

Kelsie: Hello and welcome to another episode of the Yale Journal of Biology and Medicine Podcast. YJBM is a PubMed-indexed, quarterly journal edited by Yale medical, graduate, and professional students and peer reviewed by experts in the fields of biology and medicine. Each issue of the journal is devoted to a focus topic and through the YJBM podcast, we will take you through the past, present, and future of the issue's subject matter.

In celebration of the 50th year of women at Yale College and the 150th year of women at the Yale graduate school of arts and sciences, we're recording a special series of podcasts focusing on women and science and women at Yale.

I'm Kelsie and I'm a third year PhD student in the Department of epidemiology and microbial diseases.

Emma: I'm Emma a third-year student in cell biology

Carrie Ann: And I'm Carrie Ann, a third-year student in the Department of Genetics.

Today we want to celebrate the stories of the first women to receive PhDs at Yale.

In 1892, 191 years after Yale was founded, 23 women entered Yale graduate school. Two years later, 7 of these women graduated with their PhDs. These women were Cornelia H.B. Rogers (roman languages and literature), Sara Bulkley Rogers (History), Mary Augusta Scott (English), Laura Johnson Wylie (English), Elizabeth Deering Hanscom (English), Margaretta Palmer (Mathematics), and Charlotte Fitch Roberts (Chemistry).

Two years seems like a very fast turnaround to get a PhD, but it is important to note that these women were already highly accomplished before they entered Yale Graduate School. Many had master's degrees and many had been working in academic settings before resuming their studies when the doors of Yale opened to them in 1892.

One of the things I remember vividly about my first time at Yale was during my interview weekend for the Yale Biological and Biomedical Sciences Graduate Program. I remember entering Sterling Memorial Library for the first time, rounding the corner of the main hall, and seeing the portrait of these seven women hung proudly. It serves as a reminder of the past achievements of women in academia and women in science in the US and at Yale. It reminds us of how far we have come in the past 100 years and the work that still needs to be done to make academia a more including and welcoming environment for everyone. At the time these women received PhDs, it would still be 26 years before women gained the right to vote in the US!

\*\*\*\*\*Emma's Reflections on the portrait \*\*\*\*\*

Carrie Ann: This portrait is relatively new. It was completed by artist Brenda Zlamany in 2015 and added to the library on April 5, 2016. The positioning of each woman is deliberate. Brenda Zlamany used paper dolls to arrange the 7

women in the scene. The arrangement both celebrates the individual, each holds an object important to her studies, and places all 7 women together in a group. While not united in their discipline, they are united by the harsh treatment and ridicule they received as the few women on campus. They are united in their intellect, character, power and strength.

Emma: Interestingly, the 5 women earning PhDs in the humanities are sitting, while the two earning PhDs in the sciences are standing in the back of the group. The portrait is relatively small, but it is bold and eye-catching and memorable.

In this episode we will go into detail about the lives and scholarly contributions of each one of these 7 women, focusing particularly on the two women, Margaretta Palmer and Charlotte Fitch Roberts, who earned PhDs in the sciences.

We must recognize up front that all 7 of these women are white. It was not until 1926 that Otelia Cromwell earned her PhD in English, becoming the first African American woman to earn a PhD at Yale. A portrait of Otelia Cromwell was commissioned in December 2016. We also celebrate her story. We would also like to highlight the first two African American women to graduate from YSM - Beatrix McCleary and Yvette Fay Francis-McBarnette. These women were admitted to YSM in 1948 and 1950, respectively and went on to make impactful contributions in their fields.

Carrie Ann: If you would like to read more about the Yale portrait or about the stories of these amazing women, there are a series of articles on the Yale Women Faculty Forum web page. We have used these articles as references throughout compiling information for this episode.

Kelsie: I'll start by addressing the stories of the 5 non-STEM PhDs included in this painting.

First up is, Cornelia H.B. Rogers, who earned her BA at Wellesley college before completing her PhD at Yale. Her dissertation on the development of the Spanish language was entitled : "Sinalefa, sinéresis e haito en los romances del Cid". I had trouble translating this title because I believe it is written in Castellana (referring to the old Spanish language that preceded the modern Spanish language). I could be wrong, but it did not directly translate to the dialect of Spanish used in Spain today. After graduating, she went on to become an associate professor of Romance languages at Vassar for 10 years before her death in 1907.

