Shifting the Spotlight: Women in Cox's 1926 Study of Geniuses

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Abstract

This thesis analyzes how women are portrayed in *The Early Mental Traits of Three Hundred Geniuses* (1926), a pioneering study by Catharine M. Cox. Her work is often praised for its contributions to historiometry i.e. a retrospective estimation of intelligence. Out of the 301 geniuses included in Cox's study, only eight are women. This study critically investigates how these women are presented in comparison to their male counterparts. By comparing Cox's cases with the original biographies she used, several key themes emerged, namely: the geniuses' relation to their social environment, traditional gender stereotypes in descriptions of personal independence and precocious intelligence, and the minimization of inclusion of mental health issues in the women geniuses lives. The key findings include that Cox's depiction of women geniuses reflects traditional gender norms from the 1920s, presenting their genius as more socially constructed than their male counterparts. This thesis adds a feminist critique to—and aims to foster recognition of gender biases within—the Anglo-Saxon psychometric tradition by examining contemporary gender norms and stereotypes.

Keywords: *Catharine Cox, Biographical Intelligence Testing, Women, Intelligence, Genius, Historiometry, Feminism*

Shifting the Spotlight: The Representation of Women in Cox's 1926 Study of Geniuses

Introduction

Think about a genius. Perhaps Albert Einstein comes to mind, or a figure like Leonardo da Vinci, maybe even Steve Jobs. What do these well-known geniuses have in common? They are all men. Of course, women geniuses exist, but they are far less widely recognized than their male counterparts. Throughout history, women's contributions, particularly to scientific and intellectual fields, have often been overshadowed or overlooked, contributing to their invisibility. The study of genius is just one area in the field of psychology in which women have rarely been acknowledged. Around a hundred years ago, the study of intelligence and genius was of great interest to psychologists. Standardized intelligence tests were on the rise, and researchers began investigating the phenomenon of genius and the psychology underlying it. Among these pioneer studies on the study of genius was a major, well-known project that included a peculiar volume–written by a woman researcher, Catharine M. Cox.

Catharine M. Cox was born on May 20th, 1890, in San Jose, California. She attended Stanford University, receiving her Bachelor of Arts degree in 1911 and her Master of Arts degree in 1913 in German language and literature. Afterward, she traveled to Germany to further immerse herself in the language and culture, spending her time at the University of Jena and the University of Berlin. When returning to San Jose, she joined the College of the Pacific, where she taught German and physical education, gradually advancing from instructor to full professor (Sears, 1986).

In 1920, she returned to Berlin through the Society of Friends to help distribute food to children and families affected by World War I. This experience, particularly her work with children, shifted her academic interests and led her to return to Stanford to pursue a PhD in psychology.

Under the provision of Lewis M. Terman, Cox earned her PhD in 1925 by contributing the second volume to Terman's multivolume series *Genetic Studies of Genius*. Her book, *The Early Mental Traits of Three Hundred Geniuses* (1926), examined the early lives of eminent

historical figures to understand more about the psychology of genius. She sought to determine one's genius retrospectively, long after someone had died.

To answer this, she used the method of historiometry (or historiographical intelligence testing), a method that applies quantitative analysis to large samples of historical and biographical data, with the goal of identifying nomothetic patterns, which are generalizable findings that are not limited to the unique characteristics of individual geniuses. This approach enables the genius to be studied across historical and cultural contexts (Simonton, 2020). Unlike the other volumes in Terman's series, which used psychometric methods, Cox's volume was distinctive for its historiometric approach (Simonton, 2014). Of the 301 historical figures she included, only eight were women.

From a contemporary socio-historical perspective, the inclusion of only eight women geniuses seems absurdly low. However, from a constructionist perspective–which assumes that knowledge is constructed rather than objectively discovered and that social systems and context thoroughly influence this construction–this underrepresentation becomes more understandable (Bohan, 1992).

This thesis aims to refocus attention on those eight women and to investigate how they are portrayed in Cox's volume, particularly in comparison to their male counterparts. It also seeks to understand how common feminine stereotypes of the 1920s influenced the depiction of these women's intelligence and the construction of scientific knowledge. I will analyze the biographies in Cox's book as well as the original biographies she used as sources. The main research question is: *How are the women geniuses presented in Cox's 1926 The Early Mental Traits of Three Hundred Geniuses, compared to their male counterparts?*

To answer this question, the following structure will be used: first, I will provide historical context regarding the scientific views on women's intelligence and the broader history of genius and intelligence studies. This will include an overview of gendered assumptions in these areas, and a general overview of gender norms in the early 20th century. Next, I will discuss the most relevant previous studies on Cox's 1926 work and what this thesis adds to these. Finally, I will describe the

methodological approach taken to analyze Cox's illustrations of the geniuses and present the results of the study.

