Dual Vocations of Science and Religion: A Historical Case Study of Benedictine Women

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Abstract: This study examines Catholic Benedictine sisters who majored in sciences and taught science for over 100 years at the College of Saint Benedict in Saint Joseph, Minnesota, USA. In 1913, the College of Saint Benedict began as a women’s college, expanding Saint Benedict’s Academy, a boarding high school for women. This historical organizational case study analyzed archived data to understand the benefits and challenges of women who lived religious lives and studied science. Although women, in general, are still underrepresented in the sciences, the data collected provides information on how the sisters obtained advanced degrees as early as 1923, well before women were widely accepted in the sciences in colleges. Over time, the need for training scientists declined. The academic cooperation with the male college, Saint John’s University, allowed coeducational courses, merging departments, and decreasing the need for faculty. The demand for teachers in K-12 schools also fell as choices increased for public education and some Catholic high schools closed. The sisters, however, contributed to scientific research and collaborated with scientists worldwide while living religious lives, despite the long duration of academic studies. In addition, they were role models that taught and developed science curricula at all levels and served in many leadership roles at the college and in the monastery. The legacy of the sisters in science continues, as 1800 lay women have graduated with degrees in the sciences since the start of college.

Keywords: Underrepresented, Women in Science, Monastic, Benedictine

Introduction

If you ask someone to describe or draw a scientist, they will most likely describe or draw a male in a white lab coat. You would be very unlikely to hear a description or see a drawing of a woman in a religious habit. A widespread perception exists that scientists are male and that there is no place for women in science (Hall 2010). Some blame marriage and family as a barrier, whereas others claim the homophobic network of men, referred to as the “boys club,” has made it difficult for women to progress in this field (White et al. 2015). In a literature review conducted by the National Science Foundation in 2003, several studies indicated that gender limited career advancement of women in science and that women were marginalized and excluded from significant roles in departments and reaching tenure because of interruptions in careers from childbearing (National Science Foundation 2003). One other attitude that persisted early on was the intellectual ability of women. As late as 2005, the former president of Harvard viewed women as not having the innate ability for science (Hall 2010). The exclusion of women in science traces back to the eighteenth century (Hall 2010). Some progress has been made with increasing the number of women in science, yet even with bold efforts to recruit, retain, and promote women in science, women, in
general, are still underrepresented. Approximately 30 percent of research scientists are women worldwide (White et al. 2015).

Recently, we have begun to hear about some of the significant contributions in science from women from the past and acknowledge their research today. However, the role of women scientists in American culture and society has not been well documented (Zanish-Belcher 2012), including women in religious communities. Most historians have ignored the contributions of religious women in science and have only highlighted those of men in the Catholic church (Collins 2009). Early records show that the science curriculum did not exist for women in earlier years, both Catholic and non-Catholic, emphasizing “domestic subjects” (Collins 2009). As time went on, with a shift to women in the workforce, women began to have more opportunities beyond high school; however, those pursuing science often had no children or had someone who shared family responsibilities (Hall 2010).

Beyond high school, college education was limited for Catholic women in the early 1900s. Finishing academies were established for women, but the curriculum was tailored to domestic work in the home or to become a stepping stone to joining the religious order. The church frowned on Catholic women attending “non-Catholic” colleges, protecting them from Protestant perspectives and curricula resembling men’s colleges that might foster professional careers (Oates 1998). As a response, Catholic colleges for women were opened by sisters in large numbers in the early 1900s to discourage women from state colleges or normal schools. Courses were limited at first but would later expand to work as teachers or nurses. The message of approved life options for Catholic women in the 1950s, however, was marriage or the convent (Oates 1998). What is of particular interest, however, are the women who joined the religious order and studied science, a profession with significant barriers to women both within the religious community and in society in the early 1900s. Perhaps success in science early on was attributed to this choice of religious life. Studying science in a male-dominated field was even more of a challenge for Catholic sisters, who also had to navigate the patriarchal systems of the Catholic church (Ryan 2019). The church (the bishop) had the ultimate control over where the sisters could attend college and obtain advanced degrees at larger universities that were coeducational. Over time, the opportunities for the sisters increased within the Catholic church and in educational choices, with the modernization of structures and practices after Vatican II. Examining the professional lives of women science teachers, one could argue that a religious vocation also enabled sisters to enjoy autonomy as professional educators, which was not generally available outside the convent walls (Collins 2009).

