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“Selling” Women: Lillian Gilbreth, Gender Translation, and Intellectual Property

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“SELLING” WOMEN: LILLIAN GILBRETH, GENDER TRANSLATION, AND INTELLECTUAL PROPERTY

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I. INTRODUCTION

The processes of intellectual property production during the early twentieth century seem very simple. Without the realm of the digital and genetic, the path to obtaining intellectual property rights appears more straightforward. Yet, during the early twentieth century, some of the same issues of translating social and cultural knowledge into readable scientific data by technical communities inside and outside of corporate organizations existed. In this Article, we will return to the early twentieth century to examine this type of translation. Translation, or the process of converting information from one form or medium into another, is the central focus of this Article. In this case, it is the translation of privately understood, but publicly unspoken, social and cultural knowledge about women’s bodies into data points that can be integrated into patentable artifacts. We view the translator as the fulcrum upon which social and cultural knowledge is integrated into intellectual property. Often, this translator ends up being an individual. In the context of women’s hygiene practices, one such translator was Lillian Gilbreth.

A mother of twelve who held a Ph.D. in psychology and formed a partnership with her husband exploring motion studies and efficiency

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models, Gilbreth was well qualified to facilitate social, cultural, and scientific translations.¹ Her marriage to Frank Gilbreth in 1904 began a personal experiment in work and family life partnerships that placed efficiency at its core.² Her children each came to learn their specific jobs in the family and how best to undertake them, and she credited her home factory system as affording time for her career. Frank and she claimed great success in bringing efficiency studies together with psychological training to improve management and production in the nation's burgeoning corporations.³ This successful teamwork ended upon Frank's death in 1924 at age 55. Though an expert in her own right, Lillian was left a smart woman researcher in a man's world. After Frank's passing, she strategically redirected the Gilbreth brand beyond time-motion studies to include new social-scientific work that early twentieth century technoscience corporations found valuable.⁴

Based on this new trajectory, Johnson & Johnson hired Lillian Gilbreth in 1926 to better understand women's purchasing patterns. The company wanted to know what women purchased and why, and more specifically, how it could design and sell a better sanitary napkin to women. Johnson & Johnson also wanted to improve the management of its employees, who were also increasingly women.⁵ Within the context of this research, Gilbreth, however, was interested in educating women as consumers and providing them with tools that would enable more efficient spending. Better products, she argued, would decrease housework and give them more time.⁶ The Johnson & Johnson contract offered her an opportunity to slip this agenda into the company's business model. Gilbreth had always been interested in fatigue, even writing about how it affected production and productivity in her dissertation.⁷ A question she had harbored was one not often asked: was there a relationship between menstruation and fatigue,

1. *See generally* LAUREL GRAHAM, *MANAGING ON HER OWN: DR. LILLIAN GILBRETH AND WOMEN'S WORK IN THE INTERWAR ERA* (1998).

2. *See id.* at 2 (providing a glimpse of Gilbreth's dedication to her work and family).

3. *See id.* at 3 (redefining their industrial engineer firm as a consulting shop dedicated to best practices in efficient engineering).

4. *See id.* (explaining how finding herself without Frank's protection and help in the male dominated engineering world, Lillian rebranded her business to appeal to women by applying the principles she learned from working with Frank).

5. *See id.* at 217-21 (noting that increasing the information available to Johnson & Johnson regarding women's needs and interests enabled Gilbreth to extend her success to the marketing realm).

6. *See id.* at 216 (describing how advocating for products designed to meet the needs of the consumers was central to Gilbreth's work at Macy's and Johnson & Johnson, which catered to women's concerns).

7. *See id.* at 126-27 (discussing her findings in regard to worker's fatigue at Macy's).

especially as it affects women in industry?⁸ More importantly, was this a problem that could be solved with a better sanitary napkin? After Johnson & Johnson held a conference that same year on the study of sanitary napkins, it commissioned Lillian and her team to conduct a study on women’s opinions about and use of menstrual hygiene products.⁹ She described her findings, simply called “Report of Gilbreth, Inc.,” as an investigation into that very matter. Its goal was “to serve as an illustration of the method of research which may be applied profitably to other problems.”¹⁰ Gilbreth positioned herself as an expert who could extract information from women and then adeptly translate this knowledge into readable data for corporations that incorporated it into new products beneficial to many women.

What is interesting about this transformation is that it presents an opportunity to redirect early twentieth century discussions of intellectual property rights away from the traditional sites of patents, copyrights, and trademarks, to the less well-traveled locations of society, culture, and explicitly, the knowledge women have about themselves and their bodies. It subsequently broadens discussions about intellectual property to include the cultural contexts of women, gender, and feminism. This Article aims to disrupt the historical power of the “patent” to control discussions of intellectual property production during the early twentieth century and endeavors to reframe analyses of gender and intellectual property to examine locations not specifically defined by the federal protections of patent law.

For this Article, the “patent” is a logical place to begin. The idea that a patent confirms an individual’s solitary inventive genius and entrepreneurial spirit has been very powerful in the United States. Heroic figures like Thomas Edison, Henry Ford, and, more recently, Bill Gates, exemplify valued representations of mythical American technological ingenuity.¹¹ Even into the mid-twentieth century, racial segregationists and women’s rights opponents used the paucity of patents by women and people of color as evidence of their inability to think creatively and contribute to an evolving technological nation. Those wanting to destabilize the illusion of intellectual inferiority have had to find exemplary patents by women and people of color. That is, scholars have descended into the United States Patent Office to uncover the patents by people

8. LILLIAN GILBRETH, REPORT OF GILBRETH, INC. 98 (Purdue Univ. 1987) (1927) (providing sources to answer Gilbreth’s question on the relationship between fatigue and menstruation).

9. *See generally id.*

10. *Id.* at prologue.

