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Sarah Campbell M.A., M.S.I.S.

College of the Holy Cross, scampbel@holycross.edu

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# The Jesuit Tradition of Astronomy at Holy Cross

Sarah Campbell  
Archivist, College of the Holy Cross

Prepared for Holy Cross Libraries' Solar Eclipse Party  
April 8, 2024

Since its founding in 1843, the study of astronomy and its related fields has remained an important part of Holy Cross' curriculum. This is not surprising as their study aligns with the Jesuit philosophy of finding God in all things. St. Ignatius himself wrote of his love of gazing at the sky and stars in his autobiography. A painting which once hung in a Jesuit school in Freiberg, Germany, shows St. Ignatius looking fondly into the night sky. (Figure 1)

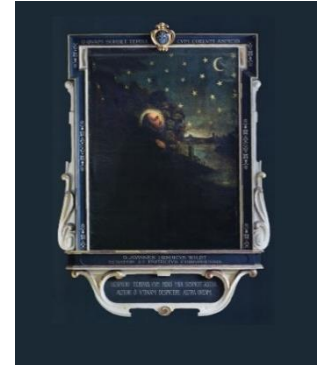
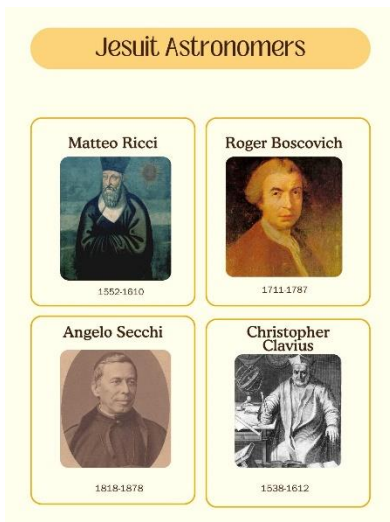


Figure 1: St. Ignatius Viewing the Night Sky, Freiberg Germany, Circa 17th Century

For nearly 500 years, Jesuit scientists have made several important contributions to the study of astronomy and related fields. For instance, a few notable Jesuit astronomers and mathematicians are: Matteo Ricci (1552-1610) who brought the



western study of mathematics and astronomy to China and made the first maps of China available to the west in 1584, Roger Boscovich (1711-1787) who determined how to calculate the equator of a rotating planet, and Angelo Secchi. (1818-1878) who was one of the first scientists to recognize the sun as a star. While these, and other Jesuits made significant contributions to astronomy, solar physics and mathematics, Christopher Clavius (1538-1612), who replaced the Julian Calendar with the Gregorian Calendar is of particular import when discussing the history of Jesuit education. For he was known for his work promoting the inclusion of mathematics and astronomy in the *Ratio Studiorum*, the basis of Jesuit education. (Figure 2)

Figure 2: Jesuit Astronomers- Image Source Wiki Commons, all images in the Public Domain

Holy Cross, as a Jesuit school, followed the *Ratio Studiorum* until the 1930s. Thus science has always been an important part of the curriculum. By 1858, astronomy was listed in the College Catalog as part of the natural



Figure 3: Elevation Fenwick-O'Kane. Circa 1890. RG16.1B Camps Buildings, Holy Cross Archives

philosophy course, along with chemistry. The study of astronomy even featured into the design plans of the College. When planning for O'Kane Hall in the 1890s, (Figure 3) Holy Cross administrators showed their interest in providing their students with spaces to study astronomy by including an observatory dome in the original elevation. While the dome was never built, and Holy Cross' observatory wouldn't be built until 1948, Holy Cross' interest in astronomy did not waver.

During the January 24, 1925, total solar eclipse, a party of Holy Cross faculty members traveled to observe and photograph the total solar eclipse at Manresa, the Jesuits' villa on Keyser Island in Norwalk, Connecticut. Among them was Rev. Michael Ahern, S.J. who served as a professor of Chemistry, Geology and Astronomy. He gave a lecture describing his technique for capturing the eclipse and exhibited his photographs at the College later that year. (Figure 4)



Figure 4: Solar Eclipse Party, Keyser Island, Norwalk, Connecticut, 1925  
RG01-00 Holy Cross Image Collection

Therefore, given the Society of Jesus' and Holy Cross' dedication to the study of astronomy and mathematics it is not surprising that several of the Jesuits associated with or buried at Holy Cross carried on their forefather's work in mathematics and astronomy. While many Jesuits taught STEM classes at Holy Cross, here are a few that made significant additions to the study of astronomy and related fields.