Cornelia's sister, Sara Bulkley Rogers, also earned her PhD in the same year and is featured in the painting as well! Sara earned a BA from Columbia in 1889; and MA from Cornell in 1891; During her time at Columbia the undergraduate study for women was discontinued and incorporated with Barnard College. Her Yale PhD Dissertation was titled "The rise of civil govt and federation in early New England". Unfortunately, Sara also died in 1907, only two weeks after her sister.

Next is Mary Augusta Scott who earned her BA from Vassar, Also earned a

masters from Vassar WHILE she was teaching there. Her PhD Dissertation at Yale was titled “The Elizabethan drama, especially in its relations to the Italians of the Renaissance”. She went on to become a Professor of English Lang and Lit at Smith College. Mary is well known for editing and publishing The Essays of Francis Bacon.

Laura Johnson Wylie, who studied English, is also featured in the painting. Vassar College has a lot of info on her. It’s said that when she entered Vassar for her BS, she was behind her fellow classmates and wasn’t able to spell. Despite her lack of education prior to entering college, she graduated at the valedictorian in 1877. Then she earned her PhD from Yale studying “Sources of English Criticism”. Laura went on to become a Professor of English at Vassar and later the Chair of the English Dept. (Technically it says she earned it in 1894?) • Was \*rumored\* partners with another Vassar Prof, Gertrude Buck

The last non-STEM studying woman who earned a PhD in 1893 Elizabeth Deering Hanscom She earned her BA in English lit from Boston and her PhD dissertation was a Study of Piers Plowman, which was a great piece of lit from the middle ages and contains the first reference to Robin Hood tales. Elizabeth went on to teach English at Smith College for a number of years. Carrie Ann: Thanks Kelsie for sharing the stories of the first 5 women to earn PhD in the humanities at Yale.

I’m excited to share a little about Margaretta Palmer, the first woman at Yale to earn her PhD in Mathematics. Her dissertation and scholarly work were in astronomy, and she is celebrated today as one of the first female astronomers in the United States. In the portrait she stands in the back of the group with one hand on her hip and the other holding the legs on a golden telescope. She wears a bowtie, blazer, and matching belt adoring a simple long skirt. Her eyes glance straight ahead in confidence and strength.

Dr. Palmer was born in Branford, CT on August 29, 1862 to father Isaac Palmer, a farmer, and mother Mary Palmer. She earned her B.A. from Vassar College in 1887. While at Vassar she was mentored by Maria Mitchell, who is widely considered the first woman astronomer in America. Mitchell was the first woman to become a professor of astronomy and the first to become the director of an observatory in the US. Numerous of Maria Mitchel’s former students lead in academic scholarship and social movements, evidence of the strength of their intellect and character and the influence of their mentor. Margaretta Palmer took two classes under Maria Mitchell. Astronomy III class in fall 1885 and Astronomy IV the following year. Following graduation, Margaretta Palmer worked as an assistant at the Vassar Observatory directed by Maria Mitchell. Palmer next taught Latin at Vassar then became an assistant at the Yale Observatory.

The late 1800s were a time of change in the sciences, particularly astronomy. The book Women Scientists in America: Struggles and Strategies to 1940 by Margaret W. Rossiter describes a quote “separate labor market” for women in sciences in the 1880s and 1890s. While women began to gain the same degrees

as men, they were not granted equal jobs as men. Instead as writer Margaret Rossieter describes there were “Feminine jobs for women in science.” In the 1880s, larger budgets were available for scientific research which allowed hiring of assistants and staff. This made space available for women in astronomy, particularly as “computers” for the projects of leading men. A famous example of this was the actions of Edward Pickering at Harvard College Observatory. In 1881 he fired his male computational assistant and gave the job to Williamina P. Fleming, his housekeeper. Williamina Fleming was notable in many ways; she was a Scottish immigrant, divorced, and a mother. She had a public education not a fancy degree, but she was also a mathematician and astronomer and impressed Pickering. She stayed at the observatory for 30 years and was given a leadership position. She hired other women as assistants at the observatory who each made meaningful contributions to large projects. Fleming spoke out about women in astronomy. At the 1893 Chicago world’s fair she gave a speech titled “A field for woman’s work in astronomy.”

I kind of cringe at the phrase “woman’s work” but recognize the huge step forward this was for women in science, even if they were relegated to assistant positions and seen as just computers and not deep, novel thinkers. It started a path forward to including women in academia and celebrating the important insights and skills of women.