The Emergence of the Study of Women's Intelligence

It was around the turn of the 20th century when the psychological study of individual differences–of which the study of intelligence is a central aspect–emerged in the field of psychology in the United States. Through this, the study of women gradually became a legitimate part of scientific inquiry. Although it would be inaccurate to assume that women could be studied independently. At this time, the psychology of women was typically studied in relation to men only (Shields, 1975).

An explanation for sex differences, such as why more men than women achieved eminence, was the variability hypothesis. This idea suggested that men had greater variability than women in all kinds of traits and cognitive abilities, such as intelligence (Shields, 1975). That is, men were believed to be more likely found at both the high and low extremes of the intelligence distribution. In addition, their range of intelligence was believed to be wider than that of women's (Hollingworth, 1914). The variability hypothesis dates back to the late 19th century, with the formulation of the evolutionary theory. In the 1920's, Charles Darwin argued that males showed greater variation than females, which led to the belief that men were responsible for the evolutionary progression of the human species. This logic contributed to the idea that men were more likely to become geniuses and attain eminence, as these traits were thought to be closely linked (Shields, 1975).

Francis Galton, Darwin's younger half-cousin, was one of the first to measure intellectual differences, although he spoke in terms of "natural ability" rather than intelligence (Simonton, 2020). Galton's research supported the widespread conclusion that women were generally inferior to men in all abilities, often with the reasoning that "women have not excelled, therefore they cannot excel" (Shields, 1975, p. 743). The genius was considered an almost exclusively male trait, and it was believed that exceptionally talented men "naturally" achieved eminence. In contrast, women were not expected to reach the same levels of ability and their education was designed to align with their presumed roles as wives and mothers.

At the end of the 19th century, figures like Mary Wollstonecraft Godwin began to challenge this narrative, arguing that women's apparent intellectual inferiority was not biologically determined but rather the result of unfair social limitations. She stressed that women had simply not been given the opportunity to demonstrate their true abilities or to disprove their supposed intellectual inferiority (Shields, 1975).

Still, arguments for women's intellectual inferiority often relied on supposed biological and physical evidence, such as "neuroanatomical deficiencies" (Woolley, 1910, cited in Shields, 1975, p. 742). Helen Woolley Thompson questioned these claims in the early 1900s, emphasizing the role of environment (or nurture) in shaping intelligence, and arguing that education was the main reason for the supposed sex differences in intelligence. However, her perspective was mostly ignored in favor of continuing to seek more biological explanations for the scarcity of eminent women (Shields, 1975).

One prominent researcher who contributed such "evidence" was James McKeen Cattell. In *A Statistical Study of Eminent Men* (1903), he provides a list of the 1,000 most eminent individuals and concluded that women "do not have an important place on the list", with only 32 female entries (p. 25). Most of these, he claimed, owed their eminence through hereditary sovereignty, misfortunes, beauty, or traditional feminine domains like fiction writing. Not only did he argue that their place on the list was not really the outcome of genius, but also that women as a whole were more homogeneous than men. Thus, Cattell reminds the reader:

> "Women depart less from the normal than man—a fact that usually holds for the female throughout the animal series; in many closely related species only the males can be readily distinguished. The distribution of women is represented by a narrower bell-shaped curve." (pp. 26-27)

Interestingly, one of Cattell's students, Cora Sutton Castle, would soon take a closer look at eminent women. Her dissertation *A Statistical Study of Eminent Women* (1913) included the biographies of 868 women, offering comparisons to Cattell's earlier work. Castle concluded that women who appeared in her study had typically achieved eminence either through external factors (e.g., royal status, tragic circumstances, beauty) or in traditionally feminine domains like the arts and

motherhood (e.g., giving birth to a future king). She appeared to accept the stereotype that women were more emotional than rational and suggested that when women achieved eminence, it was due to their femininity rather than in spite of it. Shields (1975) points out that Castle, like Cattell, was critical of women's ability to achieve eminence and at the time considered as ‘anti-feminist’. But when taking a closer look at Castle’s work, some of her reflections complicate this: "Has innate inferiority been the reason for the small number of eminent women, or has civilization never yet allowed them an opportunity to develop their innate powers and possibilities?" (Castle, 1913, p. 90).

