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Stargazing: Observatories at Gettysburg College, 1874-Present

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Stargazing: Observatories at Gettysburg College, 1874-Present

Description

Astronomy has long been a subject which has attracted the interest of man. Examples of early astronomers can be found in many ancient civilizations, including but not limited to, the Egyptians, the Chinese and the Greeks. As time passed the methods for interpreting the stars and theories that surrounded them changed concordant with the technology available. One of the largest breakthroughs in the world of astronomy was the invention of the telescope in the early seventeenth century. Often mis-attributed to Galileo (who was responsible for building the first reflecting telescope in 1688), the telescope was actually first designed by a Dutch spectacle-maker by the name of Johann Lippershey. Improvements were eventually made upon these designs leading to the creation of government funded observatories, such as the Royal Greenwich Observatory in England, and later private and collegiate research observatories. By the early to mid-nineteenth century, the astronomical craze had begun to develop in America, resulting in the creation of many new observatories in the North and West (now the Mid-West). [*excerpt*]

Course Information:

- Course Title: *HIST 300: Historical Method*
- Academic Term: Spring 2006
- Course Instructor: Dr. Michael J. Birkner '72

Hidden in Plain Sight is a collection of student papers on objects that are "hidden in plain sight" around the Gettysburg College campus. Topics range from the Glatfelter Hall gargoyles to the statue of Eisenhower and from historical markers to athletic accomplishments. You can download the paper in pdf format and click "View Photo" to see the image in greater detail.

Keywords

Gettysburg College, observatory, Galileo, Johann Lippershey, astronomy, stargazing

Disciplines

Astrophysics and Astronomy | History | Instrumentation | Stars, Interstellar Medium and the Galaxy

Campus Location

Observatory

Gettysburg College

Hidden in Plain Sight:
Stargazing: Observatories at Gettysburg College, 1874-Present

History 300

Historical Methods

Dr. Michael Birkner

By

Drew Carlson

Spring 2006

Astronomy has long been a subject which has attracted the interest of man. Examples of early astronomers can be found in many ancient civilizations, including but not limited to, the Egyptians, the Chinese and the Greeks. As time passed the methods for interpreting the stars and theories that surrounded them changed concordant with the technology available. One of the largest breakthroughs in the world of astronomy was the invention of the telescope in the early seventeenth century. Often misattributed to Galileo (who was responsible for building the first reflecting telescope in 1688), the telescope was actually first designed by a Dutch spectacle-maker by the name of Johann Lippershey. Improvements were eventually made upon these designs leading to the creation of government funded observatories, such as the Royal Greenwich Observatory in England, and later private and collegiate research observatories. By the early to mid-nineteenth century, the astronomical craze had begun to develop in America, resulting in the creation of many new observatories in the North and West (now the Mid-West).

Gettysburg College, founded in 1832, was still a developing school but nevertheless after the conclusion of the Civil War, began to foster its own astronomical program. Since that period, Gettysburg College has greatly expanded the astronomical courses it offers, thus enhancing the education offered to its students as well as the potential for faculty to do research. Without a doubt this success and enhanced science programming has been a result of the development and use of the two observatories that have existed on the college campus since its inception.

Since the Lutheran-based Pennsylvania College opened its doors in 1832, mathematics has been a required course in the curriculum of the college.¹ At this time,

¹Charles H. Glatfelter, *A Salutory Influence: Gettysburg College, 1832-1985*, vol. 1 (Mechanicsburg, PA: W & M Printing Inc., 1987), p. 286.

Professor Michael Jacobs was the college's professor of "mathematics, chemistry and natural philosophy, which naturally included astronomy."² As the leading expert of astronomy at the college during this time, Professor Jacobs' greatest desire was to secure a telescope which could be used by himself and his students. This dream remained unrealized until 1853, when a trustee by the name of H. H. Muhlenberg donated one to the college.³ This telescope was used by Jacobs to observe the battle of Gettysburg by in July of 1863, thus denoting that it must have been a small and portable object.⁴ During Jacob's time as a professor, astronomy was incorporated under the study of natural philosophy. Following his retirement (1866), astronomy was first listed as a course to take during the third term of a student's junior year.⁵ In 1867, a description under the Department of Physical Science (to which astronomy had been transferred) reads:

A superior telescope has recently come into possession of the College, and will soon be mounted and ready for the use of students in astronomy. This telescope was made by Merz & Son, opticians, of Munich, in Germany. In it, an achromatic refractor of over nine feet focal length with an object glass of six-and-a-half inches aperture. It is furnished with five magnifying powers, varying from eighty-five to four hundred sixty times; with a complete set of sun glasses, a prismatic reflector, an annular micrometer, and a terrestrial eye-piece. The instrument has two divided circles, for reading off angles, of nine-and-a-half inches in diameter, finely graduated on silver to minutes of arc, and furnished with two venires and microscopes which read to four seconds each. Furthermore, this telescope has already done good work in astronomical science, and has been pronounced, by the first astronomers in the country, to be a perfect instrument.⁶

Unfortunately, the telescope that this passage is referring to would not be placed and operated by the college for nine more years to come. This telescope was originally

² Ian Clarke, "History of Astronomy at Gettysburg College" (notes for Hatter Planetarium presentation, Gettysburg College, Gettysburg, PA, Fall 2004), p. 1.

³ Ibid, p. 3.

⁴ Glatfelter, *A Salutary Influence*, vol. 1, p. 286

⁵ *Pennsylvania College Catalogue, 1858-1875*, vol. 8, 1866-1867 (Gettysburg, PA: J. E. Wible, 1867), p. 23.

⁶ Ibid, p. 25.

purchased by John E. Graeff, another trustee of the college, who bought it using the remainder of unused Graeff professorship funds in 1865.⁷ The telescope had been used for some time in an observatory near Philadelphia.⁸ One of the first major tasks that confronted the college was overseeing the proper caretaking and transportation of the telescope from Philadelphia to Gettysburg. Perhaps due to the lack of an observatory or storage facility to house this new telescope, it remained in Philadelphia until 1868. The college did not have the funds available at the time to begin construction on an observatory, so in 1869, the telescope was taken to Iowa under the supervision of naval authorities, who used it to observe the solar eclipse on August 7th, of that year.⁹ During this trip, the telescope was damaged during the transportation and the Federal Government did not agree to pay for the repairs until 1872.¹⁰

In the early 1870s, a fund which would be used for the construction of an observatory. This was initiated at the request of then college President, Milton Valentine.¹¹ By June of 1872, Valentine and the Board of Trustees had managed to raise approximately three thousand dollars and hoped to have the rest soon. At this time, they hired the Baltimore architect William F. Weber to draw up plans for an observatory.¹² Two years later, Elias Roth, a contractor from New Oxford signed a contract with the school and began construction which was finished by the end of 1874.¹³ The dimensions for the new facility were considerable and it was located on a site that was accessible to campus but in a semi-remote spot. Fortunately for the college, it had just purchased

⁷Glatfelter, *A Salutory Influence*, vol. 1, p. 248.

⁸ Ibid, p. 248.

⁹ Ibid, p. 249.

¹⁰ Ibid, p. 249.

¹¹ Samuel Hefelbower, *A History of Gettysburg College, 1832-1932* (York, PA: Maple Press Company, 1932), p. 245.

¹² Glatfelter, *A Salutory Influence*, vol. 1, p. 250.

¹³ Ibid, p. 250.

property on the east side of Washington street (the location of Hanson Hall today) from the Ehreharts.¹⁴ The observatory consisted of a central section sixteen feet square, with a western and eastern wing each measuring twelve by sixteen feet.¹⁵ The construction of the observatory resulted in the transfer of Astronomy from the Department of Physical Sciences to the Department of Mathematics and Astronomy in 1875. The two professors of the Astronomical Sciences at this time were the Reverend P. M. Bikle and E. S. Breidenbaugh, the namesake of Breidenbaugh Hall.¹⁶ These two professors instructed the new astronomy courses, which had three parts (one for each term of Senior Year).