Other large observatories including Yale began to hire women assistants around this time. This is where Margaretta Palmer found herself when Yale graduate school finally opened its doors to women.

Dr. Palmer’s dissertation, published in Transaction of the Astronomical Observatory of Yale University in 1893, was titled: “Determination of the Orbit of Comet 1847 VI”. Comet 1847 was very meaningful to Dr. Palmer. It was discovered by her mentor Maria Mitchell at Vassar. I want to read a quote from the interdiction of her dissertation: “To most astronomers the Comet 1847 VI is of interest chiefly for the reason that, according to the determination of its orbit by G. Rümker in 1857, it seemed to belong to the comparatively small class whose orbits show a distinctly hyperbolic character. To the woman, however, who turns her attention to astronomy this comet is conspicuous as one of the few that have been discovered by a woman, and probably the only one that has ever been discovered independently by two women.”

The comet had first been seen by Maria Mitchell and then a few days later by Frau Rumker, wife of the director of the Hamburg Observatory. Mr. Rumker had previously determined the orbit, but new star and sun positions had been determined which encouraged Dr. Palmer to undertake a new calculation. This comet was remarkable because at the time its hyperbolic orbit was relatively rare. This comet only passed through our solar system once with our sun acting as a slingshot.

To continue in Dr. Palmer’s own words why she chose to study this comet:

“But the student whose first knowledge of the heavens has been gained under

the direction of Maria Mitchell has an added reason for regarding with especial interest the course through space of that body whose discovery brought before the astronomical world the young Nantucket comet-seeker, the first American woman to gain such notice. While Rümker's investigation was nearly exhaustive, it yet appeared to be possibly capable of improvement by a discussion of the star-places, by the introduction of modern places of the sun, and by taking into consideration the perturbations. This fact, together with the personal incentives which I have mentioned, has led me to undertake the following determination of the orbit of this comet”.

Dr. Palmer is considered the first woman to ever receive a PhD for astronomy in the US. After earning her PhD, Dr. Palmer continued to work at the Yale Observatory. Her title was computer for 1842-1912, research assistant 1912-1923, and in 1923 given the title instructor.

She calculated the orbits of many comets and analyzed the orbits of Jupiter's satellites, although she did not complete these latter calculations due to an illness. Dr. Palmer also contributed to an index of the positions of around 900,000 stars! In 1917 the article “The Yale Index to Star Catalogues” was published and it remained an important resource throughout the 20th century although updated indices were developed. Dr. Palmer was also a coauthor on the 1924 article “general catalogue of trigonometric stellar parallaxes”. Which gave the parallaxes, or the distance of a star from the earth, of 1870 stars.

Dr. Palmer undertook massive, complex, and ambitious projects in her career. In addition to her scientific calculations, Dr. Palmer also worked in the Yale Library and wrote articles on religion and religious education. Dr. Palmer attended St. John's Episcopal church in New Haven and was active in teaching. Two noteworthy religious writings are “teachers Notes on Our Book of Worship and Teachers' Notes on the Church Catechism).

I could not find much information on her personal life. As is common of this time it seems she did not marry or have children. Her life was one of scholarship and teaching over marriage.

Dr. Palmer died at the age of 62 due to complications from a car crash in New Haven, CT. Her obituary says she died from an embolism after being “struck by an automobile”.

If you would like to learn more about Margaretta Palmer, I found a lot of information in her obituary published in the obituary record of Yale graduates, her biography by the Yale Women Faculty Forum, A CSWP Gazette Newsletter of the Committee on the Status of Women in Physics of the American Physical Society, December 1983, Volume 3, Issue 4. Titled “Maria Mitchell's Famous Students”. And an article in the Vassar Encyclopedia of Distinguished alumnae.

Emma: Charlotte Fitch Roberts is the first woman to earn a PhD from Yale in chemistry. Her dissertation and scholarly work is centered around stereochemistry. Stereochemistry is the relative arrangements of atoms in a molecule

and understanding stereochemistry is really important for fields such as organic chemistry. In the portrait she is standing in the back of the group wearing a tan dress, holding up a round bottom flask full of a purple liquid. {I feel like you could write a whole dissertation about the symbolism wrapped up in this painting!}

Dr. Roberts was born February 13, 1850 to Horace and Mary Roberts in New York City. When she was still young, the family moved to Greenfield, Massachusetts. She went to Wellesley in the fall of 1876 and graduated in 1880. After graduating, she worked in chemistry at Wellesley. She became an instructor in 1882, an associate professor in 1886 and a professor in 1894.