This article examines archival sources to explore the experiences of the sisters who studied science from 1913 to the present at Saint Benedict’s Monastery to understand more about how the sisters navigated dual vocations of religion and science.

Background

In 1883, the community of the Benedictine sisters in Saint Joseph, Minnesota, established a boarding “finishing” high school for women. The boarding school maintained a strict schedule
similar to that of convent life, encompassing attending mass, prayers, and taking classes. After finishing boarding school, many of the women joined the convent and were given the assignment of teaching. Before 1920, nearly all young sisters were placed in schools with no training but under the guidance of experienced teachers (Oates 1988). The teaching assignments for the sisters varied from year to year, but often the sisters taught multiple contents and grade levels for several years. The women’s religious communities or sister teachers made up the bulk of the Catholic teaching force in the United States in the early twentieth century, with estimates of over 50,000 sisters teaching before 1920 (Atkins 2013; Ryan 2019).

The sisters followed The Rule of Saint Benedict, the foundational document on how to lead a Benedictine monastic life (Fry et al. 1981) revolving around prayer, work, study, hospitality, and renewal. Monasticism was a “school” for those in the religious life and inspired their work for how they established educational programs in and for wisdom (Frigge 2003). This large community of sisters peaked at over 1,200 members (Atkins 2013). The sisters had a significant role in education, staffing grade schools, boarding schools, and high schools. However, as educational standards changed and with limited opportunities for Catholic women to attend college, the sisters founded the College of Saint Benedict in 1913 to provide educational opportunities beyond high school for women.

Science was integral in the education curriculum at Saint Benedict’s Academy. The course catalog lists science in later grades. The women learned science from a text, “First Lessons in Natural Philosophy” by Dr. Joseph Martindale, which covered topics of light, heat, air, and water in a question-and-answer format (Martindale 1881). Science also became a part of the college curriculum. From the college’s founding, the College of Saint Benedict offered vocation-specific courses in home economics (later dietetics and nutrition), teaching, and business to help women in different professions. Although few of the sisters had experience with higher education, they moved quickly to obtain degrees to be one step ahead of the students. In earlier times, sisters taught grade school with very little education. As time passed, a high school diploma was required to teach grade school and two years of college to teach high school. However, the faculty needed college degrees to staff a college, which was a challenge for a Catholic woman who lived in a religious community. Without the help of Bishop John Ireland, this may not have been possible. He believed women should have equal education to men. He advocated and founded a summer school for Catholic sisters at the Catholic University in 1911 (Atkins 2013) and allowed sisters to enroll in secular universities for academic training (Oates 1988). To maintain high standards at the institution and to obtain accreditation, the sisters needed to enroll in programs to obtain advanced degrees.

As the sisters established the college, they played multiple roles throughout the year, teaching lay students during the school year and teaching sisters and teachers during the summer while maintaining their religious obligations. To obtain advanced degrees, summer classes were common. From 1913 to the present, forty sisters at Saint Benedict’s Monastery obtained degrees in biology, chemistry, and physics, fields where women are still underrepresented. The sisters navigated a religious life along with research and teaching.
science. This number does not include a few women who studied science and left the community or religious women from other monasteries who came to the college to study science. This article presents data to address the following question: What benefits and challenges existed for the sisters in the monastery to pursue science degrees?