Since its opening in 1874, the new observatory became a big attraction and show piece for the college. Its opening and resultant impact were so anticipated that the Pennsylvania College Catalogue, sang its praises with the following:

The facilities for instruction in this science have been largely increased within the last year. Through the liberality of some of the friends of the College, an Observatory has been erected, and in a few months will be furnished with a full equipment of Astronomical and Meteorological instruments. The Equatorial Telescope has been mounted, the Transit Instrument has been purchased, and efforts are now being made to add an Astronomical Clock and Chronograph. All will be freely used for the general purpose of instruction.¹⁷

It may seem that this excitement may have been a bit exaggerated, yet having an observatory (especially such a sophisticated one) at this time was quite an achievement for a small school like Pennsylvania College (Gettysburg). The state-of-the-art features and expense of the observatory can be seen in the following description:

¹⁴ Gregory J. Landrey, "A History of the Gettysburg Campus" (paper for Dr. Charles Glatfelter, Gettysburg College, May 27, 1977), p. 25.

¹⁵ Ibid, p. 250.

¹⁶ E. S. Breidenbaugh, *The Pennsylvania College Book, 1832-1882* (Philadelphia, PA: Lutheran Publication Society, 1882), p. 29.

¹⁷ *Pennsylvania College Catalogue, 1858-1875*, vol. 16, *1874-1875* (Gettysburg, PA: J. E. Wible, 1867), p. 15.

The dome on the central section rested upon iron balls, which revolved in an iron groove and made rotation possible either by hand or by a wheel, so that the whole visible hemisphere of the sky may be laid under contribution at any time....The telescope and several other pieces of equipment were mounted on masonry piers resting on solid rock. The frame of the building itself was covered by corrugated and galvanized iron and was all done for the reported cost of \$3, 406.¹⁸

The technological innovations and money did not keep some students from sneering at the observatory. Charles Glatfelter writes that in one instance, a prep student asked, “Hey chum, what fur house is that over there with a balloon on it?”¹⁹ It was also not uncommon for visitors and locals to believe that the building was a gymnasium due to the large dome, which to the uneducated eye may have appeared to resemble some sort of ball. Despite such snide remarks, no one could dispute the fact that the construction of the new observatory afforded increased facilities for instruction in the branch of astronomy. Students now had the advantage of attending lectures at the Observatory and using the equipment for observation.

As time progressed, so too did things at the Observatory. The two-story structure that stood across the street from old Nixon Field was often used and improved.²⁰ A caretaker’s room (which housed two students) was located in one wing and a transit instrument (used to determine time and latitude) was located in the other.²¹ Changes at the Observatory led to consequential alterations of curriculum as well. By 1904, the required courses for graduation included algebra, trigonometry, geometry, surveying (to be taken freshman or sophomore years) and astronomy (to be taken senior year).²² The favor shown astronomy at the college can be seen through its professor Dr. Henry B.

¹⁸ Glatfelter, *A Salutory Influence*, vol. 1, p. 250.

¹⁹ *Ibid*, p. 250.

²⁰ *Gettysburg College Bulletin, 60-62, 1970-1972*, vol. 60, No. 4 (January 1970): 6-7.

²¹ *Ibid*, p. 6-7.

²² Glatfelter, *A Salutory Influence*, vol. 1, p. 286.

Nixon, who in 1904 was the only one of nine professors on campus to have earned a Ph.D.²³ In the early 1900s, the college banned use of the Observatory for housing, which removed its only caretakers. As a result, the building soon began to fall into disrepair. Furthermore, in the fall of 1917, when an epidemic of contagious diseases ravaged the campus and the college facilities proved inadequate for housing the ill, the Observatory was used as a temporary infirmary.²⁴

The disuse of the building and lack of maintenance led it to become an eyesore. This is best summarized by Chemistry Professor Charles A. Sloat, who recalled that the Observatory was widely referred to as the “pest house.”²⁵ Such feelings encouraged the first Hanson administration to demolish the dilapidated building in 1925. At this time, the 6.4 inch, 8.5 foot focal length refracting telescope was dismantled, and along with its mountings was placed in Breidenbaugh Hall’s loft for storage.²⁶ With the removal of the Observatory, an alteration in the set of courses offered by the college also occurred. Nineteen twenty-four was the last year that the Descriptive Astronomy course included a description that said, “and some observatory work (observations of moon, planets, stars and nebula).”²⁷ The following year, the course description changed to read as, “A course in general and descriptive astronomy (not mathematical). Text-book recitations and lectures.”²⁸ By 1945, the Observatory and six other major buildings that had been on the campus in 1904 had been torn down.

