Bringing the history of mathematics home: Entangled practices of domesticity, gender, and mathematical work

Mathematics and domestic partnership alike are cultural constructions: what activities are categorized as mathematical, on the one hand, and how pairs of people organize their lives around marriages, homes, and family units on the other, are both complex facets of particular social worlds that vary across time and space.[1] While our observation is perhaps unsurprising, historical consideration of the interactions between these two sets of cultural contingencies is nevertheless rare. This special issue of *Endeavour*, "Calculating Couples: Domesticity and Gender in the Making of Mathematical Careers," begins from the premise that we can better understand mathematics and domesticity alike by attending to the many historical cases in which people have chosen to intertwine them.

We are interested in a spectrum that extends imperceptibly from such obvious markers of intellectual teamwork as acknowledged co-authorship, to the traditionally disregarded collective work of maintaining a household in which it is possible for at least one member to pursue mathematical research. Rather than distinguish at the outset between labor that is 'really' mathematical and that which is not, we propose to view mathematical knowledge as something emanating in one way or another from the household(s) of its producer(s). We thereby gain an especially clear window on the unstable boundaries dividing labor into the

[1] Social histories of mathematics include Mehrtens et al. (1981) and Robson (2008). For a social history of marriage in Western culture, see Ferraro (2019).

intellectual and the domestic, the masculinized and the feminized, or the credited and the unacknowledged. By focusing on mathematical work done in the context of couples and families, the papers in this special issue show how mathematical practice has often been a consequential resource in constructing a particular version of domesticity, while conversely particular domesticities have powerfully served the making of mathematical careers.

The papers in this special issue explore cases of marital and familial collaboration in modern mathematics, focusing on the nineteenth and twentieth centuries with examples drawn from North America, Europe, and South Asia. Histories of (especially European) mathematics in this period have emphasized processes of professionalization: the proliferation of universities, the emergence of somewhat standardized training through doctoral degrees, and the shift from research as a gentlemanly or polite pursuit into a remunerated occupation (Barrow-Green et al., 2021, chapter 13). However, the professional mathematical workforce that emerged between the mid-nineteenth and mid-twentieth centuries was contingent on and entangled with the household. It is vital to turn to the domestic, the personal, and the familial, precisely at times and places of professionalization, in order to gain a fuller understanding of how mathematical communities were built, and the multitudes of mathematical practice that they sustained.

An illuminating instance of professional mathematics' entanglement with modern households is the 1950 International Congress of Mathematicians (ICM), held in Cambridge, Massachusetts, USA. As Michael

Barany has shown, this meeting marked a decisive moment in the formation of professional mathematical communities that were “not just international but intercontinental” (2016, p. 672), such as through the soft imperialism of the philanthropic promotion of mathematical research, modeled on European and North American career structures, in Latin America. The postwar globalization of professional mathematics carried with it particular visions of how mathematicians work. We might therefore expect a conference like the 1950 ICM to be an unambiguously professional—hence undomestic—space. We see cracks in the historical male monopoly on professional involvement, with women attending as conference delegates and one woman, Mina Rees, named on the organizing committee for applied mathematics. But the conference’s *Proceedings* also implied that many participants’ sex was overlaid with domestic identities and gendered expectations. The section of the report featuring the most women is certainly the entertainment committee, which features at least ten women, mostly named as Mrs. [husband’s full name] (Graves et al., 1952, p. 2). This immediately raises many questions: What role was the entertainment program deemed to have at the ICM by its organizers? How did female professional mathematicians and women attending in their capacities as wives understand each other’s roles? In what ways did the latter use their position as spouses to exert their influence on mathematical research? What gendered expectations did male mathematicians bring to their experience of the meeting? What do the demographics of the ICM organizing committees and speakers tell us about implicit gendered divides in different kinds of mathematical labor?

Even at this prestigious meeting of *professional* mathematicians, the attendees are visibly and openly situated in their households, through the involvement of their spouses (and even some children appear in the conference photo!).

By attending to the interplay of historically malleable identities such as mathematician and spouse, we engage with several areas of scholarship. The papers in this special issue draw attention to the centrality of gendered domestic relationships in mathematical practice, thereby opening new directions for the historicization of gender in mathematics. Considering marriage here as a social infrastructure useful to the pursuit of mathematical careers, we draw also on histories of marriage more generally. We aim especially to put histories of mathematics in conversation with ongoing developments in the historiography of science which have fruitfully centered the family and the home as formations crucial to the development of modern scientific practices. While these areas of scholarship are all separately vibrant, we aim to offer a synthesizing review of them that will, we hope, facilitate further historiographic attention to gender and mathematics. After briefly surveying these literatures, the present introduction will then summarize each of the issue's papers in turn. We conclude by elaborating several ways in which a focus on marital and domestic collaboration in mathematics extends and enriches the study of domesticity and science in general. We suggest that attending to domesticity reveals the extent to which mathematical practice has been integrated with the conduct of other intellectual pursuits. Centering couples and family units illuminates

the ongoing work of legacy construction, complicating the temporality of careers that continue to demand discursive work after an individual's death. Finally, we emphasize the self-awareness of the actors considered here; rather than presuming to uncover a domestic side of mathematics that eluded the people who lived it, we illuminate historical actors' own understandings of their entwined scholarly and personal lives.

Masculinities, (im)pure and applied

> It is not without a little astonishment that we see a person
> Of a sex so little made to brave the thorns of science
> Able to penetrate so deeply into all parts of analysis
> (Jean-Étienne Montucla [1802], on Maria Gaetana Agnesi)

We need not look specifically at gendered partnerships to recognize mathematics as an intensely gendered field of human activity. Comparatively few women are easily visible in the history of mathematics. Those women who were able to achieve recognition—or perhaps notoriety—for their mathematical expertise were frequently presented as exceptions to a rule rather than as evidence that womanhood and mathematics are not mutually exclusive. The Italian mathematician Maria Gaetana Agnesi (1718–1799) produced one of the earliest comprehensive accounts of the differential and integral calculus in a vernacular language (Agnesi, 1748). Agnesi's biographer Massimo Mazzotti (2007) has argued that her ability to contribute to her family's social standing through erudite conversation as an unmarried female mathematician depended on

particular Catholic Enlightenment attitudes toward women's learning in northern Italy in the first half of the eighteenth century. By midcentury this conjuncture was eroding; critics began to charge her father Pietro with keeping his daughters in unnatural social limbo by cultivating their intellectual attainment rather than seeking marriages (Mazzotti, 2007, pp. 124–25). Subsequent reception took Agnesi's unnaturalness for granted; thus in this section's epigraph, from Jean-Étienne Montucla's *History of Mathematics*, the author admits his astonishment that a woman was able to produce such a work as Agnesi's calculus. It remained common for men to voice such astonishment at women's ability to "brave the thorns'' of mathematics well into the modern period. When remembering Emmy Noether (1882–1935), one of the most celebrated mathematicians of the early twentieth century, Herman Weyl claimed that "the power of [her] genius seemed to transcend the bounds of [her] sex" (Rowe, 2020, p. 214). That this was widely felt by Noether's colleagues in Göttingen is suggested by the nickname given to her in "awed mockery": the masculine form "der Noether" (ibid.).