In contrast, Leta Stetter Hollingworth was far more outspoken in her feminist critique of the variability hypothesis. She argued that greater male variability is culturally and socially biased (Hollingworth, 1913, as cited in Hollingworth, 1914, p. 515). Her research established no greater male variability in anatomical traits, and she cautioned that even *if* it were established, it would “only suggest, not prove, that men are more variable in mental traits also” (p. 528). She drew attention to the limited educational opportunities available to women, and to broader questions about why women were denied access in the first place. She concludes that the possibilities for women to choose different life paths and careers, while still being able to have children, are limited by bias, poverty, and laws. Despite this, Hollingworth remained hopeful that in another century, these limitations might be solved (p. 529). Hollingworth and Lowie (1916) also argued that there was no scientific basis for assuming male superiority in intelligence, and argued that there are no rational grounds for restricting women’s opportunities (p. 284).

Another of Cattell’s students, Lewis M. Terman, became a central figure in the history of intelligence testing (Cravens, 1992). Terman’s Stanford Revision of the Binet-Simon intelligence tests enabled psychologists to estimate an individual’s IQ on known developmental milestones, without requiring direct testing (Simonon, 2020). Terman initiated a large-scale longitudinal study of gifted children, published in 1925 as *Genetic Studies of Genius*. This marked the first comprehensive, empirical investigation of genius. This was the beginning of a five-volume series exploring the lives of intellectually gifted children (Ball, 2007).

It was under Terman’s provision that Catharine M. Cox completed her dissertation, published in 1926 as *The Early Mental Traits of Three Hundred Geniuses*. Cox selected her subjects

from Cattell's 1,000 most eminent individuals, applying three criteria: (1) unquestioned eminence; (2) eminence due to achievement, not chance; and (3) availability of adequate records (Cox, 1926, p. 31). By analyzing biographical data, Cox attempted to retrospectively estimate the IQs of historical figures using the Stanford-Binet scale. Cox, Terman, and Dr. Maud Merrill (another of Terman's students) independently scored the genius individuals' IQ, calculating two sets of IQ scores: one from the age of 0 to 16 and one from the age of 17 to 26 (Simonton, 2020). They did so by looking for signs of early development and achievements.

Feminine Stereotypes around 1926

By the time Cox's was published, the cultural landscape of the United States was changing, but still heavily shaped by gendered expectations. In the early 1920s, Walter Lippmann first popularized the term "stereotypes", which he described as mental "speaking pictures" – simplified representations of social groups (Knights, 2014). These stereotypes deeply influenced how women's intelligence and potential were perceived.

From 1900 to 1930, the 'Progressive Era', shifting educational opportunities enabled some women, particularly single, well-educated white women, to enter professional fields such as teaching, social work, law, and medicine. However, most white middle-class wives did not work outside the home, while wage-earning women were often poor, immigrant, widowed, or women of color, reinforcing both class and racial divisions in female labor. Employment opportunities remained heavily gendered; women and men typically worked in occupations dominated by their respective genders, with male-dominated roles offering greater status, authority, and compensation (Shehan, 2018).

Social expectations continued to restrict women's roles, maintaining traditional stereotypes that aligned them with domesticity and caregiving. Women were mainly believed to be happiest and most fulfilled as homemakers and mothers, their most important roles. The "true woman" should have an "intense desire" to conform to these roles (Peters, 1905, as cited in Shehan, 2018, p. 176). As a sharp contrast, the "New Woman" served as a composite stereotype of modern women: educated, independent, and financially self-sufficient. Yet, the press often used the term

pejoratively, criticizing her for straying from traditional Victorian norms and the evolving roles they were beginning to embrace (Stroup, 2019).

With the rise of the women's suffrage movement, activists were also frequently criticized and described as being masculine–supported, some said, by "their counterparts, the feminine men" (Sedgwick, 1914, as cited in Shehan, 2018). Organized opposition, such as the Massachusetts Association Opposed to the Further Extension of Suffrage to Women, argued that political involvement would compromise women's moral integrity and ultimately have a negative impact on their families. However, views began to shift during World War I, while women took on roles vacated by enlisted men. Even then, their contributions were seen as temporary. Nonetheless, the passage of the 19th Amendment in 1920, granting women the right to vote, marked a turning point in public attitudes towards gender roles and legal rights.