11. *See generally* WYN WACHHORST, THOMAS ALVA EDISON: AN AMERICAN MYTH (1981) (discussing the life of Thomas Edison).

marginalized by race and/or gender. As a result, patents of African American inventors have been used, since the early twentieth century, to prove that black people could achieve the highest forms of intellectual creativity by receiving patents for their ideas.¹² Similar maneuvers have been undertaken for women, in the vein of “her story” and a compensatory model, showing that women, too, were inventors just like men.¹³ Though these tactics are useful and empowering, this approach still relies upon forms of white masculine power and authority to adjudicate worthy and valued forms of intellectual property. We learn very little about the workings of gender and intellectual property by constantly returning to sites of white male hegemonic control. Of course, it is still more nuanced than that. Legal scholars, such as Dan Burk, have shown how a closer examination of the dualism between mind/body and inventive “conception” and “reduction to practice” reveals “unstated, fundamental assumptions concerning the nature of knowledge.”¹⁴

In thinking about gender and understanding women as a marginalized category within the global society, the scholarship of race and traditional knowledge provide valuable insights. Since the publication of the World Intellectual Property Organization report, “Intellectual Property Needs and Expectations of Traditional Knowledge Holders,” the language of traditional knowledge has become a useful way for legal and non-legal scholars, as well as the public at-large, to engage in discussions about the use, exploitation, appropriation, and commercialization of various forms of intellectual property conceived in the developing world.¹⁵ Troublingly, “traditional,” or the equally problematic “indigenous,” are regularly seen as terms to stand in for the brown peoples of the world. Often only “non-white” people from the global south are perceived as marginalized. In a world where much interest has been invested in rethinking the language, terms, and politics of intellectual property, it is a shame that traditional

12. See generally RAYVON FOUCHÉ, *BLACK INVENTORS IN THE AGE OF SEGREGATION*: GRANVILLE T. WOODS, LEWIS H. LATIMER & SHELBY J. DAVIDSON (Merritt Roe Smith ed., 2003).

13. See B. Zorina Khan, *Not for Ornament: Patenting Activity by Nineteenth-Century Women Inventors*, 31 J. INTERDISC. HIST. 2, 159-95 (2000) (analyzing patterns of patenting and commercialization within the context of women and technology). See generally Susan A. McDaniel et al., *Mothers of Invention? Meshing the Roles of Inventor, Mother, and Worker*, 11 WOMEN'S STUD. INT'L F. 1 (1988) (exploring the barriers facing women in the field of innovation).

14. See Dan Burk, *Feminism and Dualism in Intellectual Property*, 15 AM. U. J. GENDER SOC. POL'Y & L. 183, 186 (2007) (arguing that the doctrines define who will ultimately benefit from the intellectual property system).

15. See, e.g., Shubha Ghosh, *Globalization, Patents, and Traditional Knowledge*, 17 COLUM. J. ASIAN 73 (2003); Shubha Ghosh, *Race-Specific Patents, Commercialization, and Intellectual Property Policy*, 56 BUFF. L. REV. 409 (2008); Angela R. Riley, “Straight Stealing”: *Towards an Indigenous System of Cultural Property Protection*, 80 WASH. L. REV. 69 (2005).

knowledge has not broadened its boundaries to include other marginalized peoples confined by the terms women, gay, lesbian, and transgendered, for example. Of course, marginalization is an imprecise term whose meaning can only be extracted from an understanding of its contextual use. However, an analytical lens can be refocused on the global "north" to examine race, ethnicity, region, and, specifically, gender to more fully explore how historical understandings of gender interface with the creation, development, and production of varied forms of intellectual property.

As much as the language of "traditional" and "indigenous" explains, its historical and perceptual attachment to the exploitation of the world's racialized others can undermine its analytic usefulness. For instance, when conceptualizing the workings of gender in relation to traditional knowledge, it is critical to push back against the connotations of traditional knowledge being more natural, more connected to the earth, and already in existence. The implication is that traditional knowledge has been easier to produce and acquire for those peoples who have a better understanding of an indigenous natural state. Historically, indigenous people have been construed as being closer to the land and nature because of limited exposure to industrialization, modernization, and civilization. Gender differentiation has reflected similar imbalances. That is, women have been constructed as biologically programmed to be nurturing, motherly, and emotional. Bridging the concepts of traditional knowledge with gender can lead to the danger of discussions about "mother nature." These familiar reductions have directly and indirectly created perceptions that those marginalized by gender, race, or nationality do not regularly create intellectual property worthy of legal protection.¹⁶

As important as it is to think critically about the ways the terms indigenous, traditional, race, and marginality are deployed, the language of gender requires similar treatment. Specifically, how do the definitions of women, gender, feminism, and queer inform studies of intellectual property?¹⁷ Historically, "woman" as a category has been highly politicized.¹⁸ Much of this politicization circulates around feminism calling for a dismantling of systems that privilege masculinity as a normative mode of operation. Feminism also intersects with concerns of racial inequality, ageism, and classism, creating powerful collaborative forces of systematic change. Beyond women and feminism, gender is a broader category examining spectra of feminine and masculine identities and providing a

16. See, e.g., Riley, *supra* note 15.

17. Martha Albertson Fineman, *Feminist Legal Theory*, 13 AM. U. J. GENDER SOC. POL'Y & L. 13 (2005).

18. See generally DENISE RILEY, AM I THAT NAME? FEMINISM AND THE CATEGORY OF WOMEN IN HISTORY (1988); JOAN WALLACH SCOTT, GENDER AND THE POLITICS OF HISTORY (1999).

framework to discuss social and cultural constructions of power.¹⁹ However, since women were initially the subjects of inquiry, gender and women are often incorrectly conflated, thus flattening the political value of the term. In the realm of historical studies of intellectual property, this conflation has led to efforts aimed at finding “where the women are,” to focus only on sanctioned accomplishments through patents, copyright, or law, while overlooking gendered power structures. A focus on gender exposes how systems, structures, language, and law, are not neutral.²⁰ It reveals how changing and evolving notions of masculinity and femininity are policed over time. Though not the focus of this Article, the language of queering reveals transgressions and subversions of convention. Margaret Davies suggests that “property in its technical sense is already somewhat queer, because it has lost its distinct identity, meaning that the relationship of the person to the object is no longer hierarchical and direct, but rather is mediated by the complexity of multiple legal relations.”²¹ Thus, there are many ways in which conceptions of intellectual property could benefit from more expansive readings of gender, in its various forms. Ideally, studies of intellectual property would look more closely at the assumptions about gendered identities and those power structures imbedded in constructions of intellectual property.

