

5-7-2012

# The Road To Gaining Acceptance And Status For Women In American Medicine

Terrie S. Ahn

Wayne State University, dx6420@wayne.edu

Follow this and additional works at: <http://digitalcommons.wayne.edu/honorsthesis>

---

## Recommended Citation

Ahn, Terrie S., "The Road To Gaining Acceptance And Status For Women In American Medicine" (2012). *Honors College Theses*. Paper 5.

This Honors Thesis is brought to you for free and open access by the Irvin D. Reid Honors College at DigitalCommons@WayneState. It has been accepted for inclusion in Honors College Theses by an authorized administrator of DigitalCommons@WayneState.

THE ROAD TO GAINING ACCEPTANCE AND STATUS  
FOR WOMEN IN AMERICAN MEDICINE

by

Terrie S. Ahn

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE CO-DEGREE OF UNIVERSITY  
HONORS IN THE IRVIN D. REID HONORS COLLEGE, WAYNE  
STATE UNIVERSITY  
DETROIT, MICHIGAN

April 2012

## **Table of Contents**

	Page
Title Page	1
Table of Contents	2
Abstract	3
Paper	4 - 18
References	19 - 20

## Abstract

For my honors thesis, I discuss the history of women in American medicine during the late nineteenth and early twentieth centuries. In particular, I focus on how the social and cultural time periods affected women's efforts in pursuing further medical education, how these women were perceived and treated by not only their male colleagues, but also the outside world, how it affected their future career choices in medicine, and finally, how their efforts ended up changing the medical career path for future female generations.

It begins with a discussion of the variety of obstacles, both private and public, that hindered women from entering the medical field. For some women, it was the responsibilities at home that left them little time and energy to pursue higher education. For others, it was simply a lack of access to the right opportunities and resources required to apply to medical school. During this time period, many medical schools and associations prohibited the acceptance of women. Certain homeopathic and sectarian schools were more accepting of women, although numbers were still limited.

It continues with a discussion of what the medical education, academic and social life, and opportunity were like for the women who did enter medical school. Here, I examine specific case studies of women who were students at this time. I include these women's background information, their stories during medical school, as

well as their career choices after graduation. I also discuss how the achievements of these women helped to gain increasing acceptance of women into medical school.

Finally, I conclude with a discuss of how these accomplishments helped shape the future of medical education and practice for women, as well as how and why women in medicine are still facing some of these challenges in their careers today.

### **THE ROAD TO GAINING ACCEPTANCE AND STATUS FOR WOMEN IN AMERICAN MEDICINE**

Prior to the late nineteenth century, the inclusion of women in American medicine was rare and likely limited to traditional female roles as nurses or midwives. Women faced opposition from all aspects of their private and social lives that inhibited their path to entering medical school and becoming medical professionals. Not only were women limited by their busy roles as wives and mothers in the home, but also by the extreme disapproval that came from traditional society.

To overcome these obstacles meant that women had to work even harder to receive any of the opportunities that were already readily available to men. “Women entered the medical profession as part of a broad 19<sup>th</sup>-century movement toward self-determination... women doctors sought to examine and redefine the concept of womanhood to fit the changing demands of a complex, industrial society” (Morantz-Sanchez 213). Although there existed this obvious unequal treatment of males and females, it was the persistent determination and work ethic of American women that eventually helped them gain acceptance and status in the medical profession.

Historically, there were several private and public obstacles that deterred women from entering the medical profession. To begin with, in many cases, women simply did not have the extra time or energy to enter medical school and become working professionals. A woman's domestic role as a wife and mother included any and everything that related to the home; tasks such as watching, feeding, and bathing the children, gardening, cooking, and cleaning were not uncommon daily tasks for women. To handle all such responsibilities and study for medical school all in a day's work would easily have been physically and mentally challenging for many women, or men for that matter, to handle.

Martha Ballard, who worked as a talented midwife in the nineteenth century, was one of the few women who were able to break away from this traditional woman's role in society. However, balancing her life as a mother and as a midwife proved to be extremely challenging. Even when she was tending to her patients, she was unable to leave behind her worries about fulfilling her duties as a wife and mother. "If she was unable to find domestic helpers at home, it was difficult for her to get away to her patients. If a woman's labor was protracted, attending her interrupted the normal flow of Ballard family meals and chores." (Leavitt 146). The tasking pressures of a woman's professional career and the strain it put on the daily life at home made it difficult for women to pursue professional occupations, and also likely served as one more reason why woman avoided this career path altogether.