Research on Cox

Despite the gradual gathering of evidence against the assumed female intellectual inferiority, the effects of that assumption are clearly reflected in the number of women included in *The Early Mental Traits of Three Hundred Geniuses* (Cox, 1926). The appearance of only eight women in the volume did not go unnoticed. Just a year after its publication, Paul Popenoe (1927) acknowledged their presence, but did not go into further detail than stating their names. In more recent decades, other researchers have focused on Cox's study, contributing to a better understanding of the volume's methodological and gendered implications.

Cox's 1926 study was repeatedly studied by Simonton, with a particular focus on the method of biographical intelligence testing. He argues that this method continues to provide the primary scientific view on genius and refers to Cox's volume as "the greatest single historiometric study ever published" (Simonton, 2014, p. 92). Laura Ball, in her work for Psychology's Feminist Voices, also acknowledges Cox's contributions in the areas of eminence, as well as the measurement of masculinity and femininity (Ball, 2010). In 2020, Simonton emphasized the key difference between this volume and the others in Terman's *Genetic Studies of Genius* series: Cox's volume applies a historiometric method, while the others rely on psychometric assessments of living subjects. Simonton observes that research

has tended to favor the longitudinal approach used by Terman over Cox's retrospective one, but maintains that Cox's method still has unexplored value. Among his recommendations for future research are calls to replicate Cox's work with more diverse groups of geniuses, particularly in terms of including more women, domains of achievement, and nationalities (Simonton, 2020).

Carolyn Yewchuk's study (1995) also discusses gender in the historiometry of genius, while citing Cox's 1926 work. At the same time Yewchuk refers to figures such as Leta Hollingworth, noting that most biographical research focuses on white, Western men and systematically excludes women because they have been limited in education, legal rights, and cultural recognition in the past. Although Yewchuk draws attention to the small number of women in Cox's study, she reports the figure to be 1%, while the percentage is 2.7%. I posit this discrepancy may be due to her not recognizing the women using pseudonyms. Nevertheless, Yewchuk argues that women's marginalization in historical narratives of genius reflects social constraints rather than cognitive inferiority: "The underrepresentation of women among the ranks of the eminent is symptomatic of the societal constraints on access to education, financial independence, power, and social and legal equality" (pp. 7-8).

Yewchuk also cites Cox repeatedly in her 1995 study, where she discusses two dominant but conflicting discourses surrounding genius. The historical view, often advocated by medical professionals (e.g., Lombroso, Lange-Eichbaum), posits genius as intrinsically pathological. In contrast, the contemporary view, adopted by psychologists such as Cox, argues that mental illness is incompatible with the sustained, focused work required for eminence. Instead, this view highlights health and resilience in the relationship between eminence and genius (Yewchuk, 1995). Yewchuk affirms Cox's conclusion: "Cox (1926, 1992) concluded that great achievement is associated with the positive mental characteristics of ego strength, great perseverance and motivation, devotion to pursuit of goals, and strong psychological health" (p. 10). However, she concludes there is no simple cause-and-effect relationship between childhood giftedness, mental illness, and adult eminence.

In sum, researchers have focused on Cox's impact on the study of eminence and genius, as well as her contributions to the method of historiometry. Others mostly focused on Cox's positive

and health-oriented view of genius. Some did acknowledge the inclusion of women in Cox's volume (e.g. Yewchuk, Popenoe), but their work did not extend beyond the acknowledgement of the small number of women. In my research, I will take a gender perspective and examine in depth the presentation of the women in Cox's work. How are they depicted? Are their portrayals different from those of the men? If so, how can these differences be explained given the historical background of early intelligence research? I aim to center the overlooked women geniuses and examine how stereotypes I discussed shaped their portrayal. Adding to this, I aim to contribute to the visibility of women psychologists of the past, because their contributions to the field are often attributed to their male colleagues (Russo and O'Connell, 1980). This actually applies to a certain extent to the case of Cox and Terman: the longitudinal study of genius by Terman is widely recognized, while Cox's single-authored contribution makes up 30% of the total page count of all five Genetic Studies of Genius volumes (more than the expected 20%) remains yet less acknowledged (Simonton, 2020).