With this agenda, we will veer away from the patent as a site of intellectual property production and lean more toward the tools of commodification to understand gendered knowledge production.²² Lillian Gilbreth’s survey displays how non-patentable knowledge about women and their consumptive practices became a form of intellectual property, valuable enough to be commodified and sold to Johnson & Johnson.²³ We will argue that Gilbreth’s 1927 document, “Report of Gilbreth, Inc.,” opens a window into the translation of woman-situated knowledge into patentable intellectual property. Gilbreth’s position as an expert on women and their consumptive practices effectively situated her with the power and authority

19. See SANDRA HARDING, *THE SCIENCE QUESTION IN FEMINISM* 30-36 (1986) (listing obstacles to theorizing gender); Ellen van Oost, *Aligning Gender and New Technology: The Case of Early Administrative Automation*, in *GETTING TECHNOLOGIES TOGETHER: STUDIES IN MAKING SOCIOTECHNICAL ORDER*, 179, 180 (Cornelis Disco & Barend van der Meulen eds., 1998) (discussing gender symbolism as a method of legitimizing the position of men and women in society).

20. See CAROLE PATEMAN, *THE SEXUAL CONTRACT* 225 (1988) (comparing the use of the term “gender” to “sex” and the consequences of using one over the other); RILEY, *supra* note 18.

21. Margaret Davies, *Queer Property, Queer Persons: Self-Ownership and Beyond*, 8 *SOC. & LEGAL STUD.* 327, 332-33 (1999).

22. See generally *RETHINKING COMMODIFICATION* 8-24 (Martha M. Ertman & Joan C. Williams eds., 2005) (providing a definition used in commodification theory, law, and cases).

23. See generally, GILBRETH, *supra* note 8; GRAHAM, *supra* note 1.

to transform this data about women into a proprietary knowledge product.

As marginalized indigenous, racialized, or gendered communities struggle for recognition as citizens within various societies, intellectual property is not often a salient concern. Yet, within growing global regimes of exchange, the politics of creating, owning, and, most importantly, controlling various forms of intellectual property, has become exceedingly relevant. The conceptual idea of translation provides a means to understand how cultural and social knowledge of marginalized people is converted into a form readable and recognizable by those investing in the extraction of this knowledge for financial gain.

We will begin with race and draw upon the literature of African American inventors to display why it is important to move away from patents and the patent office as the dominant site for understanding the production of intellectual property by racially and/or gender marginalized peoples in the United States. From there, we will use Lillian Gilbreth's study and her role as a translator of vernacular knowledge about women and their bodies to understand how social and cultural knowledge was transformed into intellectual property during the early twentieth century.

II. WOMEN'S BODIES, VERNACULAR KNOWLEDGE, AND INTELLECTUAL PROPERTY

Race is an informative location to begin, when conceptualizing or theorizing the historical relationships between women and intellectual property. Historically, women and people of color have been marginalized within American society. Though the processes, tactics, and effects of marginalization are not analogous or reproduced in the same way, the outcomes of limiting opportunities and access have been somewhat similar. For example, women and African American people were disenfranchised through myriad tactics, including poll taxes, intimidation, and legislated limitations on voting rights, with the goal of delimiting access to those who would potentially alter existing structures of political power. In relation to technology, invention, design, and the ability to garner financial support and governmental protection for intellectual property, women and people of color had to overcome perceptions of intellectual inferiority. In the United States, African American people had to contend with the perceptions of intellectual inferiority wrongly prescribed to brown skin tones.²⁴ Similarly, women—due to their lack of masculine attributes—were perceived as the weaker sex.²⁵

24. *See generally* EDUARDO BONILLA-SLIVA, *RACISM WITHOUT RACISTS: COLOR-BLIND RACISM AND THE PERSISTENCE OF RACIAL INEQUALITY IN THE UNITED STATES* (2003).

25. *See generally* GAIL BEDERMAN, *MANLINESS AND CIVILIZATION: A CULTURAL*

Often, one of the most effective techniques to contest deleterious racialized or gendered assumptions is to produce an exceptional individual. These African American or female “greats” are very familiar to most audiences in the United States. During moments like Black History Month every February and Women’s History Month each March, women’s and African American people’s “firsts” are celebrated as racial and woman champions. Sadly, these heroic firsts can be interpreted as the end point of gender and racial discrimination; similarly, the candidacies of Hillary Clinton and Sarah Palin and the election of President Barack Obama can be viewed as the starting point of a post-racial and post-feminist America.²⁶ In present times, these narratives and displays do not further our collective understandings of race or gender dynamics.

Fouché’s work on African American inventors argues against the reductionist understanding of African American inventive work.²⁷ More important, this work contends that, when understanding technological relationships of racially marginalized peoples, it is more valuable to examine their experiences from their locations within American society and culture rather than from dominant subject positions reflecting back onto black lives.²⁸ This approach, of turning analytical energy in a different direction—a direction that focuses upon marginalized experiences—can be effectively leveraged to think about women and intellectual property in the early twentieth century. This Article aims to perform a conceptual shift to refocus our analytical lenses onto the lived experiences of women and the knowledge they have about themselves, their identities, and their bodies. This will help us to more clearly understand how this information makes its way into patented and commodifiable objects.

To explore women’s experiences and intellectual property, familiar ways of examining these relationships have to be rethought. As effective as existing approaches are in understanding the workings of intellectual property rights ownership, they are lacking in their abilities to think through women’s creative acts that fall outside of the realm of organizations that grant intellectual property rights claims.²⁹

HISTORY OF GENDER AND RACE IN THE UNITED STATES, 1880-1917 (1995).

26. See generally ROBERT E. PIERRE & JON JETER, *A DAY LATE AND A DOLLAR SHORT: HIGH HOPES AND DEFERRED DREAMS IN OBAMA’S “POST-RACIAL” AMERICA* (2010) (evaluating how President Obama has influenced American racial views).

27. See FOUCHÉ, *supra* note 12, at 9-25 (arguing that the historical reduction of black inventors conceals their humanistic characteristics and hides the reality of their stories).

28. See *id.* at 2-8 (contending that the demystification of the pristine image of the black inventor will allow for a greater understanding of the role and impact of these inventors on technology and society).

29. See generally RILEY, *supra* note 18; JOAN WALLACH SCOTT, *supra* note 18; Martha Albertson Fineman, *Feminist Legal Theory*, 13 AM. U. J. GENDER SOC. POL’Y & L. 13 (2005); van Oost, *supra* note 19, at 180.

