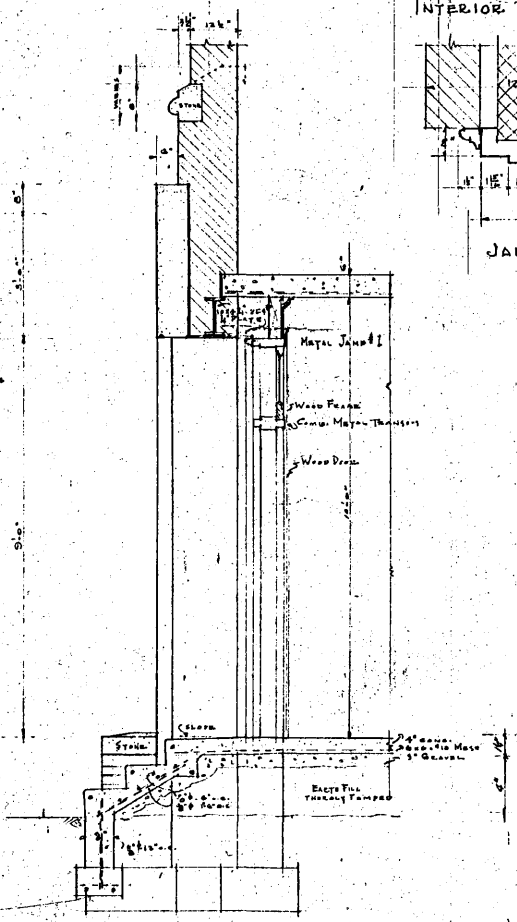
DYER, ARTHUR J., OBSERVATORY



PLAN AT FRONT



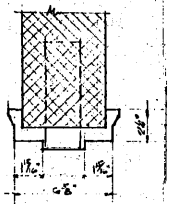
½ FRONT ENT. ELEVATION



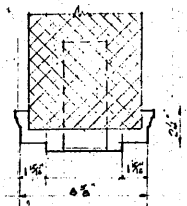
SECTION

MAIN FRONT ENTRANCE DETAILS

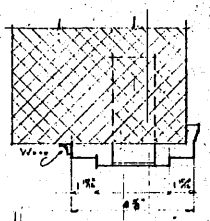
3/4" = 1'-0"



JAMB #5

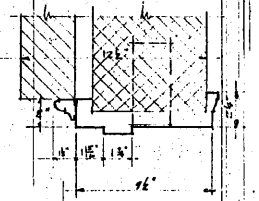


JAMB #4

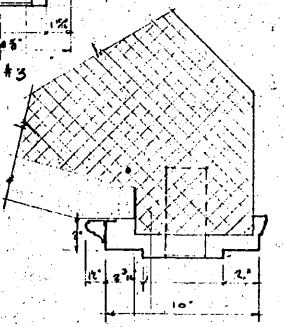


JAMB #3

INTERIOR DOORS 3'-1'-0"

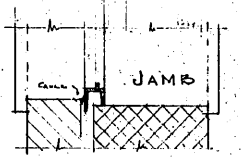


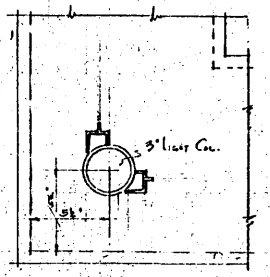
JAMB #2 - DOOR 125-204



JAMB #1 - DOOR 101

EXTERIOR DOORS 3'-1'-0"

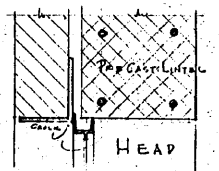




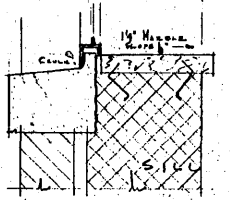
CORNER WINDOWS

TYPICAL WINDOW DETAILS

3" = 1'-0"



HEAD



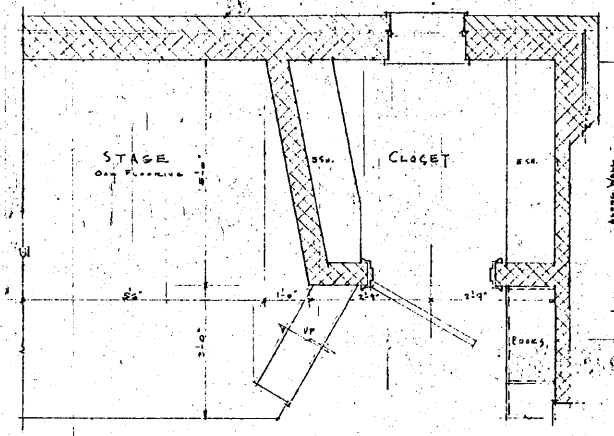
DETAILS -

ASTRONOMICAL OBSERVATORY
VANDERBILT UNIVERSITY
Nashville, Tennessee
DR. CARL K. SEYFERT, DIRECTOR

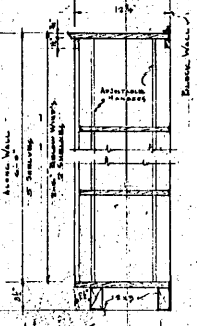
CLARENCE T. JONES, ARCHITECT
R. LOUIS JONES, ASSOCIATE
Clarksville, Tennessee