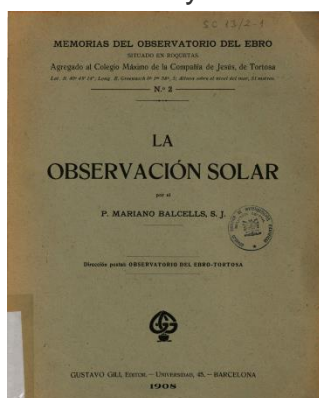


Figure 5: Cover of Fr. Balcell's work, Via Google Scholar

Rev. Marian Balcells, S.J. Fr. Balcells was born in Tarragona, Spain on May 8, 1864. He entered the Society of Jesus on September 23, 1895. He studied engineering and served as the director of solar physics at the Observatory of the Ebro in Cataluña, Spain. He also served as the engineering director who oversaw the building of the observatory in 1905. While at the observatory, Fr. Balcells made several significant discoveries in the field of solar physics. His findings were published in scientific journals as well as in his own publications. (Figure 5)

He, along with the founder of the observatory, Rev. Richard Cierra, S.J., was responsible for introducing the study of the solar chromosphere to Spain and for furthering scholarship surrounding the relationship between solar activity and terrestrial magnetism. In 1909, Fr. Balcells became a professor of mathematics at Boston College where he served until his death on October 7, 1911. He was buried at Holy Cross as this was the closest Jesuit Cemetery at the time of his death. His obituary appeared in such important scientific journals as *Nature*.

Another Holy Cross related Jesuit who made contributions to the field of astronomy was Rev. James Major, S.J. Fr. Major was born in Armagh, Ireland, on March 13, 1813. He began his career by joining the U.S. Navy in 1838. In 1848, Fr. Major served as a

professor of mathematics for the U.S. Navy and as an astronomer for the Naval Observatory in Washington, D.C. He also served as a professor of mathematics at Georgetown. He likely gained his vocation to become a priest while interacting with the members of the Georgetown Jesuit Community. He entered the Society of Jesus on August 15, 1851, at the age of 38 and the following year, he resigned from his Naval commission. He was considerably older than most of the members of his novice class, but he was known for his good natured soul. Fr. Major taught mathematics and physics at Holy Cross from 1865 to 1874. He was buried at Holy Cross on January 1, 1898.

Rev. Thomas Smith, S.J. also added to the knowledge base surrounding astronomy. Fr.



*Figure 6: Rev. Thomas Smith, Circa 1970s, RG01-05, Faculty, College Image Collection*

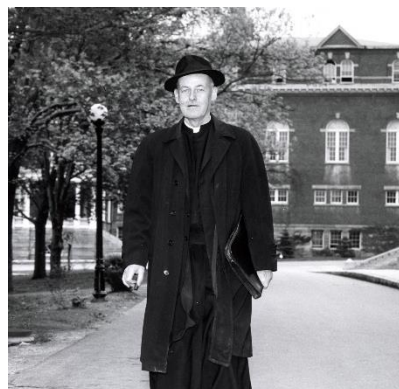
Smith was born in Brookline, Massachusetts on August 19, 1900, and entered the society of Jesus on August 14, 1914. After he was ordained on June 16, 1931, he began his graduate studies in physics at Georgetown University. While at Georgetown, Fr. Smith participated in the 1936 National Geographic Solar Eclipse Expedition to Siberia. But sadly, it rained on the day of the eclipse.

After teaching Chemistry and physics at Weston College and studying at MIT, Fr. Smith was assigned to Holy Cross and taught physics and served as the head of that department.