Unfortunately, these theories do not address the theoretical absence of women from their models and do not consider what these omissions can tell us about the nature of intellectual property in the United States. In many cases, perceptions of what "counts" as intellectual property are deeply intertwined with deleterious representations of the gendered "other."³⁰ In other words, technological activities that cannot be effectively categorized within the familiar forms of intellectual property fall to the wayside. By looking to the wayside and understanding that the locations of women within American society are the historical byproducts of a businesslike effort to "fix" gender within American culture, a new set of questions to explore intellectual property and women's lives can emerge. Questions arise about how intellectual property has been "gendered" throughout American history and how to understand and see women as creators and interpreters of women-centric intellectual property. New questions will produce a more textured understanding of the roles that women have played as producers, shapers, users, and consumers of intellectual property within American society and culture.

In an effort to move away from familiar institutions of legitimation, Fouché developed the phrase "black vernacular technological creativity" to define the ways in which African American people resisted and strategically appropriated the material and symbolic power of technology.³¹ He developed this model because existing approaches for understanding technological knowledge production were limited in their ability to "address the wide variety of technological experiences that fall outside of the realm of dominant cultural experiences."³² Fouché characterized black vernacular technological creativity as "innovative engagements with technology based upon black aesthetics [resulting] from resistance to existing technology and strategic appropriations of the material and symbolic power and energy of technology."³³ Through such an approach, African American people have reclaimed and possessed different levels of technological agency. The general idea is that many types of technological creativity take place in spaces and locations that are often not deemed of value to this study.³⁴ This has regularly been the experience of people of

30. See van Oost, *supra* note 19, at 179-99 (analyzing gender influences on the terminology of computer systems).

31. See Rayvon Fouché, *Say it Loud I'm Black and I'm Proud: African Americans, American Artifactual Culture, and Black Vernacular Technological Creativity*, 58 AM. Q. 639, 641 (2006) (defining "black vernacular technological creativity" as a process of engaging material artifacts as opposed to using black-informed expressive representations of technology).

32. *Id.* at 642.

33. *Id.* at 641.

34. See *id.* (noting that the existing approaches to the study of technology lack focus on creation, development, and use of technology by those who are racially

color and women. In thinking about gender and intellectual property, stripping down this framework and focusing on the vernacular can effectively inform discussions of gender and intellectual property.

We will use the term “vernacular” to illuminate the everyday experiences of women. Margaret Lantis, in arguing for the use of vernacular culture, contends that commonplace experience cannot be effectively understood through the terms “mores,” “folkways,” or “customs.”³⁵ She wrote, “all are somewhat inadequate, first, because they fail to suggest any organizing principle; second, because their connotation is chiefly tradition, the past, even suggesting lack of present adaptation; [and] third [because] . . . custom . . . [as a] common sense concept that has served as the matrix for the development of the concept of culture remains somewhat more connotive, subjective, and affect-laden.”³⁶ Though other scholars have developed the use of vernacular culture since Lantis’s article in 1960, the idea of moving away from older, more static terms to language that more fully represents the contours of how everyday experiences evolve is still valuable.³⁷ The vernacular can be used to talk about the ways women’s localized, regional, or racial experiences can be relational and connected. In specific, we are interested in exploring the ways that vernacular bodily experiences are extracted, translated, and commodified. Yet, the contribution that we would like to make may be interpreted as counterfactual to existing work on women and intellectual property. Instead of asking the familiar question about how processes of making, acquiring, and exchanging commodifiable intellectual property subjugated women, we are more interested in exploring how one acquired vernacular knowledge and transformed this knowledge into data that potentially had commercial and patentable value during the early twentieth century.

We will trace one recursive, or feedback, loop connected to women’s knowledge about their bodies. Historically one’s knowledge and experience about his or her body is considered of little value in terms of something to be traded or exchanged. Yet, one of the oldest techniques of transferring this knowledge into a valuable form has been the use of consumer surveys.³⁸ Not surprisingly, most of these surveys focused on

marginalized).

35. Margaret Lantis, *Vernacular Culture*, 62 AM. ANTHROPOLOGIST 202, 202 (1960).

36. *Id.*

37. See Gena Dagal Caponi, *Introduction*, in SIGNIFYIN(G), SANCTIFYIN’, AND SLAM DUNKING: A READER IN AFRICAN AMERICAN EXPRESSIVE CULTURE 1, 1 (Gena Dagal Caponi ed., 1999) (using expressive culture such as music and dance to identify cultural aesthetics).

38. George J. Stigler, *The Early History of Empirical Studies of Consumer Behavior*, 62 J. POL. ECON. 95, 95 (1954) (explaining that quantitative analysis on differences in consumption of poor and rich families existed as early as the 1790s).

income and demand, rather than on the ways women engaged in consumption. For many analysts, the "dangerously stimulated" female consumer problematically influenced the early twentieth century marketplace.³⁹ However, Lillian Gilbreth, through her survey of women and their consumer desires, extracted a data set of woman-situated knowledge. Although it is noteworthy that Gilbreth interviewed women in the survey, what is truly unique about her survey is that she helped translate this knowledge into a form of intellectual property valued by Johnson & Johnson, which employed her team for this specific task.⁴⁰ The Gilbreth team encoded and repackaged the interviewees' immaterial set of utterances into a report.⁴¹ Once Gilbreth turned over the report to Johnson & Johnson, all that needed to be done was for the engineering and design teams to utilize the data in the report by embedding the salient information into marketable consumer products, thus returning the women's own knowledge back to themselves as purchasable items.⁴²

Once this feedback loop is closed, the simplest reading of this exchange is that, once again, a corporate institution has exploited women by mining their bodies for financial gain. But, can this loop be read differently? New work by scholars in feminist technology studies conceptualizes more positive and activist readings of women and material culture.⁴³ In light of this work, could Gilbreth and her team be seen as subversively injecting Johnson & Johnson with feminist politics by enabling them to produce a feminist technology?

III. THE GILBRETH REPORT: EXTRACTING, COMMODIFYING, AND PACKAGING

Lillian Gilbreth's work for Johnson & Johnson has received varying degrees of interest over the last several decades. Vern Bullough first

39. See generally Sheryl Kroen, *A Political History of the Consumer*, 47 *HIST. J.* 709, 724 (2004) (noting that in the early twentieth century, good middle-class women were transformed into an important consuming class).

40. See GRAHAM, *supra* note 1, at 217-20 (showing that in 1926, the president of Johnson & Johnson asked Lillian Gilbreth to conduct and market a consumer analysis of the use of his company's products, which greatly enhanced the company's marketing strategies by presenting a better understanding of women's needs than any other manufacturers did).