Furthermore, nineteenth-century American culture and society held the idea that a woman's place was in the home away from the brutal real world. During these times, "the very idea of a woman studying medicine was shocking to most people. Any woman who wanted to be a doctor must surely be that disgrace of the nineteenth century- an old maid" (White). A woman's goal in life was supposed to be "not the pursuit of science, but to rear the offspring and ever fan the flame of piety, patriotism and love upon the sacred alter of her home" (Morantz-Sanchez 214). Americans believed that it was the housewife's role to curb her husband's bestiality and wild instincts and keep him respectable in society.

Not only this, people believed that if women began entering professional society, they would forget or ignore their childrearing responsibilities at home. Thus, people believed that women who purposely tried to expose themselves to the outside world by attempting to gain professional status and careers were going to destroy the "delicacy and refinement that constituted women's primary charms" (Morantz-Sanchez 215).

Even if a woman was willing to endure societal opposition and was able enough to pursue a professional career, the opportunities for medical education and work available to women were extremely limited. As the United States was a well-established patriarchy at that time, many Americans believed that women were unsuitable to become physicians. "Many agreed that Nature had limited the capacity of women's intellect" (Morantz-Sanchez 215). Society stereotyped women as being mentally and

physically inferior to men. Male professionals argued that women's passivity, lack of courage and sound judgment, combined with their physical weakness meant that women were incapable of practicing medicine and performing surgery. At the University of Michigan Medical School, "the medical faculty [expressed] concerns over the ability of women to be physicians due to their menstrual cycle and reproductive function, which would incapacitate them with mental and moral manifestations and invariably lead to infanticide and foeticide" (Olderman 5).

As a result of such stigmas, medical schools capped acceptance of female applicants at just five percent, which severely limited a woman's chance of even getting an opportunity for a medical education. Medical school administrators "justified outright discrimination against qualified women candidates on the grounds that they would not continue to practice after marriage" (Starr 124). Many medical schools feared there would be "a drop in financial support from benefactors and the flight of male students unwilling to study with females," if more females were accepted (Kirschmann 438).

Non-traditional homeopathic schools were somewhat more accepting of minorities, such as women or African Americans; and every once in a while, opportunities did present themselves to women. However, the institution's "decision to admit women stemmed not so much from gallantry or justice but as from the 'highest regards to the interests of the institute'" (Kirschmann 415). Many homeopathic schools



admitted women solely for their tuition money and financial gains. Some universities went as far as to accept a female student's tuition money and then prohibit her from graduating and obtaining medical licensure. At "the Chicago Medical College [and Rush Medical College] in 1870, women could enroll but not graduate from either school in the nineteenth century" (Fine).

Nonetheless, the number of women who were applying to universities, not just limited to medical schools, began steadily increasing in the late nineteenth century. According to the President's Report of 1872 at the University of Michigan, "the number of women who are availing themselves to the opportunity to study at the University is nearly twice as great as it was in [the previous year]" (President's Report 11). However, the discrimination did not just end at the admissions process. Men, fearing that the inclusion of women in their courses would hinder their learning process, segregated themselves from women. "If women must be instructed in medicine, it was a firmly held belief that they could only be taught separately from men" (Olderman 5). In some cases, the medical faculty, who were once again predominantly males, refused to teach female students unless their yearly salaries were increased. When the University of Michigan first began accepting female students in 1870, the medical faculty declared, "they would only teach its female students if they were paid an additional \$500 per year" (Olderman 5).

For the select women who entered and matriculated from medical school, the training and employment opportunities available were once again scarce. "Always medical women have had to struggle for those things that are given gratis to medical men" (Van Hoosen 376). After graduation, many women had difficulty in finding preceptors who were willing to train them. Many hospitals and preceptors only offered nursing positions for these women, as nursing was traditionally regarded as a female-dominated occupation. "Those who sought training secured only limited access, compared to the easy professional exchange characteristics of male networks" (Morantz-Sanchez 548). Local and national medical associations often restricted or rejected acceptance of female members, making it even harder for women to make important professional connections and networks with other doctors. Women were also denied appointments as medical school faculty or hospital staff simply due to their sex, even if they were equally or perhaps, even better qualified than their male contenders.

Many aspiring female physicians felt that they were "denied the right to participate in medical decisions by paternalistic doctors who refused to share information or take their intelligence seriously" (Starr 391). Male physicians feared the negative consequences of increased economic competition if women entered the workforce, and thus refused to consult with female physicians and "ostracized male practitioners who did" (Morantz-Sanchez 215).