Analysis

As mentioned before, this paper builds on the previous literature by shifting the focus to the way women geniuses are presented in Cox's *Early Mental Traits of Three Hundred Geniuses*. In the following analysis, I examine the language Cox used in her biographical summaries of the women included in the study, and in particular what she includes or omits from the original biographies she draws on.

My study compares four women geniuses to four male counterparts, all of whom fall within the same IQ range and the occupation of writer or novelist. The subjects are Charlotte Brontë, Madame de Staël-Holstein, George Sand (pseudonym of Aurore Dupin), and George Eliot (Mary Ann Evans), and their male counterparts Denis Diderot, Félicité Robert Delamennais, Ernest Renan, and Walter Scott. The other four women included in the volume, though excluded from this thesis due, are Françoise D'Aubigné de Maintenon, Madame de Sévigné, Mrs. Gaskell (Elizabeth Cleghorn Stevenson), and Harriet Martineau. The material I will analyze are the original biographies Cox has used for acquiring knowledge about the development and intelligence of these genius individuals. Differences will be compared between the original biographies and Cox's biographies, as well as differences between the female and male geniuses.

I did an extensive analysis of the women's biographies, searching for signs of precocity. By contrasting Cox's biography with the original biographies (referenced in her work), I could identify some similarities and differences (e.g., signs of precocity she omits). This broad analysis led to three common themes that I will discuss, namely: the genius's relation to their social environment, feminine stereotypes, and their youth troubles, such as mental or physical health problems.

The Genius's Relation to their Social Environment

When analyzing the women's biographies, the most notable distinction was that these women are often described in relation to another person in their life, or their 'social environment'. This can be divided by sex: male (e.g., father, brother, priests) and female (e.g., mother, sister, teacher). I asked myself: Are the women geniuses 'man-made'? That is, are the

women geniuses presented in such a way that they are made geniuses through the education they received from men?

A quantitative comparison reveals that Cox dedicates a higher proportion of words describing the social environments of women geniuses (average 37.1%) than those of men (21.9%) (Table 1). For the women geniuses, the percentage of words dedicated to themselves varied between 52,7 and 70,4; while for the men geniuses, these percentages were situated between 68,8 and 84,5 (Table 2). Consequently, the percentage of the text focused on the genius self is lower for women (62.9%) than for men (78.2%). Furthermore, if we divide the social surroundings by sex, the percentage of references to men is higher (for female geniuses 22,4% and male geniuses 16,1%) than references to women (14,8% and 5,8%) (Table 1). George Sand is the only exception for this pattern. Another interesting finding is that the percentages of words the female environment takes up for men geniuses are all under 10% (Table 3). The summarized results of this part of the analysis are presented in Table 1, for more details see Appendix.

Table 1

Average Percentage of Words Dedicated to the Genius and their Total, Male, and Female Social Environment

	Self (%)	Total environment (%)	Male environment (%)	Female environment (%)
Women	62.9	37.1	22.4	14.8

Men	78.2	21.9	16.1	5.8

Note. Values are rounded to one decimal after calculation.

Descriptions of the male and female social environment

For the qualitative part of the analysis, I investigated the nature of the words used to describe the geniuses, and I noticed some differences in the use of words for male and female surroundings. Some women in the geniuses' context are praised as clever or intelligent, but they more often are portrayed as dismissive or looking down on their genius daughter. For example, Madame de Staël's mother is characterized as "more severe" than her father, but she undertook her daughter's education and introduced her to "a circle of brilliant and accomplished men" (Cox, 1926, p. 619). When Madame de Staël fell ill and had to give up her studies, her mother then "ceased from this time to take any interest in her daughter's talents, which she now considered slight and artificial" (Cox, 1926, p. 619).

In contrast, the male environment takes up twice as much space as the female surroundings in Cox's biography of Madame de Staël, and there seem to be differences in the way the sexes are presented. The men seem to be put on a pedestal: "the best men in France flocked around her" (Cox, 1926, p. 620). Following her original biography by Wollstonecraft-Shelley (1839), Cox depicts Madame de Staël's *father* as the most important person in her life; an eminent man already included in Cox. It may be important to note here that Madame de Staël herself admired her father greatly (Wollstonecraft-Shelley, 1839), nevertheless, Cox presents her in such a way it seems her father (the genius) had made her a genius too. He stimulated her or, as the biography explains, he had "encouraged his daughter to talk continually" (Cox, 1926, p. 619).