Much valuable historiography has shown how, despite widespread and longstanding conceptions of mathematics as masculine, these attitudes were never homogenous, nor unchallenged by competing narratives.[2] One early important work in this vein is Terrall (1995), which explores the ways Èmilie du Châtelet (1706–1749), in her efforts to participate in the male-dominated Paris Academy of Science, performed

[2] These gendered constructions of mathematics are related to broader genderings of science as masculine, on which the literature is robust. See for example, Milam and Nye (2015). On the persistence of such associations into the twenty-first century, see Mendick (2006).

both masculinity and femininity in turn, finding each to be a useful but limited resource for her purposes. At times she succeeded in sufficiently emulating a man of science to have her work taken seriously, but ultimately, Terrall concludes, du Châtelet “failed in her attempts to broaden the definition of femininity to include rationalism and mathematical accomplishment" (p. 303). Du Châtelet could maneuver within but not unsettle the gendered framework that structured the Republic of Letters. That Republic’s minimizing of women was considerable, but even more formalized restrictions have prevailed at many of the central sites in the history of mathematics, most obviously universities (as composed until relatively recently). In an influential study of the nineteenth-century Cambridge Mathematical Tripos examination system, a notoriously grueling educational regime, Andrew Warwick (2003) showed how Victorian Britain’s preeminent mathematical training program constructed mathematics as an intensely competitive endeavor that taxed the body as well as the mind, in such a way as to allegedly render it accessible only to manly, athletic subjects.

That the masculinity cultivated in the Tripos was so focused on students’ bodies suggests a felt need to ground the gendering of such abstract practices as mathematics in the presumed stability of sexed bodies. The underlying physiological assumption that women’s vital energy was needed for reproduction and hence unavailable for intellectual exertion was common even among men relatively supportive of women’s rights in the Victorian period, as classically discussed in Russett (1989, chapter 4). Anxiety around the physical harm that mathematics—and

higher education more generally—might differentially visit on sexed bodies drove longstanding debates, such as that analyzed in Lorenat (2023).

As demanding as the intellectual work of mathematics could be, in many settings the so-called purity of mathematics risked distancing it from the sorts of bodily labor accepted as masculine. Ellen Abrams (2020) has shown how late-nineteenth-century American male mathematicians prioritized biography—in particular, rural upbringings and subsequent self-making—as a resource for masculinizing their discipline as its subject became increasingly European, and hence suspect. Strong as the association between masculinity and physical work may be, in the twentieth century many male mathematicians also attempted to ground masculinity in play. Michael Barany (2021) has illuminated the importance of a young, playful, male ideal (modeled on the mostly French mathematicians who published under the celebrated collective pseudonym Nicolas Bourbaki) in shaping global philanthropic funding networks at midcentury. Looking beyond professional mathematicians, Fiss (2021) shows how nineteenth-century American undergraduates performed and contested the masculinity of studying mathematics.

Far-reaching male efforts to construe mathematics as masculine notwithstanding, Claire G. Jones (2009) has shown that no simple opposition between mathematics and femininity obtained during the period of late-nineteenth-century professionalization. Rather, competition between increasingly well delineated “pure” mathematics and "practical" science led to the articulation of competing notions of masculinity; the

active, virile image of practical engineering created space for a (contested) vision of femininity and pure mathematics as compatible. Even feminized sickliness could be creatively reappropriated. Alison Winter (1998) has shown how early Victorian mathematician Ada Lovelace believed “her menstrual, digestive, and nervous complaints and her mathematical powers were intimately connected”; Lovelace presented “her intermittent invalidism [as] a necessary condition for her intellectual ability” (p. 203).

In short, masculinity has been an unstable quality that various actors sought to position in various strategic relationships to the contours of mathematical work. Femininity, though less often invoked in constructing mathematical personae, was no more stable and at times equally useful in fashioning a particular kind of mathematical self. In both cases, perceived mathematical ability reciprocally molded the particular ideas of masculinity or femininity at play.

Building on existing analyses of gendered constructions of ‘the mathematician’, we ask how gender structures mathematical discourse between individuals in collaboration or dialogue who do not necessarily share the same relationship to gender or to mathematics. Faced with the diversity of mathematical masculinities and (to a lesser degree) femininities evident in the discipline’s history, we propose to view these myriad *individual* self-fashionings as always taking place in the context of gendered *relationships*. Assertions and perceptions of masculinity and femininity can shape any manner of relationship, but they loom especially

large—whether performed normatively or otherwise—in the daily conduct of romantic and domestic partnerships, to which we now turn.

Historicizing marriage

> In the beginning I thought I might come to love him. But he needs an entirely different kind of wife from me. His wife will have to dedicate herself to him utterly, utterly, to give up her whole life to him, to think about nothing but him. And I can't do that […] I want to live myself! (Kovalevskaya, 1978, p. 197)

Choosing whether to marry—and if so, who to marry—shapes an entire life. Whether a marriage lasts for one year or sixty years, it can have life-lasting consequences on the people involved. In recent centuries marriage has become entangled with ideas of love and romance, yet people certainly make the choice of whether to marry or not with other considerations in mind.[3] In her memoir, *A Russian Childhood*, mathematician Sophia Kovalevskaya recalls bearing witness to the courtship between her sister Anna Korvin-Krukovskaya and novelist Fyodor Dostoevsky. After a proposal of marriage, Anna explains to her sister that to become Dostoevsky's wife would be to give up herself entirely—her own intellectual and political ambitions—which she was not willing to do. After turning down the proposal, Anna subsequently traveled

[3] 'Choice' in whether, or whom, to marry is an intensely political and contingent notion. For example, see Grover (2009) which gives a treatment of the reactions of natal kin to arranged and love marriages, in the context of contemporary working-class women in Delhi.

to Paris where she agitated for socialist reforms and women's rights, and met her future husband, revolutionary socialist Victor Jaclard.