Women faced obstacles in all aspects of their lives that discouraged them from trying to enter the medical field. The resistance from traditional Americans and the male-dominated workforce acted as strong opponents against women's success. However, determined to succeed as physicians, women took advantage of all the limited opportunities that were available to them at the time. Their meticulous self-advancement and dedicated work ethic helped women gain acknowledgement, not only from medical societies but from the general public as well.

Maria Zakrzewska, M.D. was one of the most prominent female physicians in America during the nineteenth century. Having previously studied and taught medicine in her native country of Germany, Zakrzewska immigrated to the United States in 1853 with high hopes that she would be able to continue her medical career in America. Upon arrival in New York, Zakrzewska quickly realized that she lacked the necessary language skills to enter medical school, and instead contacted an acquaintance of her mother, Dr. Reisig, hoping to obtain a temporary apprenticeship under him. Zakrzewska assumed that Dr. Reisig would serve as her preceptor, taking "the young physician-to-be under his wing, [and introduce her] to basic medical theories and practices while the young protégé worked as his assistant" (Tuchman 59). Much to her surprise, Dr. Reisig refused on the premise that she was a woman, and instead, offered her a measly position as an office nurse. Refusing to be patronized in

this manner, Zakrzewska decided to open her own midwifery practice. When her practice failed, she then decided it was time to re-apply to medical school in the States.

However, applying and being accepted in medical school turned out to be a challenge of its own because very few orthodox, also known as allopathic schools were accepting female students at this time. Attending an orthodox or unorthodox medical school was a complicated decision for many women during this time. Although it was somewhat easier to attend an unorthodox medical school, it also “carried particular meaning; [not only were they] accused of being incapable of practicing medicine because of their sex, they risked being further discredited, at least by regular physicians, should they pursue an unorthodox path” (Tuchman 60). Through a stroke of luck, Zakrzewska met Elizabeth Blackwell, the first woman in the United States to receive a medical degree from an orthodox medical school. Blackwell was able to help Zakrzewska enroll into Cleveland Medical College, an orthodox medical school, where she finally obtained medical licensure in 1856.

Throughout her medical education, Zakrzewska continued to face countless barriers that hindered her from practicing medicine. With only one other female colleague in the noticeably male-dominated Cleveland Medical College, Zakrzewska endured constant criticism and sexist judgments from her male colleagues and superiors.

Upon graduating, she teamed together with Blackwell to establish the New England Hospital for Women and Children in 1862. Through their hospital, Blackwell and Zakrzewska aimed to train the best female physicians possible, allowing the students' academic education to be complemented with the clinical education that they were to receive in the hospital setting. Not only did they focus on creating well-trained students, but they also wanted to counter the sexist claims that a woman's sympathetic nature made her unfit for grueling medical practice. "They did this by defining medicine itself as a caring profession par excellence; [women's] possession of nurturing qualities placed them in a unique position to build a bridge between 'sympathy' and 'science', making sure that the knowledge gained by science would be applied in humane ways." (Tuchman 3).

In the mid-nineteenth century, male students had numerous opportunities to gain clinical experience by partnering with preceptors who would train them; however, women relied solely upon the goodwill of a small number of physicians who were actually accommodating to women's needs. Unfortunately, even if the physician was willing, he often chose not to accept women because it would have been difficult for him to withstand the disapproval from his fellow male colleagues. Thus, Zakrzewska and Blackwell "insisted that women must have their own hospitals; it was the only place where they could become 'really acquainted with disease'" (Tuchman 82).

The New England Hospital for Women and Children was run and operated solely by female physicians and surgeons, and it provided an unprecedented level of medical education and treatment for women. As a feminist, Zakrzewska refused to accept the conventional judgment that women were inferior to men. Throughout her life, she battled the gendering of the medical profession and was successful in helping American female physicians gain a place in the medical world.

Sarah Schilling Schooten, M.D. was a twentieth century physician who graduated from the Detroit College of Medicine in 1926. Again, at a time period in which women were extreme minorities in the medical profession, Schooten stood out amongst her peers as a female. Nonetheless, Schooten “survived” four years of medical school and worked as a medical physician in the Detroit area for many years before retirement. The reasons behind Schooten’s success can be evidenced by her meticulous note-taking skills while enrolled in the Bacteriology and Embryology course at the medical college. At a time when technology was still fairly primitive, Schooten included her own water-colored drawings and specific descriptions of laboratory experiments and their results in her notebooks. She specifically illustrates each step of the research process and provides in-depth reasoning as to how and why such results were obtained. Not only do her notes show her diligence and attention to detail, but also her mastery and understanding of the coursework content.