In the case of George Sand, her father is described as "brilliant" and her mother as "a clever one" (Cox, 1926, p. 596). Although men and women in her surroundings are described as intellectuals, not one of the women in the geniuses' cases received the qualification of "brilliant".

At the age of 4, George Sand's father died, and she was left to the upbringing of her mother and grandmother, where there might have been a noticeable contrast between these two women. Grandmother (mother of Sand's father) had been a "Grande Dame", a woman of high social status in the France of the 19th century, while the mother was from a rather low social status. George Sand's

mother is described as severe and critical, as she would laugh at her daughter's writings and "did not hesitate to say that the tales were most tiresome" (Cox, 1926, p. 599).

In contrast to Sand, the female environment of George Eliot is not described negatively, but, again, the males in the context are presented with more praise. She is portrayed in a way that suggests she developed her ideas through acquaintance with these men. For example, after moving away from her childhood home, she came into contact with the Brays, and through them she met all sorts of "men of mark" (Cox, 1925, p. 734). I did not find descriptions such as "women of mark" for groups of women for any of the other geniuses.

The Male Geniuses

Now we may ask: how does Cox present the social environment in the male geniuses' biographies? We again find the same pattern as with the women geniuses: the men take up more space (average of 16.1%) than the women (average of 5.8%) (Table 1). Many men mentioned in the social context are writers of works that the men of genius have read. Men geniuses are portrayed as being less exposed to a very important male figure (e.g., a genius father) than the women geniuses. Still, men in the male geniuses' surroundings seem to be depicted positively: they are good men or intellectuals, while the women in their context are described with less praise for their integrity or intellect. Whenever a woman in the environment of the male genius *is* included, the information relates more often to her family than to herself.

The shown disproportions suggest that women's achievements are more often portrayed as shaped in relation to others: they are more 'man-made' than men.

Feminine Stereotypes in Cox's Study

For the second part of the analysis, I discuss two different ways in which stereotypical gender norms shine through Cox's work. The first stereotypical finding in the biographies is women's independence. For example, George Sand is described as "already independent in thought and action at the age of 17" (p. 599). This was built on the expression of Sand, in her biography by Doumic (1910), that she did not need others to protect or guide her, and showing she was challenging public opinion. About Madame de Staël is said that "she and her companion did not play together at all like children. Their pastimes were those of mature minds" (Cox, 1926, p. 618). For the male geniuses, the

word independence or synonyms are not used. I suggest this could be explained by the gender norms at that time for men to be independent, while women were expected to be dependent on men in all kinds of areas of life. Thus, for women to be independent was more so seen as a sign of precocious intelligence, as it was *not* the norm for them to possess this attribute.

Secondly, I found that at least three women were described as developed prematurely. Even though early development was a sign of precocious intelligence to a psychologist like Cox, the women are–again–described more prematurely developed *in relation to their social environmen*t. Their early development is described in a way that fits with traditional gender norms: their overall early development is described in relation to their roles as daughters, sisters, or wives. Examples of how the women's precocity is presented through the people surrounding them can be found in one of the pieces of evidence Cox's biography offers of Madame de Staël, saying that she "was always anxious to please her parents" (Cox, 1926, p. 620). George Eliot is described as "serious beyond her years", as well as later in her life as "exemplary housewife for her father" (Cox, 1926, p. 733-734). Charlotte Brontë was described "of her age" in relation to her studies, but Cox also argued she "commenced to write at a very early age", and Brontë assisted "in the education of her younger sisters" (Cox, 1926, p. 735-736). Cox may have got this from the original biography by Gaskell (1857), where she took care of her two younger sisters when she was 9 years of age, after her older sisters passed away: "Charlotte was motherly friend and guardian to both, and this loving assumption of duties beyond her years, made her feel considerably older than she really was." (p. 79).

Concluding, the women geniuses in Cox's study are described on the basis of certain traditional gender norms. Namely, their independence is highlighted as a sign of precocity, as female independence was not the norm, and their early development is described in relation to women's traditional roles.