Whilst marriage can be understood broadly as a way in which historical actors constructed a household or built a family, it is vital to identify and locate the myriad variations within this practice. The types of marriage on offer to individuals varies enormously by social convention, political values, legal rights, and religious observance, as highlighted through Sonbol's comparative study of marriage contracts in France and Egypt from ancient to modern times (Sonbol, 2005). Ancient Egyptian marriage contracts were seen as between two distinct individuals. For example, if a woman lent money to her husband, the marriage contract expected that this loan would be repaid, rather than viewing the capital as continuously belonging to the joined pair. In stark contrast, in modern marriages in France it was common for brides to offer up their physical bodies to their grooms during the wedding ceremony and, after marriage, French law would recognize what had formerly been two persons as a single family unit, restricting women's financial independence and political identity (Sonbol, 2005, p. 164). Divorce was not uncommon in Ancient Egypt, and through the secular marriage contract it could be initiated by either the man or woman. This arrangement persisted into Islamic Egypt, and only came to an end with the influence of nation-state discourses and European colonialism (Sonbol, 2005, p. 166).

Access to legally recognized marriage for LGBTQ+ couples continues to be a divisive political issue around the world. Legal recognition can convey benefits surrounding inheritance, taxes, property

ownership, adoption, and citizenship in cases of immigration. Access to such benefits for queer communities is by no means exclusively guaranteed—nor always sought—through the expansion of legal marriage. In 1995, legislators in Sweden extended many benefits of marriage to gay and lesbian couples whilst unequivocally denying them access to parenthood. Those registered as being in a homosexual partnership were ineligible for assisted fertilization, and could not become adoptive parents or hold joint-custody of minors (Rydström, 2011, p.11). In 1970, a lesbian couple in California and a gay male couple in Minnesota both sought legal recognition for their relationships, at a time when same-sex marriage had yet to be legally allowed in any US state. Jack Baker, one of the Minnesotan men, justified his seemingly audacious application for a marriage license by arguing that as long as marriage was perceived as a right, then it was imperative to fight for the extension of this right to all citizens (Warner, 1999, p. 122). Twenty years later, activists in the United States demanded the end of “the saturation of everyday life with heterosexual privilege” and the “disentangling of health and other benefits from matrimony”; rather than the limiting of queer relationships with heteronormative legalities, they sought more expansive and imaginative forms of domestic partnership (Warner, 1999, pp. 120–21, 123).[4]

Marriage is presented in Rose (2020) as a political experience, in which power and agency must be balanced between two individuals in

[4] Gay marriage was legalized in California and Minnesota in 2013. In Sweden, joint adoption for same-sex couples has been legal since 2003 and gender-neutral marriage laws were introduced in 2009.

order to forge a single life: “every marriage is based upon some understanding, articulated or not, about the relative importance, the priority of desires between its two partners” (Rose, 2020, p. 4). In times and places where divorce was not easily accessible, the difficulties of reconciling the wants and desires of two separate people within a marriage often led to more expansive living arrangements. English novelist George Eliot (born Mary Ann Evans) openly lived with philosopher George Henry Lewes, and they considered themselves married, despite Lewes already being married to Agnes Jervis. Jervis, on her part, also pursued a relationship outside of her marriage and had four children with Thornton Leigh Hunt (Rose, 2020, 211). The realities of these extramarital arrangements suggest that we should not place too much emphasis on the idea that a marriage (whether as a cultural, religious, or legal arrangement) involves only *two* people.[5]

Certainly marriage forges kinship and social connections that transcend those between the married individuals themselves. Maunaguru (2019) explores how marriage has been used by the Jaffna Tamil diaspora to reunite fragmented communities after the violent and protracted civil war in Sri Lanka. The marriage process itself stretches across continents: from the marriage brokers in Colombo; the location of the wedding ceremony, frequently in India; and finally, to the migrant country in which the couple are reunited, often Canada. This reunion is contingent on the successful application for a spousal visa, and can also lead to a wider reunion supported by chain migration. Within this diaspora community,

[5] Further broadening this point, Stacey (2011) considers contemporary polygamous relationships across the USA, South Africa, and China.

marriage held space for a shared past which had been interrupted by war, and hope for a shared future that was yet to be actualized.

Marriage as a pervasive social expectation undeniably influences the lives of those who choose not to engage in the practice themselves. Although many middle-class women in the nineteenth-century United States of America benefited from and were happy with their choice to remain single, Lee Virginia Chambers-Schiller (1984) identifies an emergent “cult of single blessedness” which circumscribed their roles in society. Without caring responsibilities for a husband or their own children, these single women were often looked upon as a source of unpaid domestic labor for parents or married siblings, to the detriment of their personal vocations or careers. It was also common for single women to remain in households in which they did not have any control of domestic arrangements, and which were under the auspices of the wife of the head of the household (Chambers-Schiller, 1984, p. 73). Nevertheless, many women saw actively choosing to remain single as a positive, necessary step towards a fulfilling and intellectually rewarding life (p. 209).

Holden (2010) explores the ways in which the societal and political premise that the nuclear family was the standard household unit affected the lives of single men (bachelors) and women (spinsters) in twentieth-century Britain. Assumptions that men would have dependents to financially support, usually a wife and children, led to women’s wages persistently remaining less than those of men. Numerous different associations were set up to lobby for wage equality, occasionally ending

up in conflict with each other. In the 1930s, the National Spinsters' Pension Association (NSPA), with a majority working-class membership, campaigned for equality between married and unmarried women by representing spinsters as war widows who were single as the result of the huge casualties of World War 1. They thus demanded that spinsters be eligible for a widow's pension at age 55. Meanwhile, professional women with occupational pensions and higher wages rejected this proposed reform, seeing it as threatening campaigns for equality between men and women in the workplace (Holden, 2010, pp. 34–35). Bachelors in employment benefitted from an inflated wage, and those in periods of unemployment were able to apply for government money to support a dependent housekeeper—hence a brother could support an unemployed sister in exchange for domestic services, but two unemployed sisters would be unable to claim such a benefit (Holden, 2010, p. 60). A significant proportion of the British population remained unmarried during the period under consideration. Holden uncovers how these people forged their lives in relation to the perceived default of a nuclear family, and through oral histories investigates how they understood their place within the family, household, and employment.