Schooten displayed a characteristic that was representative of many female physicians during this era: perseverance. Being disadvantaged solely because of their sex, women worked twice as hard to gain recognition by their male colleagues. They “sought to redefine [the definition of] ‘woman’ in order to break down the doors preventing women from claiming their place in the public sphere” (Tuchman 245). Women achieved this by reaching out, “hardly an uninvited guest, to as many professional networks as would have [them]” (Morantz-Sanchez 555). Knowing that no one was going to be around to help them, women applied careful self-advancement through the limited opportunities that were given to them.

Bertha Van Hoosen, M.D. (1863-1952), a native of Stony Creek, Michigan was a local pioneer who advocated for women’s rights in the medical profession. She obtained her bachelor’s degree from the University of Michigan in 1884, and then continued her education at the University of Michigan Medical School to receive her medical degree in 1888. At a time when women physicians were rare, Van Hoosen served as an obstetrician gynecologist in her community. Van Hoosen’s journey to medical school, like that of many other women, also did not come without courage and sacrifice. “Her father sternly refused to help her [financially], and her mother’s tears made the decision even more difficult” (Our November Cover Page). Her parents sternly objected her dreams to pursue a medical degree and clearly stated that they would not support her financially if she chose to attend medical school. However, instead of giving up in fear

that she could not succeed on her own, Van Hoosen put her family's objection aside and followed through with her dreams. To cover the cost of tuition and books, she worked several jobs to pay her way through medical school.

Van Hoosen was widely known in the medical community for her expertise in and encouragement of the use of twilight sleep, a practice that uses a combination-injection of morphine and scopolamine to induce a semi-narcotic state that relieves some of the pain of childbirth. Being a woman herself, Van Hoosen advocated for the use of twilight sleep as an alternative, less painful labor technique. "Because [female physicians] saw it as an issue for their sex... and because many of the twilight sleep leaders were active feminists, they spoke in the idiom of the woman's movement" (Leavitt 154). She strongly encouraged the growth of women physicians to specialize in obstetrics and gynecology, for she logically believed that no one would know and understand women better than women themselves. In a sense, Van Hoosen was hitting two birds with one stone; not only was she improving labor and delivery practices for pregnant women but also through her knowledge and expertise, she was also proving that female physicians were equally as capable or in some cases, even better than male physicians at the medical treatment and care of women.

Van Hoosen also wrote and published her book, "Petticoat Surgeon," which recounts her own personal stories of medical school as well as her difficulties in overcoming the initial prejudices that existed against women doctors during the



nineteenth and twentieth centuries. In one chapter, she retells the story of when she was informed of an opening position as the Head of the Gynecology and Obstetrics department at the University of Michigan Medical School. Upon hearing the vacancy, she visited her good friend, Dr. Victor C. Vaughn, who was the Dean of Medicine at that time, conveying her great interest in this position. During their conversation, "Dr. Vaughn sadly confessed, 'You cannot have the appointment, much as I would like to see you get it, because you are a woman'" (Van Hoosen 162). Appalled by the sexist discrimination in the workplace, Van Hoosen became even more determined to obtain a University professorship. "I think it is important, just for the principal of it, that a woman occupy the position of Professor of Gynecology in medical school... if my own (alma mater) will not administer justice to my sex, I will find some other medical school that will" (Van Hoosen 162). And determined she was, as she was later appointed as the head of the Obstetrics Department at Loyola University School of Medicine in 1918.

Equally as important about her work as a physician was her work as a feminist to increase equality and rights for women in the medical field. Van Hoosen, noticing the sexist discrimination in medical organization membership, founded the American Medical Women's Association in 1915 with the aim to advance women in medicine and to serve as an outlet for voicing women's health. She was not afraid of breaking the stereotypical female image. "Graciousness, good manners and softness often have had to be sacrificed in order to stand up against prejudice and sex discrimination. Every day

while fighting disease, women physicians wrestle for the reputation of the medical woman" (Van Hoosen 376).

Perhaps the most important characteristic of female physicians during the nineteenth and twentieth centuries was their unwavering dedication towards a common goal: being acknowledged in the medical profession and in society. Women knew "there would be hard work ahead before women physicians could prove their worth to a world of doubters," and simply would not accept "no" as an answer; they were determined to keep trying until they achieved their goals (Van Hoosen). "It was unlikely that women physicians would be convinced to take up the [lesser] work... unless they were recognized and received by fellow-workers on an equal footing in every respect" (Kirschmann 434).