41. See *id.* at 219 (explaining that Gilbreth was chosen to conduct a study that consisted of interviews from college women, college graduates, faculties, and other people, because of her ability to communicate with young women).

42. See *id.* (noting that Gilbreth's report to Johnson & Johnson also affected the company's engineering component, suggesting designs that would better suit women based on the report).

43. See, e.g., Linda Layne, *Introduction*, in *FEMINIST TECHNOLOGY* 1, 24 (Linda Layne et al. eds., 2010) (concluding that her goal in her work is to foster feminist technologies that will enhance women's lives).

brought the survey to scholars' attention in 1985 in the journal, *Signs*.⁴⁴ He presented it as an archival find, and re-printed a few pages of the document in his short piece. Susan Strasser uses the survey to demonstrate the origins of planned obsolescence, arguing that the creation of disposable goods was a result of conscious decision-making rather than effects of unintended consequences.⁴⁵ Biographers of Lillian Gilbreth, such as Laurel Graham, make note of the survey because it was crucial in Gilbreth's effort to maintain the viability of Gilbreth, Inc. after her husband's death and reposition herself as the leading expert directing a corporate consulting business in the early twentieth century.⁴⁶ Sharra Vostral utilized Gilbreth's meticulous findings on women's menstrual practices and purchases to understand how menstrual hygiene products participated in a history of technological passing by women.⁴⁷ Though the survey, as a document, can serve many ends, it is useful to situate it in the broader context of intellectual property. Gilbreth produced knowledge about women and converted it into a proprietary knowledge product to be bought, sold, and exchanged. It was not a patented object, copyright, or thing, but the survey consisted of extremely valuable social and cultural data, in which Gilbreth packaged the knowledge to be sold. What is most powerful about Gilbreth's survey was that it translated tacit knowledge about women's bodies into a material form legible to Johnson & Johnson.

The Gilbreth survey must be understood within the emerging women's suffrage and women's rights movements in the late nineteenth and early twentieth centuries. Politically, many women sought full equality with men, yet remained loyal to women through political solidarity. The ratification of the Nineteenth Amendment in 1920, which guaranteed certain women the constitutional right to vote, forever reshaped the

44. See Vern Bullough, *Merchandising the Sanitary Napkin: Lillian Gilbreth's 1927 Survey*, 10 *SIGNS: J. WOMEN CULTURE & SOC'Y* 615, 615-27 (1985) (explaining that Gilbreth's report to Johnson & Johnson in 1927 gives the most complete information about women's experience of menstruation in the 1920s).

45. See SUSAN STRASSER, *WASTE AND WANT: A SOCIAL HISTORY OF TRASH* 9 (1999) (submitting that "disposability" succeeded largely because it empowered people with a sense of wealth).

46. GRAHAM, *supra* note 1, at 94-95 (emphasizing that Lillian Gilbreth found it hard to continue her firm's business after her husband's death because she was a woman in a male-dominated industry).

47. See Sharra Vostral, *Masking Menstruation: The Emergence of Menstrual Hygiene Products in the United States*, in *MENSTRUATION: A CULTURAL HISTORY* 252 (Andrew Shail & Gillian Howie eds., 2005) (emphasizing the importance of Gilbreth's survey because it provided the most detailed accounts to date of women's preferences in menstrual hygiene technology); SHARRA VOSTRAL, *UNDER WRAPS: A HISTORY OF MENSTRUAL HYGIENE TECHNOLOGY* 61 (2008) [hereinafter VOSTRAL, *UNDER WRAPS*] (stating that the results of Lillian Gilbreth's 1927 survey concerning products and practices of menstrual hygiene offers important information about numerous technologies and women's overall dissatisfaction with the technologies at the time).

political landscape of the United States.⁴⁸ This “New Woman” exercised her freedom by leaving the home to enter the workplace, matriculating to colleges and universities in greater numbers, and embracing her potential as a wage-earning consumer.⁴⁹ This female workforce would come to dominate office labor pools in positions including stenographers, typists, operators, and transcribers, offering these women new levels of economic mobility. This new sense of an independent self enabled some young women to feel comfortable remaining unmarried for longer than women of previous generations, while not sublimating their sexual identities.⁵⁰ This attitude reframed companionship, intimacy, and pleasure for both heterosexual and homosexual relationships. Many women questioned the politics of marriage, sought professions based upon their inclinations and skills, and began appreciating the pleasure of leisure and consumption of new products. The New Woman expressed the evolving cultural shift by America’s citizenry to a distinctly modern and decidedly un-Victorian nation.

Corporations recognized women’s purchasing power, but were often not particularly astute at discerning needs, wants, and desires. There has been a substantial amount of attention paid to advertising during this important era of the rise of the corporation as a means to cultivate devoted customers and consumers.⁵¹ A less recognized aspect is the development of market research undergirding such promotional campaigns. Early inquiries were quite informal, with corporate men asking female secretaries or wives about product preferences, with letters from customers also providing some insight.⁵² This changed when R. W. Johnson hired Lillian Gilbreth as a consultant for its new product, Modess sanitary napkins.⁵³ For a fee of \$6,000, she conducted comprehensive marketing research on sanitary

48. See NANCY COTT, *THE GROUNDING OF MODERN FEMINISM* 62-63 (1987) (stating that the passage of the amendment caused all areas of society to call for a new social order, particularly where women had entered the traditionally male-focused industries such as steel and lumber mills).

49. See VOSTRAL, *UNDER WRAPS*, *supra* note 47, at 64 (explaining that women’s increased presence in work and college led the media to dub them “New Woman”).

50. See JOHN D’EMILIO & ESTELLE B. FREEDMAN, *INTIMATE MATTERS: A HISTORY OF SEXUALITY IN AMERICA* 266 (1988) (stating that availability of birth control and the growing independence of women made sexual expression of women more easily available outside the context of marriage).

51. See GRAHAM, *supra* note 1, at 199 (describing how entrepreneurs in the early twentieth century used new advertisements, market research, and promotional tactics to design markets for new consumer goods under the popular economic theory that consumption is the path to a better society).