A clear-cut distinction cannot always be drawn between those who are married, and those who are single. In late-nineteenth century Europe and North America it became possible for middle-class women to pursue not just vocations, but remunerated careers; however, the lifestyle of a middle-class career woman was almost entirely socially and practically incommensurate with that of a wife. Nominally single, numerous pairs of

women found mutual companionship and support by living entirely intertwined lives, pooling their resources, sharing a home, and writing frequently emotive letters when separated. Such pairs of women were so common in New England—especially after the founding of women's colleges Vassar, Wellesley, and Smith—that these arrangements became known as "Boston Marriages" (Faderman, 1993). Crucially, these marriages emerged from a long tradition of intensely romantic friendships between women that were assumed to be entirely asexual—correctly or incorrectly it is often impossible to determine—and thus unthreatening to society.[6]

Viewing historical actors through the lens of marriage brings to the fore the entangled practices of gender, domesticity, and work. In the pre-Civil War USA, unmarried women who publicly pursued a profession or vocation in which their ambition and independence was put on display were seen as having "unsexed" themselves; too masculine to be women they were a new, third sex (Chambers-Schiller, 1984, pp. 176–77). In contrast, marriage could be used as a way to affirm a person's sex or gender. Manion (2021) explores changes in gender politics and women's rights in the USA and the UK through interwoven biographies of so-called female husbands. Beginning in the mid-eighteenth century, the term female husband permeated Anglo-American culture to refer to people who "though assigned female at birth […] assumed a legal, social, and economic position reserved for men: that of husband" (Manion, 2021, p. 1). One such person, James Allen, met his future wife Abigail Naylor when

[6] Asexuality in heterosexual marriage is explored in Rose (2020).

they worked together in the same household, he as a groomsman and she as a housemaid. They married in 1807 in South London and were together for twenty-one years until Allen was tragically killed in an accident at the shipbuilding yard where he was working. Owing to the way in which Allen died, there was an autopsy, at which the coroner firmly stated: “I call the deceased ‘he’, because I consider it impossible for him to be a woman, as he had a wife” (as quoted in Manion 2021, p. 108). For the coroner, the existence of a marriage certificate was sufficient for him not to question the legitimacy of the union, which was seen to be necessarily between a man and a woman. He considered Allen’s maleness stable precisely because Allen had entered into marriage with a woman. If the coroner’s decision to make this affirmation explicit was atypical, it only renders visible the work marriages did more generally to affirm participants’ sexes.

Marriage and science: An imperfect matching?

> There’s a deal to be learned in a midnight walk,
> When you take it all alone,
> If a gentleman’s with you, its talk, talk, talk,
> You’ve no eyes and no mind of your own.
> (Maria Mitchell, undated, quoted in Chambers-Schiller, 1984, p. 209)

Inaugural professor of astronomy at Vassar College in New York, Maria Mitchell had a long and celebrated career as an astronomer. She began as a child, making astronomical observations with her father, and it

was on the roof of the bank where he worked that, in October 1847, she discovered a new comet. The comet was announced the following month in the *Monthly Notices of the Royal Astronomical Society*, and Mitchell was subsequently awarded a Gold Medal from the King of Denmark for her discovery (Anon., 1847). Her trajectory within astronomy demonstrates the changes taking place as scientific work transitioned from the pastime of the wealthy and social elite to a remunerated profession legitimized and organized by institutions. Having begun as a home-schooled amateur conducting telescopic observations from her father's private observatory, Mitchell's professional accolades quickly grew after her comet discovery. She became a member of the American Academy of Arts and Sciences and the American Association for the Advancement of Science; she was hired as a computer by the US Coast Survey to calculate tables for the Nautical Almanac; and in 1865, without a college degree herself, she was hired as the professor of astronomy at Vassar College where she taught and mentored future women astronomers, including her successor at Vassar, Mary Whitney (Holmes, 2018).

The extract above from one of Mitchell's undated poems articulates her desire to retain an independence in her research that she felt was at risk in the presence of men. Indeed, Mitchell dedicated much of her life to forging networks and communities for scientific women outside of male dominated institutions (Kohlstedt, 1978), and remained unmarried for her entire life.

For women who did work closely with a man, often a family member or spouse, it has been incredibly common for their contributions to be

misattributed to or subsumed into the work of their male collaborator. During the nineteenth century this phenomenon was recognized by British geologist Charles Lyell. Regarding the work of mathematician and polymath Mary Somerville, Lyell wrote to his fiancée and fellow geologist Mary Horner that had “Mrs. Somerville been married to […] some mathematician, we should never have heard of her work. She would have merged it in her husband’s, and passed it off as his” (Lyell, 1881, p. 325). Lyell is here implicitly recognizing the widespread practice of wives conducting scientific research which was publicly attributed to the husband alone. Later that century, American suffragist and sociologist Matilda Jocelyn Gage articulated the tendency for women’s intellectual labor to be undervalued, unrecognized, or attributed to men. It was in honor of Gage that Margaret Rossiter, a historian of science, later coined the term “Matilda Effect” to explicitly name this tendency in scientific research and thereby encourage future scholars to be on the lookout for the “Matildas” whose contributions are less visible, but no less important (Rossiter, 1993).

Early studies of collaborative couples—that is people who were partners both in research and in their personal lives—began as a way to recover this work of women in the history of science. These women’s stories were pushing at the edges of canonical histories, held in the diaries, memoirs, letters, and workbooks of the men with whom they collaborated, whose scientific work was already visible and appreciated (Pycior et al., 1996). These women often benefited from easier access to libraries, specimens, and laboratories when these were to be found in

private homes—that is in domestic rather than public or professional spaces. Such case studies, which consciously pay attention to the intimate lives of women scientists as well as their intellectual output, provide more than biographical interest. They shed light on the forms of collaboration, present and desired, in scientific research and how such collaboration can be stymied by or used to overcome shifting institutional barriers (Abir-Am and Outram, 1987).

However, it is certainly not the case that marriage to a colleague was always a reliable route to scientific research. In many countries during the first half of the twentieth century marriage bars and anti-nepotism rules effectively excluded married women from employment at a professional level in universities and government research institutes.[7] The first formal marriage bar in Britain, which decreed that women must retire on marriage, was introduced by the Post Office in 1876. It soon spread to other professions including banking, the civil service, and teaching, the latter two offering employment to a significant proportion of women with higher education in the sciences (Murphy, 2014). Janet Lane-Claypon (1877–1967) had a long and successful career as a physiologist and epidemiologist, penning over thirty scientific reports covering infant health, risk factors for cancers, and maternal mortality. As an employee of the Ministry of Health—and thus of the civil service—her career came to an end when she married Sir Edward Rodolph Forber in 1929 (Winkelstein, 2008).

[7] The marriage bar in colonial Zimbabwe and Ireland are explored in Kufakurinani (2021) and Foley (1973) respectively. See also Kaufholz-Soldat (2023). Marriage bars as a eugenic policy in Norway are explored in Giæver (2003); that marriage and fertility from a eugenic perspective became topics of mathematical research is explored in Lorenat (2023).