In 1892, she joined the other women at Yale to earn her PhD and graduated in 1894. Reminder - she was already an associate professor at Wellesley!!!! She was promoted to full prof the same year she got her PhD! She published a book in 1896 entitled "The Development and Present Aspects of Stereochemistry" This is believed to be the first text written in English on the topic of stereochemistry! "Yale chemistry professor Frank Gooch called her book, "The Development and Present Aspects of Stereochemistry" (1896), "the clearest exposition of which we have knowledge of the principles and conditions of stereochemistry, and there is nothing in English which covers similar ground so broadly and so lucidly"

She worked w other people in the field - In 1885-86 she was at Cambridge and worked with Sir James Dewar {He was a Scottish chemist and physicist who invented the vacuum flask to research liquefaction of gasses} In 1899-1900 she studied in Berlin with Professor Lieberman and professor van't Hoff (a huge name in theoretical chemistry and the great authority on stereochemistry)

In 1912-13 she studied life and work of Paracelsus and his place (and the role of other alchemists) in the development of chemistry {Focused on the theory of the field}

She passed away suddenly in 1917. There are now named chemistry professorships after her at Wellesley and Yale

Learned all of this from a wonderful profile written about her in the Wellesley alumnae magazine where the authors raved about her interactions with students. They say "seldom is given to any one a nature so buoyant, so full of warm and vivid life, united with a mind so clear, so accurate and retentive, so swift in its activity"

Carrie Ann: While the first seven women earned their PhDs from Yale in 1894, it was not until 1926, 32 years later, that Otelia Cromwell earned a PhD in English from Yale, making her the first African American woman to receive a PhD from Yale. Dr. Cromwell's story is truly inspiring. When she started her PhD, she was 48 years old, and already a highly accomplished scholar and educator. Throughout her life she was an advocate of racial and gender equality. Her most influential work was *The Life of Lucretia Mott*, a biography of the abolitionist and suffragette, is still cited today. She died in 1892 at the age of

98.

In learning about Dr Cromwell's life and legacy I relied on a documentary by Smith College, her biography written by the women faculty forum at Yale, and the book *Unveiled Voices, Unvarnished Memories : The Cromwell Family in Slavery and Segregation, 1692-1972* by her niece Adelaide Cromwell.

Dr. Otelia Cromwell was born in Washington, D.C. in 1874. Her father John Wesley Cromwell was an influential civil rights activist, lawyer, teacher, and journalist. Her mother Lucy McGuinn died when Dr. Cromwell, the oldest of 6 children, was only 12 years old. After graduating from Minor normal school, Dr. Cromwell taught in Washington DC schools and took classes at Howard University. In 1897 she transferred to Smith College at the age of 24 and graduated in 1900 as the first African American to graduate from Smith. Smith has a really nice, short documentary on Dr. Cromwell her life, time at smith, academic scholarship, and legacy at Smith today honored annually, along with her niece Adelaide Cromwell, on Cromwell day. While at Smith, Dr. Cromwell had to live separately from the other students and was housed pretty far away from campus. In her third year a professor took her in so she could live closer and be more included in campus life. The documentary quotes numerous letters Dr. Cromwell wrote to her father while at Smith. In them she describes how hard she is working and studying and reading, with little time for anything else. These letters also capture her enthusiasm for her studies.

After graduating Smith, Dr. Cromwell again taught in DC at the M Street High School and Armstrong Manual Training School. In 1910 she received a masters from Columbia university. Even after earning her degree she took summer classes at the University of Chicago and again at Columbia University. In 1922 she began her PhD at Yale, with an academic scholarship. Her dissertation was titled, *Thomas Heywood, Dramatist, A Study in the Elizabethan Drama of Everyday life* published by the Yale University Press in 1928. In a letter to her father she describes the hot summer days in New Haven, cool nights, and her days reading in the Yale Library. She also describes the process of choosing a subject for her dissertation: She decides are Elizabethan drama in part she wants to write about something on which her advisors are experts. She writes: "This is my only opportunity for training, and training is needed for any output which is more than ephemeral or interesting to an unrestricted group of general readers."