52. See *id.* at 217 (noting that companies depended largely on occasional feedback from random consumers).

53. See *id.* at 217-20 (noting that Robert Johnson, president of Johnson & Johnson, hired Gilbreth to conduct marketing surveys which altered the design, package, and marketing strategy for the company’s new Modess napkins).

napkin use and submitted her findings in 1927 as “Report of Gilbreth, Inc.”⁵⁴

Gilbreth’s educational training, skill, and intention defined her unique approach. She assumed that women would purchase products regardless of quality due to the necessity of the products; after all, if women were going to purchase these products anyway, why not make the products better?⁵⁵ Her goal was to improve women’s lives through consulting with large corporations like Johnson & Johnson in order to advise them on how to improve products for women. The studies she conducted extended far beyond the traditional and overly simple method of asking questions to easily accessible secretaries and wives.⁵⁶ Her research showed the limitations of provincial, local, and proximity-based research on women with a direct or indirect financial connection to the researcher.⁵⁷ She conducted a full-blown ethnographic study of women’s menstrual hygiene practices across the United States, devising methodology, standards of decorum for her researchers, and data sets legible to corporate men at Johnson & Johnson.⁵⁸

Johnson & Johnson called upon Gilbreth because the company saw the sanitary napkin market expanding quickly and recognized that Johnson & Johnson could not compete with the industry leader, Kimberly Clark Corporation, and its Kotex line.⁵⁹ Kotex controlled at least 75% of all sanitary napkin sales; Johnson & Johnson’s Nupak held less than 2% of the market, and its Lister’s Towels a fraction of 1%.⁶⁰ The poorly performing Lister’s Towels (1896) and abysmal sales of Nupak made Johnson & Johnson apprehensive about continuing in this market. If Johnson & Johnson wanted to close the gap on Kimberly Clark Corporation, it was going to have to quickly gain a competitive advantage. Making the decision to apply social scientific research and launch a sanitary pad was

54. See VOSTRAL, UNDER WRAPS, *supra* note 47, at 69.

55. See *id.* at 67 (noting that women in general needed menstrual hygiene products to function in society).

56. See *id.* at 71 (explaining that Gilbreth conducted more than a thousand field surveys to various young women in colleges and jobs).

57. See *id.* at 69 (explaining that Johnson & Johnson sought Gilbreth’s service in order to obtain more accurate marketing data); see also GRAHAM, *supra* note 1, at 221 (stating that Gilbreth’s method broadened the relationships that existed between worker and machine or consumer and product).

58. See GRAHAM, *supra* note 1, at 218 (emphasizing that historians consider Gilbreth’s report as the most complete information available regarding women’s experience with menstruation in the 1920s).

59. See VOSTRAL, UNDER WRAPS, *supra* note 47, at 68 (noting that Johnson & Johnson was ready to tap into the wealth of female consumers at the time using comprehensive market research through Gilbreth’s methods).

60. See GILBRETH, *supra* note 8, at 62 (noting that, out of 1037 women, 788 chose Kotex, 86 chose Curads, 36 chose Venus, 20 chose Nupak, and 6 chose Lister’s Towels).

one of the only ways Johnson & Johnson might find new consumers and convert loyal Kotex users to its product.

Johnson & Johnson hired Gilbreth, but she brought her own woman-center research agenda to the project. She had a strong sense of what a "good" sanitary napkin should be. Based on this rough idea, she concentrated her research questions on how sanitary napkins appealed to the five senses.⁶¹ Visually, the napkin needed to look both "attractive" and "sanitary," while simultaneously satisfying tactile desires to feel soft. Additionally, the new napkin needed to properly respond to "kinaesthesia, or muscle sensations" thereby making it comfortable and useable with all types of bodily movements. In developing this new product, Gilbreth was equally sensitive to women's auditory response to the napkin and associated packaging. The report stated that any new napkin should "be made of material which will not crackle or make any kind of noise," including, "opening the package, unwrapping the napkin, adjusting, and so forth through to the final disposal."⁶² Gilbreth wanted this new product to grant women newfound agency and control of their menstrual cycles through better body mechanics.

In the report, Gilbreth first explained to Johnson & Johnson why directed social scientific research on women and their menstrual habits was necessary.⁶³ The report estimated that in 1926, "approximately 30,000,000 women between the ages of 13 and 45" menstruated.⁶⁴ Assuming that a woman menstruated 13 times per year and used 11 pads each period for approximately 32 years, or 416 menstrual cycles, the report calculated that a woman's lifetime napkin use would be 4,576. Based on these calculations, just one third of the U.S. market represented roughly 45 billion sanitary napkins.⁶⁵ For Johnson & Johnson, and any other corporation in this market space, this was a profitable market waiting to be exploited.

The survey sought "to secure a comprehensive opinion on the requirements of an ideal sanitary napkin."⁶⁶ Gilbreth and her staff used

61. *See id.* at 12 (describing how a proper napkin must meet eight different sense criteria in order to take advantage of the market for college women and business women).

62. *See id.* (stating that the packaging should be removed easily without being unsightly).

63. *See id.* at 9-10 (arguing that while the subject may be "taboo," such a study was necessary because all competing products at the time were "probably wrong and not designed to meet actual needs").

64. *See id.* at 15 (stating that the ages cited referred to the onset of menstruation and menopause as denoted by the leading medical textbook of the day).

65. *See id.* (asserting that commercial sanitary napkins were in common use only by college educated women and business women).

66. *See id.* at 14 (recognizing the investigation had to cover as much geographical area as possible and had to analyze various types of women).

questionnaires, focus groups, and directed interviews to acquire data. Gilbreth began this project by first approaching college presidents, deans, and faculty members of hygiene departments in order to gain access to college-educated women as well as ascertain their views concerning sanitary napkins.⁶⁷ She then directed her research staff to facilitate conferences at different colleges with specific target groups to acquire a better understanding of the benefits and shortcomings of currently available products.⁶⁸ Finally, they sent 3,000 questionnaires to a cross-section of women, of which 1,037 were returned (1,000 college and business women and 37 high school students).⁶⁹ Though she may have wanted a higher yield, Gilbreth noted that those who participated displayed “great interest . . . in the possibility of a new sanitary napkin, and questions were frequent as to when it would appear, what name it would bear, and who was manufacturing it.”⁷⁰ These early results indicated to the Johnson & Johnson Company “the friendly interest and the potential market it has developed for their napkin.”⁷¹

The survey began by asking the basic question on usage: “What type of napkin do you use? How many each period? Per year?” After which, the questions turned to purchasing practices: “Where do you buy your supplies? Why?”⁷² As expected, the women who responded had strong opinions about the different brands. One woman complained that “Kotex are always too big and they are so stiff and square. I hate them, but always seem to get them—since they’re cheapest I suppose.”⁷³ Another woman, who questioned her own preferences after attending a discussion group, reported: “I think the Modesses are good, but everyone seemed to think that the gauze was awfully harsh. Most of them use napkins whose containers are soft like a union suit.”⁷⁴ She offered the critique, “I think the ends could be more rounded although I suppose that is a small point. Otherwise,

67. *See id.* at 4, 6-8, 10 (establishing that the study would approach government agencies, non-governmental organizations, and women at various colleges).