By the end of the twentieth century, women had gained a new status in the medical profession. Possibly influenced by the caretaker and maternal roles as wives and mothers, female physicians focused on disease prevention rather than cure and became "zealous advocates of public health and social morality" (Morantz-Sanchez 219). Many male physicians, who were more concentrated on increasing the social status of physicians than providing effective healthcare to patients, prescribed heroic medicines. Heroic medicine was a type of aggressive medical practice that often had extremely harmful effects on the patient. Female physicians strongly opposed the use of heroic medicines and advocated for a more cautious use of drugs, and for increased

attention to hygiene as a primary method for disease prevention. Some Americans, who disliked the negative effects of heroic medicine, favored treatment by female physicians who offered alternative healing methods. In a sense, these Americans, who were being treated by these female physicians, were indirectly acknowledging their status as medical professionals.

The accomplishments of the female physicians in the nineteenth and twentieth centuries helped shape the future of medical education and practice for both men and women. By taking the first step into the medical profession, female physicians of the nineteenth and twentieth centuries disproved the sexist judgment that women, by nature, were intellectually inferior to men. With an increased number of female physicians who were successfully matriculating from medical school, medical schools had no choice but to open more and more spots to female applicants.

The President's Report of 1872 at the University of Michigan stated, "young women have addressed themselves to their work with great zeal, and have shown themselves quite capable of meeting the demands of severe studies as successfully as their classmates of the other sex" (President's Report 12). Having only recently begun admitting female students into their university, the university's administration was skeptical about women's performance and aptitude towards learning. "If we are asked still to regard the reception of women into our classes as an experiment, it must be certainly deemed a most hopeful experiment" (President's Report 12). Much to people's

surprise, the end result was that women were not and could not be deemed any less apt than men, and the health factor, assuming that women's frail nature would adversely affect their studies, did not proportionately exceed that of men either. Furthermore, one might imagine that female medical professionals would easily have felt out-of-place or intimidated simply by the sheer number of males that dominated this profession.

However, male colleagues "found these young women felt in no way belittled because they were in the medical department, and their enthusiasm in their work made a lasting profession" (Van Hoosen).

However, to this day, gender bias still exists in the medical profession, as well as in society in general. Female physicians consistently earn lower salaries than their male colleagues, even with comparable or even better qualifications. A study completed in 2004 by Ash *et al.*, showed that "female faculty were less likely to be full professors than were men with similar professional roles and achievement" (Ash 205). In the majority of hiring cases, men are chosen over women for employment positions when the male has equal or possible even lesser qualifications than a woman.

Most importantly, the social stereotype that women belong in the home has remained to be an important factor for consideration. Many Americans continue to hold the belief that women should be "stay at home" mothers who tend to the children and domestic needs. Although more and more women are becoming professionals and entering high-status, high-pay positions in America, there still exists a fragile balance

between a woman's private and professional life. Unlike men, the women of today's society are still faced with the difficult decision of choosing between raising a family and advancing further in their professional careers, as it is often difficult to excel in both.

The inclusion of women in American medicine has been a relatively recent ordeal in which wide acceptance of female physicians has only been around for the past few decades. The traditional gender roles given to men and women, the sexist judgment that men are mentally and physically superior to women, as well as the limited opportunities for medical education and employment served as driving factors that slowed women's advancement in the medical profession.

However, the relentless dedication and "go-getter" ambitions of aspiring female medical students helped them gain recognition and status in a profession that was previously solely male-dominated. Today, women make up the majority of college undergraduates and also those who graduate with a bachelor's degree. According to the National Center for Education Statistics, in 2009, 57% of all students enrolled in degree-granting institutions were female. This can be compared the enrollment statistics of 1970, when 59% of all enrolled students were male (U.S Department of Education). The increasing gender gap, and role reversal taking place in U.S. colleges indicates how dedicated women were and continue to be in pursuing higher education. "A more level and wider playing field for girls enabled them to blossom" (Goldin 24).

Although women's dedication to self-advancement played the major role in helping women gain status in professional society, there were also other factors that must be considered. "The increase in the age at first marriage enabled college women to be more serious about their studies" (Goldin 24). Not having to worry about finding a husband and/or having children at such a young age allowed women to shift their focus to their studies. In addition, scientific and medical advancements in birth-control methods allowed women to plan ahead for their futures, and "those who were investing in [women's] education, could now take women more seriously" (Goldin 24).