In Australia, physicist Ruby Payne-Scott kept her marriage from her employers, the Council for Scientific and Industrial Research (CSIR) at the University of Sydney. Due to an administrative change-over her married status was noticed by her employer in 1950, who subsequently reclassified her as a temporary employee—as done with other married women—even going so far as to retroactively reduce her pension contributions accordingly. Payne-Scott continued her astronomical research as a temporary staff member, but owing to the lack of paid maternity leave, chose to resign her post in 1951 a few months before the birth of her first child. Her research career never recovered (Goss and McGee, 2010, pp. 42–49). Whilst Payne-Scott's married status limited her to temporary contracts, anti-nepotism rules at the University of Chicago meant that Maria Goeppert-Mayer's Nobel Prize-winning research on nuclear shell models was conducted whilst she was an unpaid "volunteer" researcher; the university could not hire her officially as her husband Joseph Mayer was a professor of chemistry there (Rossiter, 1992, p. 328).

The importance of marriage and household formation in men's scientific careers has also received scholarly attention, though considerably less. In the universities of northern Europe, the fifteenth century saw the erosion of traditional prohibitions against marriage for male scholars and Algazi (2003) investigates the ensuing transformation of scholarly life. Marriage started to be used as a way for scholars to secure for themselves financial security—for example young university graduates in Prague frequently married wealthy widows—or to gain a reliable source of domestic labor. As early as 1505, Hieronymus Emser

observed that male scholars were relying on substantial invisible work done by their wives in order to pursue their studies and retain an illusion of self-sufficiency (Algazi, 2003, p. 21). Four hundred years later, scientists funded by the Rockefeller Foundation to undertake research visits abroad recognized the benefits of traveling as a married pair. Obtaining funding for husband and wife both to embark on a research trip enabled work to be done more efficiently in the laboratory. Moreover, botanist Raymond Bouillenne observed that by traveling with his wife, the chemist Marie Bouillenne-Walrand, he was able to engage more freely in the socializing that occurred outside of the laboratory by calling on and receiving their scientific friends and their spouses at home. Taking part in this mixed-gender socializing would have been more difficult as a lone man living at a boarding house (Wils and Huistra, 2021, p. 94).[8]

A significant intervention in scholarship on collaborative couples is the relatively recent book *For Better or For Worse* (Lykknes et. al, 2012). Contributors to this edited volume actively considered the work of each partner, rather than focusing on reclaiming the work of an overlooked colleague, to expose the dynamism and malleability of scientific collaboration. The volume worked to deconstruct the pervasive hierarchical model of the husband as professor / wife as assistant, presenting instances of women taking substantial credit for work done with a spouse (either privately or publicly), of women taking on the role of breadwinner, and of men taking on domestic duties such as cooking. One chapter of particular note is Opitz's on queer couples in the sciences,

[8] For more on the gendered implications of social interactions between scientists outside the laboratory, see Tonn (2017).

focusing on the lives and work of Edward Carpenter and George Merrill. Opitz (2012) introduces the historiographical obstacles and concerns when researching queer scientists, especially when searching for information on their private lives, and places the groundwork for considering the specificities of collaboration in a queer household—what this shares with previous scholarship on couples, and what it does not.[9]

At home with knowledge making

> One evening [with Captain and Mrs Kater] we had been trying the power of a telescope in separating double stars till about two in the morning ; on our way home we saw a light in Dr. Young's window, and when Somerville rang the bell, down came the doctor himself in his dressing-gown, and said, "Come in, I have something curious to show you."
>
> (Mary Somerville relating an evening in London, in Somerville and Somerville, 1873, p. 130)

The significance of marriage in affording specific women access to specific scientific work, frequently in the home, has long been recognized. Such was the case for the mathematician and author of numerous scientific books, Mary Somerville. Somerville's autobiographical *Personal Recollections* clearly chart how her position in the elite social classes of

[9] For instance, Opitz notes how Carpenter and Merrill self-styled their partnership as a rather conventional marriage, in which the collaboration could be characterized as one spouse (Merrill) serving as a "helpmeet" to the other, knowledge-producing spouse (Carpenter). And yet their partnership partook in a broader social milieu of free-love, socialism, and "cooperative comradeship" that asserted the biological normalcy of homosexuality, in direct defiance of contemporary legal and religious disapprobation of queer sexualities.

London, and her marriage to army physician Dr. William Somerville, enabled her access to the scientific knowledge that circulated in mixed-gender social gatherings and soirées, as at the homes of the Katers and Dr. Young (Stenhouse, 2021b; Somerville and Somerville, 1873). To be welcome at sites of knowledge production meant more than gaining access to laboratories and libraries; it could mean also being welcome to ring the bell in the middle of the night, to be invited in and observe the heavens with one's host in his dressing-gown.

Lately historians have paid increasing attention to the diverse forms of domesticity, broadly construed, that have been involved in scientific work in different times and places. A classic essay by Steven Shapin (1988) revolves around the observation that the home was a major site of experimental work in the early modern period; the establishment of a scientific fact depended on movement from a private space of testing to a public space of demonstration. Subsequent work explored the social textures of this spatial arrangement in greater depth; Cooper (2006) is a landmark survey. The turn inward to the domestic is in no way a retreat from the realm of politics even in the narrow sense: Deborah R. Coen (2007) has productively centered the family and the private sphere in the history of the relationship between science and liberalism.

Domestic science need not have been familial science in the conventional sense, however. Mary Terrall has shown how René Antoine Ferchault de Réaumur (1673–1757) embraced research as an alternative home life, allowing his family line to end and acting instead as head of a collaborating, cohabiting scientific household, members of which carried

on their own form of Réamur's legacy (Terrall, 2014, p. 77). Their domestic output contributed to the Paris Royal Academy of Sciences' vision of research as masculine public service, even while the scientific 'family' included women such as the artist Hélène Dumoustier in crucial roles (Terrall 2015).

Much of Réaumur's household's research focused on insects, a subject well suited to home study in several ways; entomology has accordingly attracted special attention within the growing literature on domesticity and science. Being readily available in humble gardens and backyards, insects are accessible to aspiring researchers excluded from specialist spaces for reasons of gender, race, or class—precisely the researchers who often have no choice but to do science at home or not at all (Sleigh, 2007, pp. 129–34). The case of myrmecology, in which the (domestic) scientific object is itself often a (nonhuman) domestic unit such as an ant colony or beehive, also vividly displays the reciprocal influences running between domesticity and science. Coen (2021) discusses how, in contrast to laboratories that aspired to neutrality, "the human home often played an elaborate role in reports on entomological research" (p. 338). This intimate involvement of domestic space and personnel brought contingent human arrangements into contact with the very knowledge under construction. "Domestic entomology," writes Coen, "took the rigid, seemingly timeless idea of a 'natural home' and transformed it into a research question" (p. 339).