**Method**

**Data Collection**

A historical organizational case study was the methodology used to examine the monastic women who studied science. This study traced the sisters who taught science and studied science from the start of the College of Saint Benedict in 1913 to the present day. A historical organizational case study concentrates on a particular organization over time, tracing its history and the organization’s development (Bogdan and Bilken 2007). Archived data from the Sisters of the Order of Saint Benedict and the College of Saint Benedict was retrieved in Saint Joseph, Minnesota. The data was collected in two phases, one for the deceased sisters and the second for those still living. In the first phase, after the sisters who studied science were identified, and data was retrieved from the archives. The researcher decided not to include other majors related to the sciences, such as dietetics, nutrition, and nursing, to narrow the data set. Data retrieved included oral histories, personal data records, college records, obituaries, autobiographies, registration records, publications, and other registered artifacts. As the artifacts were analyzed, field notes were recorded. In the second phase, interviews were conducted with the three living sisters using open-ended questions. Consent was given before the interview.

**Data Analysis**

After collecting the data sources, the constant comparative coding method (Bogdan and Bilken 2007) was used to determine themes that emerged from the data (Corbin and Strauss 2008). Recurring words and phrases from archived data were noted and sorted into categories based on similarities. For instance, several codes were based on terms the sisters used in oral history and interviews, including obedience, college challenges, assignment changes, scholarship opportunities, and leadership, and noting comparisons and connections in the data.

**Findings**

**College Challenges and Obedience**

In 1913, when the College of Saint Benedict began, opportunities for Catholic women to continue their education after high school were limited. It became a natural progression for the sisters to start a college to provide an opportunity for advancement in education for Catholic women beyond Saint Benedict’s Academy. Women’s colleges were being established
in growing numbers to give women access to college. Between 1905 and 1915, fourteen Catholic women’s colleges were opened in the United States (Atkins 2013).

For the sisters at the College of Saint Benedict, starting the college required the sisters to obtain college degrees. The sisters who taught science at the college had experience teaching in K-12 classrooms but needed more advanced degrees to teach at a high school and collegiate level. Many sisters were sent on their first mission to teach with nothing more than a high school degree. Attending college was a significant challenge because the sisters were initially not allowed to attend non-Catholic institutions or institutions with men. Bishop Ireland changed this in 1911, founding a summer school for Catholic sisters and allowing for advanced studies at secular colleges for advanced degrees (Oates 1988). Many sisters began by taking classes at the Catholic University’s Sisters College in Washington, DC, to start and then branched to the University of Minnesota and Loras College (Atkins 2013) for more specific training. Some sisters took classes in the summer, and some received credits by independent studying or by taking professional exams. The sisters accumulated credits slowly over the summers to obtain their degrees because, during the regular academic year, they had obligations to teach either at the college or at K-12 schools. As time progressed and advanced degrees were obtained, the sisters started taking courses at the University of Minnesota, Notre Dame, or Marquette University. To meet the needs of the college and accreditation, this was required. It was not necessarily a personal choice or interest that allowed a sister to get an advanced degree but rather a need for the teaching assignment at the college. In some instances, you had to be lucky enough for the prioress to see your potential and decide that you were the one going back to school to get the advanced degree in that subject area.

Although no exact archived data reveals how one of the earliest college science faculty at the College of Saint Benedict, Sister (S.) Magna Werth, obtained her degree, she was the first science faculty added in 1915 to teach chemistry and physics after teaching twelve years of grades five through twelve. One archived record indicates she received her bachelor’s degree in philosophy and minor in education from Saint John’s University; however, the records show most of the credits were from the Catholic University and Columbia College.

The first woman to obtain her bachelor’s degree in science (botany) at the College of Saint Benedict was S. Remberta Westkaemper, in 1919. She opened the biology department and started teaching in 1917, after teaching for ten years in grades four to eight. S. Remberta would later complete her doctorate at the University of Minnesota in 1929. She taught in the college for forty years and served as the first full-time college president. Before S. Remberta served as president in 1957, Mother Richarda Peters the Prioress served both roles. In 1961, at the end of S. Remberta’s presidency, the Benedictine community incorporated the college for financial reasons. The incorporation did not change the relationship between the monastic community and the college initially, but lay faculty were hired more regularly as enrollment increased.