It is without a doubt that the history and inclusion of women in American medicine has come a long way since the nineteenth century, and will only to continue to reach higher grounds as more women enter the medical profession. As women begin advancing towards higher status, higher power positions, one can only hope that the traditional stigmas attached to women in the professional world will only further continue to disappear.

## References

- Ash AS, Carr PL, Goldstein R, and Friedman RH. "Compensation and advancement of women in academic medicine: is there equity?" *Ann Intern Med* 141.33 Aug. (2004): 238-40. Web. 15 Apr. 2012.
- Fine, Eve. "Medical Education." *The Encyclopedia of Chicago*. Ed. Janice L. Reiff, Ann D. Keating, and James R. Grossman. Chicago History Museum, The Newberry Library, and Northwestern University, n.d. Web. 5 May 2012. <<http://www.encyclopedia.chicagohistory.org/pages/805.html>>.
- Goldin, Claudia, Lawrence F. Katz, and Ilyana Kuziemko. "The Homecoming of American College Women: The Reversal of the College Gender Gap." *Journal of Economic Perspectives* 20.4. 2006: 133-56. Print.
- Kirschmann, Anne T. "Adding women to the ranks, 1860-1890: A new view with a homeopathic lens." *Bulletin of the history of medicine*, 73.3 (1999):429-46. *Muse*. Web. 12 Feb. 2012.
- Leavitt, Judith. "'A Worrying Profession': The Domestic Environment of Medical Practice in Mid-19<sup>th</sup>-Century America." *Sickness & Health in America 3<sup>rd</sup> Edition*. Ed. Judith Leavitt, Ronald L. Numbers. Wisconsin: The University of Wisconsin Press, 1997. 145-60. Print.
- Leavitt, Judith. "Birthing and Anesthesia: The Debate Over Twilight Sleep." *Signs* 6.1 (1980): 147-64. *JStor*. Web. 15 Apr. 2012. <<http://www.jstor.org/stable/3173972>>.
- Morantz-Sanchez, Regina. "Making it in a Man's World: the late-nineteenth-century surgical career of Mary Amanda Dixon Jones." *Bulletin of the history of medicine*. 69.41 Dec. (1995): 542-68. *EBSCOhost*. Web. 12 Feb. 2012.
- Morantz-Sanchez, Regina. "The 'Connecting Link': the case for the woman doctor in 19<sup>th</sup>-Century America." *Sickness & Health in America 3<sup>rd</sup> Edition*. Ed. Judith Leavitt, Ronald L. Numbers. Wisconsin: The University of Wisconsin Press, 1997. 213-24. Print.

Olderman, Justine. "Chronology." 5-10. Bertha Van Hoosen papers, 1880-1952. Bentley Historical Library, University of Michigan.

"Our November Cover Page: Bertha Van Hoosen, B.A.;M.D.;M.A." *The Ladies' Review* Nov.

1916: 1+. Print. Bertha Van Hoosen papers, 1880-1952. Bentley Historical Library, University of Michigan.

*President's Report of 1872*. N.p.: University of Michigan, 1872. 11-12. Print. Bertha Van Hoosen papers, 1880-1952. Bentley Historical Library, University of Michigan.

Schooten, Sarah Schilling. *The Sarah Schilling Schooten, M.D. Collection Notebook*, 1921. Walter P. Reuther Library, Wayne State University.

Starr, Paul. *The social transformation of American medicine*. N.p.: Basic Books, 1982. Print.

Tuchman, Arleen Marcia. *Science has no sex: the life of Marie Zakrzewska*. N.p.: The University of North Carolina Press, 2006. Print.

U.S. Department of Education, National Center for Education Statistics. (2011). *Digest of Education Statistics, 2010* (NCES 2011-2015), Chapter 3.

Van Hoosen, Bertha. Bertha Van Hoosen papers, 1880-1952. Bentley Historical Library, University of Michigan.

Van Hoosen, Bertha. *Petticoat Surgeon*. Chicago: Pellegrini & Cudahy, 1947. 162-376. Print. Bertha Van Hoosen papers, 1880-1952, Bentley Historical Library, University of Michigan.

Verbrugge, Martha H. "Women and medicine in nineteenth-century America." *Signs*. 1.4 (1976): 957-72. JSTOR. Web. 12 Feb 2012.

White, Bertha M. "Dr. Van Hoosen Reveals Fight for Women's Medical Library." *Pen Points*,

May 1948, 63 ed. Bertha Van Hoosen papers, 1880-1952, Bentley Historical Library, University of Michigan.