What myrmecology exhibits with particular clarity is true more broadly: when the home contributes to the production of knowledge, the

decisions and designs behind that domestic space take their place among the other experimental conditions and theoretical postulates delimiting the work at hand. The contours of the home itself, in other words, exist in the realm of assumptions and inferences—grounded in tentative knowledge and always subject to revision.

Recent attention to this complex interplay is well represented in a volume edited by Donald Opitz, Staffan Bergwik, and Brigitte Van Tiggelen (2016a). The editors assembled a collection of studies beginning from the premise that "the domestic sphere is not external to knowledge making, but rather a condition for and a consequence of research" (Opitz et al., 2016b, p. 2). Together the papers illuminate domesticity's opposing capacities to buttress or undermine scientific authority; science's reciprocal shaping of domestic space; its ideologies; and the longstanding importance of the scientific family (whether in the sense of blood or fictive kinship). Even more recently, Opitz (2022) has produced an indispensable guide to the ongoing historicization and theorization of domesticity in the historiography of science. The field is vibrant—but mathematics is curiously absent.

Marriage and mathematics

> [Dirk Jan] Struik pointed to a spherical, crystal bowl […] with the etching M + M + M = 100. He said that equation symbolized what was responsible for his stamina and continued intellectual acuity [at 100 years of age]: Marriage, Mathematics, and Marxism (Powell, 2000).

The importance of a good marriage—whether that meant a supportive, wealthy, or perhaps short-lived spouse—has long been apparent in histories of women in mathematics. In their enriching study of ways women forged and pursued mathematical careers from 1800 onwards, Kaufholz-Soldat and Oswald (2020) dedicate three chapters to collaborative couples in mathematics. Predominantly interested in the positive effects of marriage on women's careers, these independent chapters historicize practices of authorial recognition and the need for mutual support in the hunt for academic positions (which continues to resonate today).

As with scientific careers more broadly, however, marriage could also create bumps on the road to a mathematical career. Katherine Goble Johnson entered West Virginia State College, USA in 1933 where she studied mathematics under William Schieffelin Claytor. Already as an undergraduate Johnson expressed anxiety over her job prospects as an African American woman, most likely aware of the difficulties Claytor himself had faced when searching for a job. Johnson ultimately decided to pursue postgraduate study, having been chosen as one of three students to desegregate West Virginia University in 1940. The university maintained its bar on married women as students, forcing Johnson to keep secret her marriage to Jimmy Goble which had taken place a few months before enrollment. Before the end of her first semester she discovered she was pregnant, and felt compelled to leave the program (Shetterly, 2016, pp. 72–76). It would be twelve years before Johnson made her way to

employment at the NASA Langley laboratory where she had a long and ultimately celebrated career as a mathematician (Shetterly, 2016, p. 117).[10]

Good intentions alone are not sufficient to build a marriage strong enough to sustain two intellectual vocations or careers. Albert Einstein and Mileva Marić met whilst students at the ETH (*Eidgenössische Technische Hochschule* or Federal Polytechnic School) in Zürich in the 1890s. Within a few years they were romantically involved. Together they read mathematics and physics texts, and jointly planned their dissertation topics. Einstein clearly hoped that they would have a marriage built on both emotional and intellectual companionship; writing to Marić in December 1901, he imagined that "together [they would] surely be the happiest people on earth," remaining students for the rest of their lives. Writing again a few weeks later he asked Marić: "When you're my dear little wife we'll diligently work on science together so we don't become old Philistines, right?" (Cassidy et al., 2019, p. 59). It is very likely that this supportive attitude was a compelling factor in Marić's choice to pursue a relationship with Einstein, as it would have been very difficult for a woman in early twentieth century Germany to pursue scientific research without a supportive husband (Kaufholz-Soldat, 2023). Marić's determination to study physics is evident in that she moved countries three times in order to complete her education.

[10] As evidence that marriages create mathematically important bonds which transcend those between a married pair alone, Johnson found out about the jobs at Langley from a brother-in-law, at her sister-in-law's wedding (Shetterly 2016, p. 118).

Unfortunately, after only a few years of marriage, Marić had already become isolated from Einstein, who pursued intellectual companionship with his male colleagues, often outside of the home, while Marić was taking care of their children. In 1909 Marić lamented to a friend that “with that kind of fame [Einstein] does not have much time left for his wife” (Cassidy et al., 2019, p. 73). Einstein’s mother had earlier predicted this turn of events, as she apparently told Einstein that “like you [Marić] is a book—but you ought to have a wife” (p. 47). Whilst Einstein initially hoped for a wife with whom he could deepen his engagement with the study of physics, by 1914 he saw Marić’s role as to provide him with three meals a day, wash his clothes, and to keep his study neat and tidy (p. 80). The question of how much Einstein and Marić did collaborate before and in the early years of their marriage has proved persistent, yet impossible to answer. Beyond tentative recognition of Marić’s role in work that was ultimately published under Einstein’s name alone, little evidence remains of the research pursued by Marić after she left university.

The difficulties of disentangling the work of a woman from her husband can certainly be a significant barrier when researching women in the history of mathematics. William Henry Young and Grace Chisholm Young had a conjoined mathematical career spanning over thirty years, working at home together in Germany and Switzerland, with William Young occasionally leaving for teaching posts in the UK and India. Combined, the Youngs published 214 papers; of these, 13 were joint publications and only 18 were published under Grace Chisholm Young’s name alone. Although the majority of the papers were published under

her husband's name, it is widely appreciated that Grace Chisholm Young took an active role in the selection of research topics, the formulation of the mathematical arguments, and their subsequent publication (Grattan-Guinness, 1975, p. 43). When compiling a bibliography of their work, Grattan-Guinness chose to present their publications in a combined list, owing to the intense collaboration that had resulted in the written output. In addition, when a critical review of one of William Young's papers was printed in the *Jahrbuch*, it was his wife who initiated a letter correspondence with the reviewer in order to resolve the ostensible errors in the paper, suggesting that she herself had taken an active role in the research and writing that led to the original paper (Mühlhausen, 2020, p. 122). In this issue, Basyal and Stenhouse (2023) further investigate the historiographical implications of writing about a collaborative couple for whom the limited archival sources preclude a disentangling of their respective contributions.