Job No.	Date	Rev.	Sh. No.
51-1-7	6-22-51		8

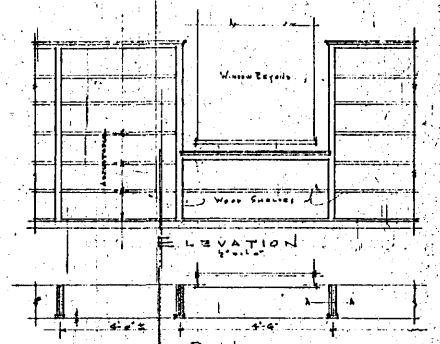
DYER, ARTHUR J., OBSERVATORY DAVIDSON CO. TN



½ PLAN OF STAGE



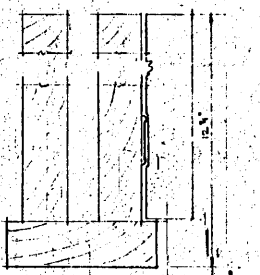
SECTION



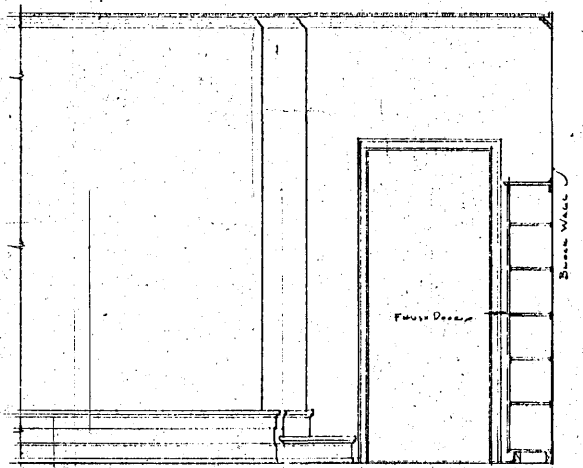
ELEVATION

PLAN

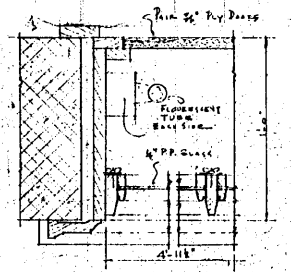
TYPICAL WALL SHELVING
Where Shown on Drawings



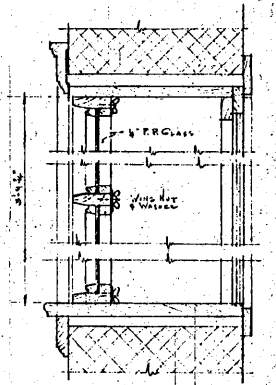
F. S. SEC. A-A



ELEVATION



SEC. B-B



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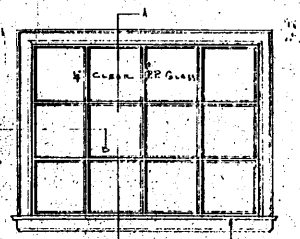
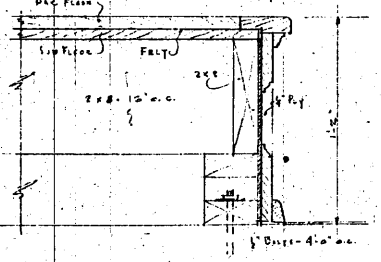


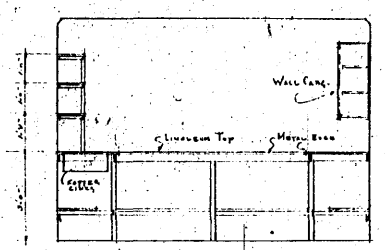
ELEVATION

WALL CABINETS IN ROTUNDA

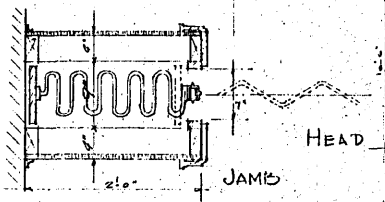


SECTION

STAGE DETAILS



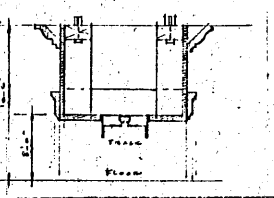
DARK ROOM SHELVING



HEAD

JAMB

SLIDING OR FOLD DOOR DET'S.
1½"=1'-0"



DETAILS
ASTRONOMICAL OBSERVATORY
VANDERBILT UNIVERSITY
Nashville, Tennessee
Dr. Carl K. Seyfert, Director
CLARENCE T. [illegible] ARCHITECT
R. ERNEST [illegible] ASSOCIATE
Job No. 51-7 | Date 6-26-51 | Sh. No. 9

DYER, ARTHUR J., OBSERVATORY

DAVIDSON CO-TN