Mental Health in Cox's Female Geniuses

For the last part of the analysis, I examined the youth troubles Cox includes or omits from the original women's biographies, mainly focusing on mental health, but also physical illnesses, life crises, scandals, and other troubles. All four women geniuses appeared to have had some mental troubles at some point in their early lives, although this was not always included in Cox's study.

According to Blind (1888, p. 42), George Eliot was described as a "dreamy girl and of a highly nervous temperament, the keen excitability of her nature made her wayward and hysterical." Cox does describe she "was subject to night fears" (1926, p. 733), but avoids Blind's pathological description.

Another example can be found in Charlotte Brontë. Cox uses a life event from the biography written by Gaskell (1857): when Brontë was 19 years of age, Cox explains, she became a teacher at Roe Head School, where she "stayed for three happy years until her health failed and she was forced to return home to recuperate" (1926, p. 736). Curiously, Cox only mentions her health failing, not mentioning any detail of the fact that Charlotte was deeply troubled: Gaskell states Charlotte "could not forget the gloom, could not sleep at night, nor attend in the day" (1857, p. 153), she felt melancholic, and her mind was exhausted (Gaskell, 1857, p. 157). A psychoanalytic biography I found from 1920, which Cox did not consider, argued that Charlotte Brontë had some nervous instability, and, while not considered morbid, she was also not considered healthy (Dooley, 1920). All this taken together with trauma in Charlotte's youth–for example, her sisters dying because of bad environmental conditions at their first school–it seems probable that Charlotte Brontë was troubled by some nervous instability and depression at some point in her life.

> Cox (1926) portrays George Sand's mental state, including her attempted suicide: "Her reading at 16 included philosophy, poetry and ethics… and she devoured the books of the moralists and poets… all this reading was too much for her sensibilities, and excited her brain. After reading Chateaubriand's René, she was disgusted with life and attempted to commit suicide" (p. 598)

Cox omits further detail of George Sand's mental health or other possible reasons for this event, while her source by Doumic (1910) describes Sand's temperament as abnormal. According to Doumic (1910), Sand's sudden changes in mood marked this abnormal temperament; from melancholy sadness to light-hearted cheerfulness, and back to long episodes of depression and nervous exhaustion (p. 34).

As for Madame de Staël, Cox gets some of her biographical information from the work by Wollstonecraft-Shelley (1839). Madame de Staël-Holstein suffered a nervous breakdown at the age

of 14 because her mother's study demands seemed to have put too much pressure on the young woman. It seems that in this case, Cox's presentation of Madame de Staël follows faithfully the way this life event is narrated in the biography.

Apart from mental troubles, there were also other health aspects I noticed when analyzing the women's biographies, such as physical health troubles, traumas, and scandals. Namely, one of the women geniuses is portrayed interestingly about her physical health. I already established Cox's depiction of Charlotte Brontë's mental health to be questionable, but adding to this, some physical ailments were also not mentioned. Cox gave the impression Brontë was more interested in literature than art, she says the following: she was "greatly interested in art, and developed some talent in drawing, although in the main her interests were studious and literary" (p. 734). Interestingly, Brontë could not pursue a career in drawing because of her bad eyesight. According to a friend of hers, her short-sightedness was so bad that "she always appeared to be seeking something" (Gaskell, 1857, p. 106). Also, according to Gaskell, she showed physical feebleness in everything. Such physical ailments, traumas, and other seemingly important events in these women's lives are not mentioned in Cox's summarized biographies.

In sum, we see that Cox left out some important details about mental health from the biographies she has used; three out of the four women geniuses had more mental issues than Cox presented.

Discussion

Key findings

In this section, I will summarize the key findings and address the stated research question: How are the women geniuses presented in Cox's work, compared to their male counterparts? The results show that women's genius is more often explained as having been triggered, produced, or supported by male adults in their surroundings. Both the quantitative and the qualitative method of my analysis support this interpretation and suggest that the female genius, in Cox's portrayal, appears to be more 'man-made'. In comparison, the genius of men is presented as more self-driven. This interpretation is based on the women in Cox's study being discussed individually less than the men, who receive proportionally more words to explain aspects of their genius related to themselves.

In contrast, the biographies of the female geniuses contain a greater emphasis on their social environment, especially on male figures. The male figures in the social surroundings of both male and female geniuses are mentioned more frequently and are generally portrayed in a more positive light, both in terms of character and influence on the genius. When women are mentioned in the context of the geniuses' environments, it is often in relation to their high social position or prestigious descent from prominent men.