S. Marie Hilger was the first sister to obtain her degree in chemistry at the University of Minnesota in 1923. Strangely, she obtained her bachelor’s and master’s degrees in the same year. It was common to accumulate credits elsewhere, but the degree was conferred at the
The first chemistry degree award at the College of Saint Benedict was to S. Bernice Knelleken, in 1923. S. Bernice served as a high school science teacher and principal for over sixty years. Like S. Remberta, most sisters completed post-graduate work at the University of Minnesota, Loras College, Catholic University, and a master’s degree at the University of Marquette. Other early science teachers at the College of Saint Benedict included S. Magloire Kiloran. S. Magloire obtained her degree in biology in 1926 and her master’s degree in Zoology from Notre Dame in 1940.

For the sisters, studying at public institutions was a benefit. Exposure to the ideas of public education was needed to integrate much of the content that public colleges adhered to in order to remain in good standing and receive state recognition (Ryan 2019). Sisters studying at public institutions provided the foundation of knowledge at the College of Saint Benedict. The college was modeled after the University of Minnesota to have the best chance of becoming accredited. The earlier sisters were given time off only for advanced degrees and not to obtain a bachelor’s degree. Six sisters worked on bachelor’s degrees in sciences for years, not completing their degrees until they were in their forties. This usually meant one class at a time in the summer because their year-long assignment teaching in K-12 schools did not permit time off. The average age for the sisters who studied science to obtain a bachelor’s degree was 30. The age gradually decreased after the 1930s when the sisters completed their bachelor’s degrees before they were given a teaching assignment. Requirements for teaching were more rigid by regulating agencies over time.

The college grew slowly from three students in 1913 to only thirty-five ten years later; however, enrollment reached as high as 514 in 1960. The faculty also grew from ten faculty members, all religious, in 1913, who taught in both college and academy, to forty-eight full-time faculty members in 1960, seven of them lay faculty, with thirteen PhDs and twenty-five master’s degrees. In 1913, there were three functioning majors. By 1932, eleven majors were fully accredited by the University of Minnesota: biology, chemistry, English, French, German, history, home economics, Latin, math, music, and sociology (Atkins 2013). The increase in enrollment meant more sisters obtained science degrees to fulfill the college’s needs. The shifting needs often changed the direction of the coursework and degrees for the sisters. Some of the sisters who obtained bachelor’s degrees in sciences changed direction to receive advanced degrees in counseling, religious education, library science, or something else needed as the college evolved. Eleven of the forty sisters who graduated with degrees in biology and chemistry completed doctorate degrees, and sixteen completed master’s degrees. However, the duration for the sisters to complete their science degrees was not simple or a straight path. The path was not in a specific order, nor was it what they chose, but with the vow of obedience, they completed the task.

One pivotal change in the need for women scientists began in 1961 with unique cooperation with the male counterpart college, Saint John’s University. Courses would now
be coeducational, and academic departments now shared classes. Men faculty may have had an edge in retaining faculty positions. Some sisters were given new assignments, and others remained in the college because enrollment was stable. The hiring of lay faculty continued as enrollment soared. In addition to the college changes, the closing of Catholic high schools changed the teaching responsibilities and the need for the sisters to study science. In 1973, the last sister graduated in science from the College of Saint Benedict. Later, she completed her PhD in Zoology at the University of Minnesota in 1990 and returned to join the College of Saint Benedict faculty, where she still teaches biology courses.

Assignments and Opportunity

Despite the long duration of obtaining a degree, the sisters did not have to worry about two significant factors, the cost of attending college and a job after completion. Instead, the prioress selected the sisters for the specific role. Even in the later years, when lay people were obtaining positions at the college, the sisters were given college-level teaching roles owing to the preferential hiring agreements. There were many opportunities to live and study throughout the United States and abroad among the sisters who studied science. Some noted colleges include Cornell, Max Planck Institute, Argonne Laboratories, Notre Dame, Vanderbilt, Berkeley, and Marquette, with funding from the National Science Foundation and even Fulbright scholarships. Studying science also provided a voice for the sisters in a male-dominated field as they presented research and wrote publications that reached an audience outside the community. Most of these study opportunities were in the summer and funded by grants. Some unique experiences early on included S. Maxine Simmer taking advantage of a program at the University of Minnesota as a part of a WWII initiative to instruct teachers on aviation theory and science to grow a population of pilots. S. Maxine was the first sister to obtain a pilot’s license in the United States, and she never wore the required parachute because she wanted to wear her habit. Traveling was common for the sisters. Notes in archive files show itineraries of trips by the sisters and students to study in other locations off-campus, which seemed to be a precursor to what is now study abroad programs found at the college.