²³ Ibid, p. 286.

²⁴ Charles H. Glatfelter, *A Salutary Influence: Gettysburg College, 1832-1985*, vol. 2 (Mechanicsburg, PA: W & M Printing Inc., 1987), p. 514.

²⁵ *College Bulletin*, vol. 60, No. 4 (January 1970): 6-7.

²⁶ Ian Clarke, “History of Astronomy,” p. 4.

²⁷ *Gettysburg College Catalogue, 1924-1929*, vol. 1, 1924-1925 (Gettysburg, PA: Gettysburg College, 1924), p. 77.

²⁸ *Gettysburg College Catalogue, 1924-1929*, vol. 2, 1925-1926 (Gettysburg, PA: Gettysburg College, 1924), p. 75.

During the next three decades, astronomy courses were still offered, but the interest in them diminished. These years saw the tenure of Professor George R. Miller, who along with the help of students like Art Aiken attempted to rekindle interest in astronomical observations and on occasion dragged the old telescope out of storage.²⁹ Aiken and some of his colleagues, who came across the telescope in the attic of Breidenbaugh, took it out for periodic sessions but the overall lack of student interest coupled with the hassle of putting it in and out of storage soon spelled the end of these excursions.³⁰ There were some smaller telescopes available that were most likely utilized, but nothing of the same dimension or significance as the Merz & Son telescope.³¹ Interest in astronomy continued to fade at Gettysburg over the years until the launching of Sputnik in October of 1957 changed perceptions on the importance of studying the space related sciences. The ensuing space race between the USSR and the United States and the heightening of the Cold War led to a rekindling of interest in sciences in America.

The developments in science were reflected in the construction and improvements made to the Gettysburg College campus during this time. By the mid 1960s, both Master's Hall (home of the physics department) and the Hatter Planetarium (an addition to the aforesaid building made possible by the contributions of George C. Hatter) had been constructed.³² Astronomy had continued to be taught by various professors until 1960, but was then discontinued until the opening of the Hatter Planetarium in 1967.³³ Eugene Milone (a member of the Royal Astronomical Society), a professor of physics in

²⁹ Eugene F. Milone, e-mail interview, February 18, 2006.

³⁰ Ian Clarke, "History of Astronomy," p. 5.

³¹ Laurence Marschall, personal interview, February 16, 2006.

³² Milone, email interview.

³³ *College Bulletin*, vol. 60, No. 4 (January 1970): 6-7.

1966 at Gettysburg College, expanded his duties by agreeing to head the Planetarium. As soon as he had taken over these new responsibilities, he began petitioning President C. Arnold Hanson for funding to build a new observatory. Milone was instrumental in setting up the new Gettysburg College Observatory and in addition designed two new courses in astrophysics to utilize the facilities of the proposed building.³⁴

Originally, President Hanson wanted to locate the new facility near a road, but Dr. Milone was able to persuade him to select a more suitable site in the middle of a field.³⁵ The final location, where it remains today, is roughly 750 feet north of the West Building (now the Attic, etc.) and located on the east side of the Reading Railroad tracks.³⁶ In 1967, fifteen and three-quarter acres were purchased by the college from the Reading Railroad Company for \$100,000.³⁷ A topographic survey of the ground was then conducted in order that the area could encompass the new observatory as well as be graded and seeded for playing fields.³⁸ With plans for a new observatory but no new telescope, Eugene Milone, after visiting the University of Maryland for a summer program, “recommended that the College purchase a similar sixteen-inch telescope from the Ealing company.”³⁹ Despite the purchasing of a new telescope, the old one still held some value and was usefully employed by Milone. In early March of 1970, Professor Milone and his colleague Professor Thomas Hendrickson took two dozen students to South Mills, North Carolina, to observe the total solar eclipse that occurred on March

³⁴ *Eugene Frank Milone Vertical Files*, in Special Collections, Musselman Library, Gettysburg College, Gettysburg, PA.

³⁵ Milone, email interview.

³⁶ Gregory J. Landrey, “A History of the Gettysburg,” p. 65.

³⁷ *Minutes of the Board of Trustees of Gettysburg College—Chairman Paul Rhoads presiding* (September 29 & September 30, 1967), p. 6.