The second key finding is that Cox's biographies of the female geniuses reflect gender stereotypes common in the early 20th century. For instance, a trait such as independence is highlighted as an indicator of precocious intelligence in the women, while not emphasized in the male biographies. This difference may be explained by the dominant gender norms of the time. Following the secondary literature I consulted (Shehan, 2018), in the 1920s in America, women were expected to be dependent on men in most areas of life. Additionally, Cox's portrayal of women often aligns with traditional gender roles from the Progressive Era, describing their precocity through their roles as good daughters, sisters, or wives.

The third and final finding is that Cox tends to portray the women geniuses as mentally healthier than they are described in their original biographies. Although I did not analyze gender differences in the presentation of mental health, there were multiple instances where Cox minimized signs of depression or emotional instability in the women's lives. Cox portrays the women geniuses, as a healthy phenomenon, by excluding signs of "failing" mental health out of the original biographies.

Limitations

The most significant limitation of this study is the small sample size, including only eight geniuses. For more reliable and generalizable results, future research could compare all eight women to eight male geniuses in future research. However, since only a small number of women were included in Cox's study to begin with, the total sample available remains limited.

Secondly, although I analyzed the original biographies of the male geniuses in detail for the first part of the analysis (concerning social relations), time limitations prevented me from examining the men's original biographies in as much depth as I did for the women when it came to the other

two parts of the analysis. Because of this, I was not able to compare what Cox did or did not include on the men's mental health. Future research could include a more detailed investigation of the original male biographies for a more complete comparison between Cox's presentation of male and female geniuses' mental health.

It is also important to acknowledge that interpretation played a large role in conducting this analysis. Some differences in the women's portrayal may be due to the original biographers' interpretations, and not only Cox's. Adding to this, my own interpretations also may include bias. As a young woman interested in feminism, I may have been more sensitive to gender bias, which helped highlight certain patterns but also introduced some subjectivity into the analysis.

Conclusion

Overall, my findings confirm what other historians, such as Shields, Yewchuk, Russo and O'Connell and Ball, have already shown: women have often been excluded from historical narratives, or when they were included, their significance was downplayed. Often praised by Simonton for her pioneering work on eminence and the method of historiometry, Cox's work was still shaped by traditional gender roles and stereotypes. Every historical period has its own gender norms, and Cox's time, the Progressive Era, as well as our own historical context, is no exception. We should keep this in mind, especially because it challenges the presentation of historiometry by Cox and her contemporaries as a purely objective method.

Cox treated the original biographies of the geniuses as approximations towards objective truth. However, these biographies are not neutral: they are written by certain people, with their own perspectives, often relying on secondhand sources, and then interpreted by Cox and her colleagues. In this study they have been interpreted once more by myself. Yet, I do not present my interpreations as being objective and definitive but more of a meaning making attempt that can be subjected to discussion.

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Appendix

Table 2

Amount of Words per Case Dedicated to the Genius and Their Total, Male, and Female Environment: Women

Genius	Total		Self		Total Environment		Male environment		Female environment	
	Word count	%	Word count	%	Word count	%	Word count	%	Word count	%
George Eliot	735	100	433	58.9	302	41.1	199	27.1	103	14.0
Charlotte Brontë	869	100	612	70.4	257	29.6	152	17.2	105	12.1
George Sand	1,518	100	1,056	69.6	462	30.4	195	12.8	267	17.6
Madame de Staël-Holstein	1,188	100	626	52.7	562	47.3	384	32.3	178	15.0
Total	4,310									
Average	1,077									

Note. Values are rounded to one decimal after calculation.

Table 3

Amount of Words per Case Dedicated to the Genius and Their Total, Male, and Female Social Environment: Men

Genius	Total		Self		Total Environment		Male environment		Female environment	
	Word count	%	Word count	%	Word count	%	Word count	%	Word count	%
Denis Diderot	322	100	272	84.5	50	15.5	43	13.3	7	2.2
Félicité Robert de Lammenais	1,023	100	781	76.3	242	23.7	195	19.1	47	4.6
Ernest Renan	512	100	352	68.8	160	31.2	110	21.5	50	9.7
Walter Scott	1,585	100	1,315	83.0	270	17.0	165	10.4	105	6.6
Total	3,442									
Average	860									

Note. Values are rounded to one decimal after calculation.