68. *See id.* at 6-8 (stating investigators passed out questionnaires, held conferences, and conducted interviews to gain insight into desirable characteristics for sanitary napkin).

69. *See id.* at 15-16 (determining that ninety-one percent of college and business women and seventy-three percent of high school women surveyed used commercial sanitary napkins).

70. *Id.* at 14.

71. *Id.*

72. *See id.* at 5 (providing a copy of the questionnaire used and asking in depth questions about the positive and negative characteristics of the brand of sanitary napkin used).

73. VOSTRAL, UNDER WRAPS, *supra* note 47, at 73.

74. *See GILBRETH, supra* note 8, at 66 (noting that the responses by college women from Smith and Wellsey were equally divided on the favorability of the Modess brand sanitary napkin and more than half stated the Modess sanitary napkin was uncomfortable).

these are fine. I do wish the gauze could be changed because it is apt to be irritating."⁷⁵ Collectively, the respondents voiced varying concerns about napkin coverings. The women agreed that all the companies underestimated the importance of comfort.

In conjunction with the interviews and surveys, Gilbreth and her team dissected fifty-three of the available pads on the market in a laboratory setting.⁷⁶ Gilbreth made no claims of objectivity, and initiated the product comparison assuming that "all existing equipment is probably wrong."⁷⁷ Sanitary pads either "have been copied from a homemade product," or a "hospital pad designed for obstetrical use," which was too large and bulky.⁷⁸ In both cases, they were "not designed to meet the actual needs" of menstruating women.⁷⁹ In addition, "the present sanitary napkin is too long as to front tab and too short as to back tab."⁸⁰ Beyond the pads, their research found the accompanying accessories harbored a new set of problems. The wide elastic belt disintegrated with frequent laundering, narrow belts curled, and safety pins rusted and tore holes in fabrics.⁸¹ The Gilbreth team's lab research did not paint a very positive picture of the functional usability of menstrual products on the market.

Concerns were not confined to the product's materials; the seemingly benign issue of the packaging proved to be a significant issue as well. The report indicated, "the containers are conspicuous and ugly, and therefore it is unpleasant to purchase napkins or carry packages or have them about one's room."⁸² On this issue of packaging, "244 of these same users considered the package conspicuous, 207 that it is inconvenient to carry, 175 that it is too large, 115 that the napkin is uncomfortable, 108 that it is the wrong size."⁸³ Furthermore, "the boxes measuring around 6 1/2" x 9" x 3 1/2" are distinctive in shape. We know of no other container on the

75. *See id.* (detailing questionnaire responses about the adequacy of the protection of the new Modess brand sanitary napkin).

76. *See id.* at 23-34 (analyzing sanitary napkins' size, shape, thickness, disposability, and the materials used to make the product, including cotton, paper, gauze, and mesh).

77. *See id.* at 9 (stating that the investigation needed to study thoroughly the way the sanitary napkin and all its accessories would be used and how the product would be packed so as to design, make and test the "one best" sanitary napkin).

78. *See id.* at 9-10, 31 (noting that the purpose of the study was to enable Johnson & Johnson to design, make and test the "one best" sanitary napkin).

79. *See id.* at 10 (arguing that the needs of the college woman would be best for studies because they set trends in clothing that business women and others are inclined to follow).

80. *See id.* at 13 (noticing that sanitary napkins were difficult to adjust and remove and came in only one size).

81. *See id.* (revealing that accessories for sanitary napkins were expensive and did not meet the expectations of younger generations).

82. *Id.*

83. *Id.* at 18.

market like them. They are awkward to carry and conspicuous, and many girls are embarrassed to be seen carrying them.”⁸⁴ Gilbreth recommended Johnson & Johnson redesign the box to resemble other kinds of containers thereby minimizing its distinctiveness. “The containers measuring 3 3/4” x 9” x 3 3/4”, for example, look like graham cracker boxes, and there is nothing objectionable about carrying them.”⁸⁵ Gilbreth advised Johnson & Johnson to stop obsessing about what colored packaging women would gravitate towards because they may want to reuse the box and noted with exasperation, “No one would want to keep the container no matter how attractive it was.”⁸⁶ Later, when Gilbreth surveyed women concerning whether or not they kept the boxes, women’s replies ranged from a “disgusted ‘Hell, no!’ to the sarcastic, ‘I use them for sending Christmas presents.’”⁸⁷ These types of responses confirmed Gilbreth’s sentiments that women were thoughtful, sophisticated, and savvy consumers.

Upon completing the materials study, her team examined the names chosen for the various products. Gilbreth, in her no-nonsense way, upbraided each company for naively branding its products with names women found misleading, confusing, and sometimes offensive. She was mystified that companies did not understand that their brand names should invoke a positive, or at least neutral, association in women’s minds about their products. One after another, Gilbreth humorously displayed multiple examples of misguided branding:

Bev-Dot #19: This is a strange name. We have no use for it; L. B. Sanitary #24: If you have to say *sanitary*, you may as well add napkin; Eagle Brand #25: A buyer would be lucky if she got what she asked for under this name instead of cheese or baby’s milk; A. R. Williams #48: Why give an article like this a man’s name!⁸⁸

Gilbreth was attempting to attune Johnson & Johnson to the sophistication of female consumers and their possible reaction to a poorly branded product. With names like “Flush Down Ideal,” which was “most offensive and we can’t imagine anyone asking for it,” or “S. S. Napkin,” which sounded like a naval ship, Gilbreth drove home the point to Johnson & Johnson that respecting women as intelligent consumers was of utmost importance.⁸⁹ Gilbreth bestowed the most praise on the name Kotex,

84. *Id.* at 45.