The role of teaching was the primary reason for degrees at all levels in the sciences. Teaching science in K-12 had stricter guidelines in the state over time. College-level teaching also required advanced degrees for accreditation of the college. Curriculum design was an integral part of the roles of the women who studied science. Except for a few sisters, teaching elementary, high school, and college-level courses was extensive. Workshops and conferences were led by many science teachers, bringing in scientists from other parts of the world. Even for grade school education, the training of hands-on science curriculum was a signature characteristic in the curriculum developed by the sisters, funded by a large grant in the 1970s. The curriculum implementation was supported throughout the Catholic schools because many sisters served as principals as their assignments transferred out of the classroom.
Leadership and Legacy

A unique pattern existed among those who taught science; over twenty of the sisters who studied science later obtained leadership assignments. For example, two sisters became college presidents, and others served as deans, principals, hospital or nursing home administrators, department chairs, prioress, and superiors. Dispositions needed to persevere in science-related careers may be similar to those required to be a leader. Moreover, a benefit to joining the religious order allowed the sisters to hold positions lay women could never have obtained in the early years. Women’s colleges provide environments for women to become leaders among faculty and key decision makers (Langdon 2001).

As the sisters moved out of careers teaching science as they aged, yearly assignments often involved serving the monastic community in positions needed by the community at the Motherhouse and the retirement nursing home, Saint Scholastica, owned by the sisters. Examples included working at the gift shop, museum, and guest house and documenting the history in the archives. The prioress gave yearly work assignments until a sister could no longer work. The sisters never really retired; many took on hobbies such as winemaking, gardening, crafting, photography, and golfing.

The lasting legacies may be the women who graduated in the sciences since 1913 whom the sisters mentored. Over 1,300 women have graduated in biology, chemistry, and physics. In addition, hundreds have graduated in nursing, nutrition (formerly home economics and dietetics), exercise and sports sciences, and environmental science. The sister scientists were role models. In the beginning, all women were taught only by sisters. The sisters opened doors in the sciences, providing examples that women could study science and that they do belong in science-related fields. Even when the academic cooperation began with Saint John’s University and coeducational classes, the women’s college still upheld its identity to empower women to continue to pursue science degrees. The Benedictine spirit of community and the sense of belonging among women in science hold strong today. Aligned with the contemporary teachings of Catholic Social Thought, the sisters have instilled the idea of living in a community, and the obligation to contribute to the common good is necessary for all humans to flourish (Stabile 2006).

Discussion

Driven to provide women with educational opportunities, the sisters of the Order of Saint Benedict expanded a high school academy to become a strong women’s college in the Midwest. Today, the College of Saint Benedict is one of two women’s colleges left in Minnesota and one of the few remaining in the United States. Two notable characteristics between successful colleges and the rest of the colleges are strong leadership and advanced degrees in the faculty (Oates 1988), both of which were evident overtime at the College of Saint Benedict. Science majors may not have been the primary reason for attracting young women to college. However, classes in the sciences have been an integral part of other majors
leading to careers in dietetics (nutrition) and nursing and have led to sisters seeking advanced
degrees in biology, chemistry, and physics over the years.