³⁸ *Minutes of the Board of Trustees of Gettysburg College—Chairman Paul Rhoads presiding* (December 3, 1968), p. 7.

³⁹ Ian Clarke, “History of Astronomy,” p. 7.

7th.⁴⁰ The College's 100-year-old telescope was used by students to photograph the eclipse. The twelve students who went on the trip were: Steve Leverette, Bill Elbert, Bob Baus, Roxanne Ackerman, Steven Schram, Jay Ansell, Jim Lincer, Barbara Anderson, Ellen Goetz, Ellen Rose, Marie Stoner and Ken Williams.⁴¹ This field trip, during Milone's term, is the last time that the old telescope is recorded to have been used. It is reported that the Smithsonian Institute was interested in purchasing it due to it being one of two known surviving Fraunhofer designs.⁴²

The arrival of a new telescope on campus helped to foster a rebirth of interest in astronomy and stargazing. Surely the new state-of-the-art facilities provided at the Observatory helped to create such feelings. The fourteen-foot domed facility was home to the new sixteen-inch reflecting telescope, which was used for the purpose of gathering low intensity light from small areas of the sky.⁴³ Initially this scope was used to photograph the moon, planets, planetoids, star clusters and variable stars. These photographs were taken using glass plates and were developed in a dark room that used to be located next to the Planetarium but since then has been converted for additional classroom space.⁴⁴ Funding difficulties plagued the development and improvement of the Observatory in the early days but nevertheless Milone made the most of what was available. Through his tireless efforts and the continued support of President C. A. Hanson and Physics Chairman Richard Mara, he "continued to equip the observatory partly with departmental funds (tools and phototubes), NSF grant funds (photoelectric

⁴⁰*Gettysburg College Bulletin*, 60-62, 1970-1972, vol. 60, No. 8 (April 1970), p. 15.

⁴¹ *Ibid*, p. 15.

⁴²*College Bulletin*, vol. 60, No. 4 (January 1970): 6-7.

⁴³ *Ibid*, 6-7.

⁴⁴ Dick Cooper, personal interview, February 13, 2006.

photometer) and Faculty Fellowship Funds (power supply).⁴⁵ In addition, through a loan from the USNRL (United States Naval Research Laboratory), he obtained an ultraviolet scanning monochromer for use at the Observatory.⁴⁶ Professor Milone taught mostly courses in physics but recalls teaching at least one astronomy course in which students helped at the Observatory.⁴⁷ It was during these years that the first ‘Open Night’ sessions were held, which were generally planned in conjunction with the Planetarium shows with the Observatory being open afterwards from 8:30-10:30pm (October-April).⁴⁸ Before departing for his new job at the University of Calgary, Professor Milone “believed the observatory’s future [could] only be secured through [the] use of an observatory endowment fund or other such permanent financial resource.”⁴⁹

In 1971, Dr. Laurence Marschall took over as the head astronomer for the college and in doing so oversaw the operations at the Observatory.⁵⁰ Since his arrival, the telescope has been largely used for research as well as used for introductory courses in astronomy and junior lab exercises.⁵¹ Over his long term as Milone’s successor many improvements have been made to the Observatory as technology has improved and resources have become available. In the mid 1970s a spectrograph was added, followed by a photometer in the early 1980s. The classroom and “warm room” sections were added in the 1980s in order to expand the facility to be capable of housing the necessary controls and equipment being obtained. The original telescope was controlled by a hand-paddle before the “warm room” was built. In 1993, a CCD camera was purchased and by

⁴⁵ *Eugene Frank Milone Vertical Files*, in Special Collections.

⁴⁶ *Ibid.*

⁴⁷ Milone, email interview.

⁴⁸ *Eugene Frank Milone Vertical Files*, in Special Collections.

⁴⁹ *Ibid.*

⁵⁰ Marschall, personal interview.

⁵¹ Marschall, personal interview.