Collaboration with, or the influence of, a spouse is by no means limited to intellectual exchange. As alluded to above, Mary Somerville benefited from the ongoing and active support of her husband, William Somerville, to access spaces otherwise closed to women in nineteenth-century Britain (Stenhouse, 2021a). Although Mary Somerville was excluded from membership of learned societies or studying at a university, she was able to access texts, people, and publication avenues through the mediation of her husband. William Somerville loaned books from the library of the Royal Society of London and organized the delivery of copies of *The Astronomical Observations made at the Royal*

Observatory, Greenwich to the Athenaeum Club where he could collect them and pass them on to his wife. He accompanied Mary Somerville on trips to Marlow to meet William Wallace—who gifted her French mathematics textbooks and became an informal mentor—and then to Paris where she was fêted by French savants including Pierre-Simon Laplace. It was Laplace's work *Traité de Mécanique Céleste* (5 volumes, 1799–1823) that Mary Somerville would later translate into English as her first book project, and Laplace's description of her as one of few enlightened judges of his work was invaluable to her reputation as an expert in French analytical mathematics. Mary Somerville was only the second woman to have her work printed in the *Philosophical Transactions* of the Royal Society of London under her own name, and this was enabled by her husband reading her paper at one of their meetings. Even though it seems that William Somerville did not contribute intellectually to the books written by his wife, she would have found it far more difficult, if not impossible, to engage with the knowledge required for scientific authorship—knowledge which circulated in letters, journals, and books—without his assistance.

In mid-nineteenth century Russia, fictitious marriages became a way for women to claim their independence and pursue their intellectual interests. As women's hopes of being able to study at universities in Russia kept getting dashed, fictitious marriages to supportive men enabled women to bypass laws which refused to let women travel without the permission of their father or, if married, their spouse.[11] Mathematician

[11] It is hard to give a precise definition of a fictitious marriage - even as practiced by nihilists in late 19th-century Russia - but usually these were heterosexual marriages for

Sophia Kovalevskaya is well-known for having engaged in a fictitious marriage with Vladimir Kovalevsky, in order to study mathematics in Heidelberg and Berlin, in Germany (Koblitz, 1983). She subsequently had an impressive mathematical career working as an editor for the journal *Acta Mathematica*, became a Professor at Stockholm University, and in 1888 won the Prix Bordin of the Académie des Sciences in Paris. Her choice to marry for convenience rather than love, even though the Kovalevskayas occasionally lived together and had a child, has tangibly colored the ways in which historians write about her. That Sophia Kovalevskaya's marriage was ultimately an unhappy one has been described as her "failure to find a loving husband", caused by her pursuit of a masculine profession; her image eventually became one of an "unattractive and sorrowful female mathematician, who died longing for love" (Kaufholz-Soldat, 2017, p. 205).

The instances presented here of marriage having a formative influence on the studies, research, and recognition of mathematicians are a collection of stories usually told as asides within larger projects and almost exclusively speak to the effect marriage had on women's access to science.[12] However, as seen in this section's epigraph, mathematician Dirk Jan Struik saw mathematics and marriage as intimately interlinked in his own life. Struik was in fact married to Saly Ruth Ramler, who had already

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which the main motivation was to emancipate the woman from the legal authority of her father. Once married, the husband could give his written permission for his wife to live apart from him, or assist her in leaving Russia to study abroad. It was not unusual for people in fictitious marriages to live apart from each other or even to have common-law marriages with other people (Koblitz, 2014, p. 64).

[12] A rare exception in wider scholarship is Richards (2021), which takes mathematician Augustus De Morgan's marriage to Sophia Frend as its starting point and ultimately tells a family story of three generations.

been awarded a PhD in mathematics when the two met, and who later published articles on both mathematics and its history (Bečvářová, 2018). Taking marriage as a focal point, we set out to bring the fruitful historiography of couples and domesticity in science into a broader conversation with the history of mathematics. By historicizing marriage and its relationship to mathematical careers, this special issue uncovers ways spousal collaboration and support have been central to mathematical work.

The “Calculating Couples” of this special issue

Following a roughly chronological order, we begin with the article by Amy Ackerberg-Hastings (2023), which centers and complicates the notion of the "dual-career marriage," and focuses in particular on an instance of a "sequential-career marriage." Considering American mathematician John Farrar (1779–1853) and children’s book author Eliza Ware Rotch (1791–1870), she argues that their marriage and domestic life was a defining feature of their respective careers. Its significance has largely been overlooked because they worked in different areas and achieved the bulk of their career success at different times rather than simultaneously. Therefore historians of mathematics analyze John’s popular textbooks while historians of literature study Eliza’s writing for children, while the partnership that structured both of their working conditions goes unexamined. That relationship was all the more decisive due to John’s chronic illness, which fundamentally shaped his efforts to maintain a career and Eliza’s daily life caring for him. By attending to this

marriage, we see a mathematician's embodiment as a fact larger than the embodied individual: two authorial careers were equally entangled in the unequal needs of two human bodies.

Indeed, a marriage remains a consequential social fact even when one of the bodies that constituted it no longer lives. In his study of pedagogical writer Mary Everest Boole (1832–1916), David E. Dunning (2023) explores the ways she deployed the legacy of her deceased husband, mathematician George Boole (1815–1864), as a resource in constructing her own idiosyncratic, domestically inflected mathematical expertise. In her published recollections of their shared life, she posited a crucial private side to his intellectual world that implicitly rendered her familial perspective essential to any interpretation of his work. At the same time, in prolific writings spanning a bewildering range of topics, she developed an overarching pedagogical lens on topics mathematical, scientific, religious, and moral. Her expansive view of teaching provided a bridge between the home and the realm of professional knowledge making, subsuming both—while invoking the authority of Mr. Boole's mathematical writing—in a pedagogical project that attracted ardent admirers.

Sylvia Nickerson (2023) considers the case of the brief marriage between English mathematician William Kingdon Clifford (1845–1879) and novelist Lucy Lane Clifford (1846–1929). Alongside his mathematical work, William wrote on philosophical topics and was an outspoken atheist. After his death, Lucy sought to take charge of his public identity. She combatted narratives that he had been excitable and impassioned,

asserting a more stable and masculine-coded image of her late husband. These efforts to stabilize his masculinity included downplaying the radical elements of his thought, constructing a version of his legacy that would be palatable to a wider audience. Thus the publications that articulated William's posthumous legacy were substantively shaped to reflect Lucy's vision for that legacy. As her editorial decisions displayed, and her fiction further elaborated, Lucy's religious and social views were distinct from and more conventional than those of her husband. While both spouses were independent thinkers and successful authors in their chosen domains, Nickerson argues that their self-fashioning in relation to gender accepted rather than questioned typical Victorian norms—including, centrally, a masculine vision of mathematics.