Dr. Cromwell valued her time of training at Yale and used what she learned to be an influential teacher and scholar. After earning her PhD she became a professor at Miner Teachers College in Washington DC and taught there until 1944. She was honored with an honorary degree from Smith College in 1950. She was a highly respected teacher and scholar, the board of education of the district of Columbia stated in 1944, "The excellence of Professor Cromwell's training was reflected in her teaching . . . She developed among her students a keen appreciation of beauty and truth . . . She daily emphasized the value of thoroughness and open- mindedness in her own classroom preparation . . . The

influence she exerted in her position cannot be easily estimated. Encouraging students to pursue graduate work in leading universities, stimulating them to write. She was never too busy to listen to their problems or to entertain them in small groups in her home. “ Dr. Cromwell collaborated with Eva B.Dykes and Lorenzo Dow Turner compile a collection of writings by black authors. The goal of the book, as stated in the preface was to use the text for “class room study” to encourage the teaching and analysis of the writings of black authors to provide quote “the opportunity to embrace in true catholicity of spirit writings that constitute a significant part of the total American output.” Dr. Cromwell followed in her father’s legacy advocating for racial and gender equality. Her most famous work was *The Life of Lucretia Mott* published by Harvard University Press in 1958 after she retired from her professorship at Miner Teachers College. If you would like to learn more about the life of Dr. Otelia Cromwell and the Cromwell family, I would encourage you to check out the writings of her niece Adelaide Cromwell, particularly, *Unveiled Voices, Unvarnished Memories : The Cromwell Family in Slavery and Segregation, 1692-1972*. Adelaide Cromwell was also a highly influential teacher and scholar and talks about the discrimination her family including Dr. Otelia Cromwell faced as she pursued higher education and a scholarly career.

I have really enjoyed learning about the life and the work of Dr. Otelia Cromwell. Her lifelong love of learning and her dedication to her studies and to teaching are awe inspiring. Dr. Cromwell’s portrait was painted by Yale alumna Jennifer Packer and was unveiled in the fall of 2018 at Kroon Hall. Emma: We also wanted to take some time to highlight the first two African American women admitted to YSM

Beatrix McCleary Hamburg was the first African American woman to be admitted to YSM and the first African American to graduate from Yale Med in 1948. She was born in Jacksonville FL, and pursued medicine in the footsteps of her father. She was the first self-identified African American to attend Vassar college as well. After graduating from YSM, she did her residency at Grace-New Haven Hospital and the Yale Psychiatric Institute. Her research was in psychology. Her research focused on child development and psychology. She worked to bridge the gap between adults and these adolescents by studying behavioral issues of adolescents and understanding how those issues are influenced by the world today. She carried out her research independently and with her husband, David Hamburg, who she met at Yale. She held many professional positions including as a professor at Stanford, Harvard, and Mt. Sinai where she continually advanced our understanding of adolescent psychology.

Yvette Fay Francis-McBarnette was the second African American woman to be admitted to YSM. She graduated from YSM in 1950. She was born in Jamaica and came to NYC when she was a teen. She started undergraduate at Hunter college 14 and graduated in 3.5 years with a degree in physics! She then got a master’s in chemistry at Columbia and finally enrolled at Yale Med at the age of 19! She was then the first African American intern at Michael

Reese Hospital in Chicago. Dr. Francis spent her career dedicated to studying and treating Sickle Cell Anemia. Sickle cell anemia is a genetic blood disorder that prevents red blood cells from carrying oxygen effectively. This disease is especially prevalent in African American populations. She is credited with being one of the first people to treat this disease in children using antibiotics 15 years before the effectiveness of those drugs was scientifically proven. In doing so, she likely saved many young lives. Dr. Francis was also appointed to a White House Advisory Committee during the Nixon administration. The efforts of this committee lead to the 1972 Sickle Cell Anemia Control Act which provided funding for research into this disease. Over her entire career, Dr. Francis was an advocate for research into this disease and was always at the forefront of methods for disease detection and management.

Kelsie: One of my biggest questions while researching this podcast was why were women allowed into prestigious graduate education systems, long before they were allowed into undergraduate colleges? For example, there were 100 years between when women at Yale earned their first PhD and when women were allowed to earn undergraduate degrees at Yale. This seems counterintuitive to me. I always assumed that the education was limited to women bc women were not expected to tax themselves with research or elaborate thought when they could be sewing or like, having more babies....After hours of googling, I learned there isn't a clear answer for this. Just like the logic used to prevent women from entering high education, the logic allowing them to enter graduate school but not undergraduate school in the US is flawed, and vague.