1996 the entire facility was computer controlled with the telescope being attached to the camera instead of having an eye-piece.⁵² In the past five years, another CCD camera was purchased in order to update the system. Originally laboratory sessions were held in the classroom section of the Observatory, but since the addition of the radio telescope control center in 2003 it has had to share the space.⁵³ A continuing project which was started in 1991 has been the acquisition of smaller telescopes which can be more readily used by students of astronomy. The Observatory now has a total of four telescopes, including the 16" Ealing telescope in the dome, as well as both 8" and 10" Schmidt-Cassegrain telescopes and a 7" Maksutov-Cassegrain telescope.⁵⁴ In addition, maintenance has been necessary over the years, with the drive motors being replaced three times since the 1970s and the mirror having to be recoated roughly every four years in New Jersey.⁵⁵

While admittedly the list of improvements and maintenance may seem daunting at first, the expense has not been in vain. The research that Dr. Marschall has done with the facility has led to numerous publications in well-respected periodicals such as the *Astronomical Journal* and the *Astrophysical Journal*.⁵⁶ Through Dr. Marschall's knowledge and personal enthusiasm for astronomy, courses and concordantly the Observatory, have remained popular among students. Ian Clarke, a laboratory instructor, said that, "the Observatory sessions remain popular with students and are among the saving graces of lab sessions. The only downside may be the inclement weather."⁵⁷ Furthermore, it seems widely regarded as useful for laboratory instruction (which is

⁵² Cooper, personal interview.

⁵³ Mike Hayden, personal interview, February 17, 2006.

⁵⁴ Cooper, personal interview.

⁵⁵ Ibid.

⁵⁶ Marschall, personal interview.

⁵⁷ Ian Clarke, personal interview, February 13, 2006.

usually conducted at the Observatory twice per semester) and is considered well equipped for an Observatory of its size.

Dr. Marschall and his staff have continued the tradition of having public shows and presentations at the Observatory which were first started by Milone. Although perhaps not as open to the public as the Planetarium shows due to its research-based nature, it still has had a large involvement with both patrons and the public. The “Friends of Astronomy,” an off-campus group of selected community members who are interested in astronomy, has been actively involved in supporting the Observatory and its operations.⁵⁸ In addition to private shows held for this group, public sessions open to all those interested, are generally held two to three times a year with exceptions being made for rare events such as the Transit of Venus or the Mars Opposition (which drew a crowd of more than 200 people).⁵⁹ Despite these limited showings, if the “red-light” is on at the Observatory anyone is welcome to stop by and speak with Dr. Marschall or whoever happens to be out there.⁶⁰ Project CLEA (Classroom Laboratory Experiences with Astronomy) has also been responsible for activity at the Observatory. Over the past five summers, groups of astronomers or professors teaching astronomy have gathered at the Observatory. At these meetings, guests are given demonstrations of the CLEA computer program (designed and used by Dr. Marschall and his colleagues) and how to use it successfully in their own courses.⁶¹

One aspect that has added to campus involvement as well as to the research capabilities has been the radio telescope addition. The grant proposal was written in

⁵⁸ Marschall, personal interview.

⁵⁹ Clarke, personal interview.

⁶⁰ Cooper, personal interview.

⁶¹ Marschall, personal interview.

2002 and by the spring of 2003, for the relatively low cost of approximately \$5,000, the new object was added. The radio telescope is really just a converted satellite dish and comes from the Haystack Observatory at the Massachusetts Institute of Technology.⁶² Although it is not a research-grade instrument, it has been utilized as a learning tool for special projects done by seniors in astronomy as well as being used with the Physics-325 course for lab work.⁶³ It is able to detect the brightest objects in the sky, at least enough to keep the students involved. Furthermore, it combines elements of engineering, physics, computer programming and astronomy, therefore making it capable of drawing a larger, more diverse crowd. Currently, the dish is being used to plot hydrogen spectra which will allow them to show how the Milky Way Galaxy is rotating.⁶⁴ Additionally, the radio telescope can be operated either in person or via the internet, by anyone who has a radio operator's card and clearance to do so.⁶⁵ Radio telescopes are fairly common, but because Gettysburg College has one associated with its Observatory, it remains a step above other institutions of comparative size and resources. One thing that becomes readily to an observer, however, is the fact that the radio telescope is not located on or next to the Observatory. As a matter of fact, only the control room for it lies within the Observatory, the dish itself being more than one hundred feet away. This is due to a standing easement with the National Park Service regarding the territory on which the Observatory is built, and that located near it.⁶⁶