Data revealed that the sisters’ opportunities and success in the sciences were a complex
issue that may be more related to the rule of obedience than the actual interest in the sciences.
The community’s need superseded these women’s career direction, an obligation for the
common good. Before the establishment of the college, the sisters were teachers and valued
education, but many began teaching with little education. One sister learned how to teach
science weekly, visiting an elder sister to plan one week at a time on Friday night and
Saturday. This went on for almost two years. As the requirements changed for teaching, sisters
took college courses over the summers. In 1913, starting a college shifted the need for college-
credentialled faculty and a stimulus for the first sisters to begin studying and obtaining
advanced degrees one step ahead of the students. Many of the sister’s oral histories reveal the
academic challenges during graduate school. This was no surprise because some started
graduate degrees with inadequate preparation, taking courses without the proper prerequisite
classes or because they studied independently and took exams rather than taking a semester
course. Also, the long duration between summer classes made learning difficult, and the
courses were disconnected. Perseverance was key, but once they obtained a degree, it was
challenging to continue the research required for extensive publications at a small liberal arts
college when the priority was placed on teaching. This was not unique to this religious
community but also experienced by sisters at other women’s colleges. Sisters could not easily
engage in research or publication owing to the faculty load demands (Oates 1988). For some
sisters, this did impact their ability to climb promotion ranks at the college level. The research
was secondary except for one sister who was allowed to live with family and continue to do
research and did not return to the college to teach. Instead, she established a Korean Catholic
faith community and maintained her research career. Most sisters who obtained advanced
degrees did have additional opportunities to participate in summer workshops, research
projects, or even another degree, depending on the need. However, during the academic year,
it was unlikely for a sister to engage in research.

Although the yearly assignment changes were frequent among the sisters, moving was
just part of the religious life. Even if assignments did not change, the sisters moved to different
locations, even around the Saint Joseph area. The large membership of the monastery allowed
sisters to move and start other monasteries, spreading community members throughout the
United States. Although one could say that living in a religious community provided job
stability, no guarantee was made about what you would be doing or where you would be
living. You followed The Rule of Saint Benedict.

The findings of this study are unique to the setting. Still, they may provide evidence that
the path to studying science was not immune from hurdles for the sisters even though they
did not have the challenges of other women of marriage and family. One question remains
about the earlier sisters who studied science. How were they welcomed in a male-dominated
world? Did their religious life benefit them? Or was that a limitation? The sisters were
exceptional researchers. Evidence in personal files indicates this, with letters from institutions noting the excellence and extending opportunities to allow the sisters to finish their work or grant them extension to complete a PhD. The location and size of the college also contributed to the lack of continued research or perhaps the other obligations to monastery life. Archived data and interviews indicated that some sisters were not promoted in faculty ranks owing to limited publications. Other oral histories note the challenge of studying at a higher level, with the difficulty of working in an all-male environment. One of the most published sisters was allowed to continue her research and not live in the community, which was an exception to the rule. However, the promotion of the individual is not consistent with the Catholic teachings but rather the contribution to the common good. This alone may answer the question of why the research was not a focus, but rather the focus was on teaching and serving the religious and college community.

The footprint left by these forty science sisters, whether from high school or college level, was that these sisters were role models. The sisters were role models in higher education, providing the opportunity and access to higher education for women who were not allowed to attend male or coeducational colleges. This access was extended to Black women in the 1940s at the College of Saint Benedict. S. Joyce Williams graduated with a degree in biology in 1948 and became the first Black woman to enter the monastery. She obtained her master’s degree in biology and taught science for part of her career. The sisters were also role models in science. The sisters developed and taught science curricula at all levels. When a woman can see another woman teach and “do” science, she is inspired to pursue this career. Women colleges had always educated women scientists, employed them, and encouraged them even when the policy excluded them from pursuits (Sebrechts 1992). Professor gender has been found to have a powerful effect on female students’ performance in math and science classes and the likelihood of taking other math and science courses (Carrell, Page, and West 2010). As the number of women’s colleges continues to decline, the importance of women faculty in the sciences should not be overlooked to build interest in women to explore science careers. Nevertheless, the most important message that the sisters have communicated is that it was not self-advancement that made the college thrive, but service for the common good. This was what led a community to flourish and may be the most important role modeling of all.

Informed Consent

The author has obtained informed consent from all participants.

Conflict of Interest

The author declares that there is no conflict of interest.
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