(Figure 6) He went on to serve as an associate at Weston College Observatory where he aided the director and carried out his own research. He died on March 4, 1981, and has the distinction of being the first to be buried in the upper tier of the Jesuit Cemetery.

Finally, Rev. James K. Connolly, S.J. had the most direct impact on the study of astronomy at Holy Cross. Fr. Connolly was born in Boston on November 30, 1905. He entered the Society of Jesus on August 14, 1926. He was assigned to Holy Cross where he served as professor of physics and astronomy at Holy Cross in 1941, a position he held until his death on December 22, 1967. (Figure 7) He was buried in the Jesuit Cemetery. While at Holy Cross, Fr. Connolly helped map a section of the stars in 1954.

But his greatest contribution to the study of astronomy at Holy Cross was the construction of Holy Cross' observatory in 1948. Fr. Connolly, who followed in the



*Figure 7: Fr. James Connolly, Circa 1960s, RG01-05, Faculty, College Image Collection*

footsteps of so many of his fellow Jesuits, loved to look at the night sky through a telescope. He brought his love for star-gazing to Holy Cross and oversaw the construction of Holy Cross' observatory. He had the old cow barn, which was located where Loyola Hall now stands, converted for this purpose and purchased a "much travelled" five inch Zeiss telescope. He also found a second-hand dome, which was adjusted manually.

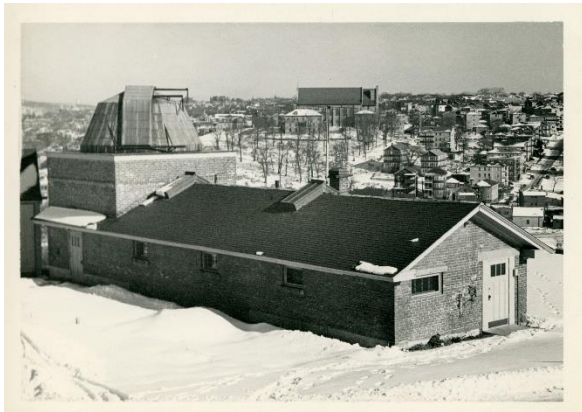


Figure 8: Holy Cross Observatory, 1960, RG01-31  
Campus Buildings, College Image Collection

The observatory was affectionately known as "Mount Connolly" by members of his astronomy classes. It was open for observation on three nights a week and, by the end of its tenure, was equipped with two telescopes and the necessary equipment to record the telescope's findings. (Figure 8)

By 1961, plans were being drawn for the building of a new dorm to be located on the plot occupied by the observatory. Originally, the observatory was slated to be demolished but Fr. Connolly petitioned to

have the observatory moved. The College's architectural firm McGinnis, Walsh, and Kennedy drew up plans to reconstruct the observatory on the roof of the new dorm. (Figure 9)

However, this plan proved to be cost-prohibitive and the observatory was instead placed on a plot of land behind the planned new dorm. (Figure 10) Loyola Hall wasn't opened until 1965 so astronomy classes continued unhindered for a few years. Unfortunately, once Loyola was built, the light pollution from the parking lot made it difficult to view the night sky.



Figure 9: Plans to Reconstruct the Holy Cross Observatory, 1961, College Archives, RG16-01B Campus Buildings

By the early 1980s, Holy Cross' administration determined that the observatory would have been cost prohibitive to save. It required too much refurbishment as the telescopes and

Figure 10: Holy Cross Observatory, 1966, College Image Collection, RG01-31 Campus Buildings

observation equipment were obsolete; the dome still needed to be manually adjusted by several students; the equipment was damaged when the hatch blew off during a storm; and the building was unheated as the rising heat caused the images viewed through the observation equipment to be distorted by the rising heat through the dome. Thus it was demolished sometime in 1982 or 1983. A Crusader article from November 13, 1981, by staff writer Mary Barletta, describes the damage sustained to the observatory. (Figure 11)



Figure 11: Crusader November 13, 1981, p. 6

While Holy Cross does not have its own observatory, the study of astronomy is still a part of the Holy Cross curriculum. Thus current students continue on in a tradition that was established hundreds of years ago.