In the early 20th century, the Reading Railroad built a branch line off of the Gettysburg & Hanover Railroad line which runs through the borough of Gettysburg. At

⁶² Hayden, personal interview.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ Ibid.

this time, the College did not own all of the property it does today, and therefore the line was laid across what today would be the middle of the campus. Running north from the main line, this railroad line bent across the regions now occupied by Stone Lot, the Power Plant and up past the West building and the Observatory. In the past the trains had been a nuisance at the Observatory. Professor Milone said he had petitioned the railroad to turn off its light when going by the Observatory, but never considered it a serious problem.⁶⁷ Dr. Marschall remarked that the site on which the Observatory is built was the location of an old quarry and thus is a very suitable and stable location.⁶⁸ No action was taken until the late 1980s, when College authorities decided that it was unsafe to have a railroad track running through the middle of the campus which students needed to cross in order to attend sporting events. The official proposal read as follows:

A possible re-routing of 3,600 feet of the Gettysburg Railroad line from its current location on the Gettysburg College campus to one along the park/college boundary would require minor park boundary alterations. This change would provide benefits for the college and would not have an adverse impact on known historic resources.

In the land swap which occurred on September 26, 1990, the college acquired the rights to seven and one half acres of Park Service ground (located at the base of Oak Ridge, which would be used for the new rail line) and in return granted a “scenic easement” on forty-six acres of its ground on the north and northwestern region of its campus.⁶⁹ Essentially, it stated that the college would not be allowed to build anymore buildings or permanent structures on this ground, thus providing a quasi-Park Service land which would not be an eyesore to visitors to the battlefield. A large controversy

⁶⁷ Milone, email interview.

⁶⁸ Marschall, personal interview.

⁶⁹ *Railroad Relocation/Railroad Controversy Vertical Files*, in Special Collections, Musselman Library, Gettysburg College, Gettysburg, PA.

arose over the issue when citizens and friends of the battlefield complained that the College had broken Federal law and cheated the NPS out of valuable land. In the end, the College was acquitted of malicious intent and required to pay for trees and other visual barriers used to hide the railway.⁷⁰ Fortunately the Observatory pre-dated this arrangement and was thus protected by the “grandfather clause,” but surely has benefited from the relocation of the tracks. On the down side, the easement given to the Federal government prevents any additions to be added to the Observatory in the future.

What to do about future expansion then? At this time, nothing has been planned in regards to relocating the Observatory. All of the staff who use it at this time have said that the current location is a good one and that its placement on campus is essential to its successful operation. Its close proximity is a convenience and makes it readily accessible to students who are able to walk to it, which otherwise would require the College to find money for transportation to the facility. Without thoughts of moving it off-campus, efforts have been made to cope with the new lights added to the nearby soccer field, and will have to be considered if they are added to the football stadium. As of now, the light pollution is not unbearable for the large telescope, but proves to be a hindrance to the use of the smaller telescopes by students.⁷¹ Relocation has been avoided over the years due to the improvement and downsizing of technology. Although technology is always increasing, requiring more parts, they also tend to be reduced in size, thus allowing the components to fit within the existing building.⁷² Modifications that fit into this category include improving the circulation through an open truss-network (which will make the

⁷⁰ Ibid.

⁷¹ Clarke, personal interview.

⁷² Marschall, personal interview.

telescope more stable); though at this time this project still remains a prospective enhancement.⁷³

The history of astronomy and the utilization of observatories at Gettysburg College remains one of the college's large achievements, a testament to its principles of sound learning and education. Today, astronomy is a growing field around the world, as more and more is revealed about the vast world beyond the Earth's familiar environs. As the popularity of astronomy has grown, so too, has Gettysburg College sought to foster and develop its own program according to the latest technology available. For over a century and a half, Gettysburg College has been successful in meeting and at times, surpassing these goals. The two observatories that have been built by this college have played a crucial role in bringing together people from the surrounding area, both campus and community, as well as adding to the identity of this academic institution. At this point, the Gettysburg Observatory is a useful tool in the College's arsenal and shows no signs of suffering the same fate as its predecessor. As to what lies in the future for this facility, it is difficult to say, but perhaps that is a question which can only be answered by gazing at the stars.

⁷³ Cooper, personal interview.

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