That marriage and intellectual work might not be totally independent spheres certainly did not elude late-nineteenth-century observers, though many considered the possibility of their causal interconnection in the register of sexist and racist anxiety. Jemma Lorenat (2023) shows that historical actors themselves were intensely invested in the question of if and how higher education affected a (white) woman's desire and ability to marry; the analogous question about men seems not to have aroused much concern. In an effort to rebut accusations that college rendered girls ill-suited to wifehood and motherhood, Bryn Mawr College and the Association of Collegiate Alumnae turned to statistics. Isabel Maddison, who in 1896 had earned a PhD in mathematics at Bryn Mawr, compiled and analyzed data showing that alumnae could marry perfectly well. Alternatively, they might achieve real professional success;

few women in the population studied attained both marriages and careers. Advocates of women's higher education found themselves seeking a delicate balance as they celebrated professionally successful spinsters, rejecting the norms that disparaged that path for a woman's life, while implicitly validating those norms in their efforts to show that a graduate could marry as well as any other young woman if she preferred. That this discourse unfolded in the language of statistics made mathematics not only a controversial undertaking for young women but also, reflexively, a tool for contesting claims about their marital outcomes.

As previously mentioned, increasing professionalization through the end of the nineteenth and the beginning of the twentieth centuries strongly affected women's access to scientific knowledge and spaces. The article by Eva Kaufholz-Soldat (2023) on the long and varied career of Dorothea Klumpke (1861–1942) exhibits the multitude of ways in which women could engage in astronomical research, and the difficulties of separating the amateur from the professional at this time. Klumpke's career progressed through four stages, passing from amateur to paid employee and back again. Her earliest research was done as an 'independent scholar' after she sought special permission to use an equatorial telescope at the Paris Observatory. Although she had no formal affiliation to the Observatory, reports of her work and her observations appeared in their publications. Klumpke was subsequently employed by the Observatory to work on a global project to produce a reference catalog of star positions. During her ten years of employment, Klumpke oversaw the work of a group of women computers, traveled to Norway to

observe the 1896 Solar Eclipse, and risked her life for science by traveling above the clouds in a hot air balloon to observe the 1899 Leonid meteor shower. In 1901 Klumpke resigned from her employment at the Observatory, returning to her status as an amateur. The reason for her resignation was her marriage to wealthy amateur Isaac Roberts (1829–1904), which provided her with access to his well-equipped private observatory and enabled her to return to observational astronomy full-time. This marriage was sadly short-lived, but it acutely shaped Klumpke's astronomical research during both wifehood and widowhood.

In the final article of this special issue, Deepak Basyal and Brigitte Stenhouse (2023) present a case study of mathematical collaboration between spouses in which individual contributions are impossible to distinguish. Tikaram (1909–1936) and Chandrakala Dhananjaya (1915–2002) lived in the rural village of Pipaldanda in Nepal, where they translated books with mathematical sections from Sanskrit to Nepali. Tikaram had earned his high school degree in Benares (Varanasi), India, where the primary means of mathematical instruction was a book authored by Bhāskarāchārya II in 1148, titled *Līlāvatī*, which contained around 270 mathematical verses. The Dhananjayas translated these mathematical verses into two different Nepali texts, one with authorship attributed to Chandrakala and the next to Tikaram. The resulting books showcase the work required to move mathematical verse from one language and context into another. Interestingly, over half a century later when asked directly whether she authored the translation attributed to her, Chandrakala denied that she understood mathematics to a high

enough level to write such a book. Combining this plausibly unreliable account of the Dhananjayas' collaboration with sparse archival evidence, Basyal and Stenhouse consider Tikaram and Chandrakala as an analytically indivisible collaborative couple and propose multiple forms that their spousal collaboration could have taken.

Conclusion

Across these disparate stories we witness how choices in the domestic sphere were deeply enmeshed with efforts to forge a mathematical career. Marriage provided Dorothea Klumpke access to a private observatory; she had already obtained astronomical employment and recognition, turning later to research in a private space by choice rather than necessity. For Tikaram and Chandrakala Dhananjaya, marriage represented a union between two mathematical authors—at least on paper, on the title pages of their books. The archive remains silent as to the precise nature of the collaboration that union entailed. In all of these cases, neither domestic life nor mathematical work precedes and defines the other. We might speak here of "co-construction," or we might say simply that what human beings ultimately try to construct are *lives*; for those who make family and mathematics important strands of their lives, those strands inevitably become entwined. How one does math and how one practices domesticity are never independent vectors.

In the cases considered in this special issue, we note several recurrent themes that allow us to specify more clearly the contours of domesticity, gender, and mathematics in the era of professionalization.

First, attending to familial intellectual output undermines a narrow image of mathematics as something cloistered apart from other kinds of writing. In particular, we frequently find marriages between male mathematicians and female authors of fiction or work oriented toward children. These gender-coded careers would tend to fall under the purviews of separate historiographies, but by assembling them we can see a larger pattern, in which couples like the Farrars and the Cliffords built shared lives on the premise that both partners would engage in the intellectual (and economically beneficial) work of writing. By focusing on family units as sites of authorial practice more generally, we remove the blinders of disciplinary classifications and observe the proximity in which mathematical, scientific, and literary work have often occurred.

Second, we propose that the temporality of marriages in the history of mathematics (and science generally) should be understood capaciously: often a widowed spouse wields—or attempts to wield—tremendous influence on a researcher's posthumous legacy. Understanding work done in the past to construct legacies and manage public memory is crucial to all histories of science; revising unsatisfactory received views requires giving some account of where they came from in the first place. These accounts will often be fundamentally familial stories. Lucy Lane Clifford actively shaped the published presentation of William Clifford's thought, crafting a less radical and more conventionally masculine persona than his unabridged writings would have projected. Mary Everest Boole claimed a privileged domestic insight into the full scope of George Boole's mathematical writings, which she used not only

to advance an interpretation of his work but also to assert her own mathematical credibility. In addition to the centrality of familial intervention in the histories of famous mathematicians and scientists, we insist that the work done by those family members itself belongs to the history of science: part of knowledge making is constructing images of celebrated knowledge makers. We may not share spouses' historiographic agendas, but we should not lose sight of the agency they exerted pursuing them.

Finally, we suggest that the entanglement of domesticity and mathematics is not an analytic insight born of historical distance: nineteenth and twentieth-century actors themselves understood these spheres to intersect in complex, consequential ways. This reflexivity is most obvious in the case of Isabel Maddison's statistical studies of Bryn Mawr alumnae, which enlisted mathematical research in an effort to defend mathematical study as a suitable part of life for marriageable young women. More broadly, all of the stories presented here show people consciously drawing on the resources of the home in the construction of mathematical careers, and simultaneously using those careers to shape and sustain a particular form of domestic life.

As analytic focal points, marriages and domesticity draw our attention to histories that are not bounded by disciplinary lines or straightforward biographical chronologies, and they do so in a manner that resonates with actors' own experiences of their lives as never neatly divisible into professional and private. This is not to suggest that any two people will have been supported or hindered by marriage in the same

way; it is precisely by attending to the diversity of domestic practices and experiences that we aim to bring the history of mathematics home.

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