Margaret W Rossiter called the period between 1868 and 1890 “the long latent phase” for women’s education where women could be admitted for PhDs as special students. Yale decision to include women for admission into Graduate programs in the 1890’s was accompanied by a few other Ivy league schools at the time like UPenn, Columbia, Brown, Stanford and UChicago. Yale and UPenn would not admit women to the undergraduate programs however and Columbia and Brown only admitted women to their coordinate college for women undergrads (as I mentioned earlier, Barnard for Columbia and Pembroke College for Brown). Stanford and Chicago, however, allowed women full access to all aspects of higher education. ”Over one-half of the doctorates awarded to women from 1877 to 1900 were given by just four universities: Yale (36), [University of] Chicago (29), Cornell (28), and New York University (20).” I should start by saying that the move towards coeducational institutions varied by region of the US and public vs private institutions. Before 1860 (I’m jumping around in time a bit here), only 54 universities were co-educational and of them, only one was in New England (Bates College Maine). By 1897 only 55% of institutions of higher edu were Coed. This fraction dropped to 29% among colleges in the Northeast. In the 1960’s and 1970’s when elite liberal arts schools like Princeton, Yale and Dartmouth (located in the Northeast US) began to allow women, they were the last of the schools to do this. State schools and many other newer colleges had been coeducational for decades. I was able to find an interesting quote hinting at why women might have been admitted to PhD

programs in these elite schools before ever being considered for undergraduate admission. <http://www.historygrandrapids.org/article/2141/which-colleges-awarded-advance> • “Gaining access to graduate education, was relatively easy ... permission could be granted by almost any friendly professor. ... being awarded a degree was ... a formal, almost legal proceeding [involving] ... the professors and the department ... [and the] president and board of trustees, many of whom long refused to award higher degrees to women or even acknowledge their presence on campus.” • Another aspect is that even as PhD students, these women weren’t integrated and rarely seen across the university, like you would be as an undergrad. So admitting them was an agreement between the advisor and the student and a committee and it could be kept relatively quiet. Mary Roth Walsh who applied to Harvard Med twice (1847 and 1850) was told that it was inexpedient to admit women. I had to google this word so the fact that she understood it already demonstrates that she was more than deserving a Harvard med degree. Essentially the admissions committee had ruled that it would be not advisable or prudent to admit her --- code for highly qualified but they couldn’t BS a reason. The story of Winifred Edgerton who applied to Columbia University in 1884 for a graduate degree in Astronomy and Mathematics also exemplifies the consideration of only “exceptional” women for PhDs. . “The case was also a matter of expediency: then Adjunct Professor John Krom Reese, who would serve as Edgerton’s mentor, needed a graduate assistant as much as Edgerton needed a place to conduct her research. The Board recognized the advantages of the situation and relented in January of 1884. In his diary, Dix assured himself that “the case was of an absolutely exceptional nature and established no precedent for others.” She earned her PhD cum laude in 1886. HOW EXCEPTIONAL DID THESE WOMEN NEED TO BE THEN? Do be considered exceptional enough to earn a PhD is a lot to ask of anyone, but then to say that they were exceptional enough that they had to ignore their sexist tendencies and accept her implies an extreme level of determination and intelligence. I am grateful for these extremely exceptional women who paved the way for somewhat above average women like me to earn PhD degrees now haha. • [https://scholar.harvard.edu/files/goldin/files/putting\\_the\\_co\\_in\\_education\\_timing\\_reasons\\_and\\_consequences\\_present.pdf](https://scholar.harvard.edu/files/goldin/files/putting_the_co_in_education_timing_reasons_and_consequences_present.pdf)

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Carrie Ann: Thank you for tuning into this episode of the Yale Journal of Biology and Medicine Podcast. Stay tuned for our second episode celebrating more amazing female scientists shortly.

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Yale Journal of Biology and Medicine Podcast. We'd love your feedback and questions, so feel free to tell us your thoughts by emailing us at [yjbm@yale.edu](mailto:yjbm@yale.edu)! If you enjoyed our podcast, please share it on SoundCloud or Apple Podcasts!

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