85. *Id.*

86. *See id.* at 46 (articulating that the containers should be inconspicuous and plain colored, foregoing any decorative designs, because customers objected to overly designed boxes).

87. *See id.* at 47 (suggesting that the boxes did not need to be especially durable because women do not need to want keep the boxes).

88. *Id.* at 39-42.

89. *Id.* at 37-44 (noting that the sanitary names for sanitary napkins should be inviting to female consumers).

coined by Johnson & Johnson's industry rival Kimberly Clark, because it discretely signified a sanitary napkin without actually using the words sanitary or napkin in the branding.⁹⁰ However, the inconspicuous nature of the Kotex brand led to unforeseen social misunderstandings among men and women. Gilbreth reported that "one young man at a mixed dinner party said, 'I wish someone would tell me what Kotex is.'"⁹¹

Although Gilbreth highlighted the problems with branding and advertising, ninety-one percent of the women surveyed purchased manufactured pads.⁹² Not surprisingly, only sixteen percent reported that they were satisfied with either homemade or manufactured napkins.⁹³ Gilbreth characterized this number as noteworthy because it indicated that there was "something lacking in the commercial napkins [currently] available."⁹⁴ The survey also asked, "Do you alter the napkin before you use it?"⁹⁵ It revealed that women were highly adept at modifying, or hacking, the sanitary napkins, and redesigning them to fit their own bodies. Women's favorite modifications included shortening the tabs, cutting the corners, or thinning the filler.⁹⁶ To deal with the raspy texture of pads, women regularly applied cold cream or Vaseline to soften the edges of the gauze.⁹⁷ The preferred pads to hack were those made by Kotex. Kimberly Clark assisted this hacking by including instructions on how to disassemble the pad, soak the parts, and then flush gauze and filler piecemeal down the toilet.⁹⁸ While women found the claims of flushability highly dubious, instructions that licensed taking the pads apart did endow women with a new level of technological agency.⁹⁹ Gilbreth suggested that youthful women were the consumers most likely to embrace this technological

90. See VOSTRAL, *supra* note 47, at 67 (maintaining that the success of the Kotex brand was a direct result of the discretion their product offered to women with its inconspicuous name and packaging).

91. GILBRETH, *supra* note 8, at 41.

92. See *id.* at 15 (indicating that while girls often opted to make their own napkins while living at home, women generally turned to commercial products upon entering college or business, creating an abundant market for manufacturers).

93. See VOSTRAL, UNDER WRAPS, *supra* note 47, at 72 (explaining that Gilbreth's survey indicated that many found manufactured napkins inconvenient to carry, too large, and uncomfortable, and women who made their own lacked space to store materials and had little time to make them).

94. GILBRETH, *supra* note 8, at 16.

95. *Id.* at 5.

96. See *id.* at 18 (noting that fifty-one percent of the women surveyed admitted to making such changes—altering the napkin in its entirety in the process).

97. *Id.* at 76.

98. See VOSTRAL, UNDER WRAPS, *supra* note 47, at 72 (asserting that women chiefly altered Kotex because of Kimberly Clark's claim that the napkins' malleable form allowed them to be flushed down the toilet without incident).

99. See GILBRETH, *supra* note 8, at 22 (recognizing that the "demands of modern styles" and the active lifestyles of college women required a sanitary napkin that provided comfort without being cumbersome).

agency and experiment with new products and designs. Armed with the evidence she collected, Gilbreth concluded that women were highly unsatisfied with the products available to them at the time, and that if a “desirable napkin [was] placed upon the market, women [would] have no hesitation in buying it.”¹⁰⁰

IV. GENDER TRANSLATION

As a gender translator, Lillian Gilbreth was quite effective. Robert W. Johnson not only took note of Gilbreth’s findings, but also implemented many of her recommendations.¹⁰¹ Significantly, a comparison of patents granted to Johnson before and after her survey revealed quite different objects. On May 27, 1902, the Patent Office issued Johnson patent #700,938 for a bandage “particularly suitable for a catamenial bandage.”¹⁰² In the patented bandage, Johnson claimed that he had created a new way to capture fluid through a “series of layers of ruffled cellulose tissue or paper,” with “a layer of absorbent paper over said ruffled paper.” This configuration most certainly would have made a crumply sound (following as figure 1). Based on Gilbreth’s findings it is doubtful that any such product would have seen much commercial success.

When Johnson received patent #1,705,366 for a sanitary napkin on March 12, 1929 (following as figure 2), nearly twenty-seven years later, his design was significantly improved. This pad looked, sounded, and felt decidedly different than the bandage of 1902 and was undoubtedly enhanced by Johnson’s incorporation of Gilbreth’s suggestions. The quick turnaround time between the distribution of Gilbreth’s report on January 1, 1927 and Johnson’s submission of a patent application on May 24, 1927 demonstrated the immediate profitability of her research.¹⁰³ Many of the recommendations presented in the final pages of the report emerged in language found in the patent application and in the very design of the sanitary napkin.¹⁰⁴ Specifically, Gilbreth advised that Modess have

100. *Id.* at 17.

101. See VOSTRAL, UNDER WRAPS, *supra* note 47, at 74 (noting that Gilbreth’s recommendations to make a product that was invisible and market it to the younger generation resulted in a series of successful new advertisements by Johnson & Johnson called “Modernizing Mother”).

102. U.S. Patent No. 700,938 (filed Mar. 1, 1902).

103. See VOSTRAL, UNDER WRAPS, *supra* note 47, at 5 (articulating that Johnson & Johnson’s improved sanitary napkin “Modess” was the direct result of incorporating Gilbreth’s suggestions, the introduction of which “heralded a new era in menstrual hygiene”).

104. Compare GILBRETH, *supra* note 8, at 133 (recommending that Johnson & Johnson produce a napkin that is both secure and absorbent with rounded sides) with U.S. Patent No. 1,705,366 (filed Mar. 12, 1929) (detailing the absorbent and comfortable nature of Johnson’s proposed sanitary napkin, free of excess bulk with a new and improved shape).

"rounded sides with cotton wrapping[;] . . . soft filler with soft gauze covering[; and,] . . . gauze folded completely over the filler and its raw edge turned under."¹⁰⁵ The prototypes that Gilbreth's team tested in its lab featured "cut off corners" that Gilbreth urged Johnson & Johnson to attempt where "mechanical difficulties [were] not too acute or expensive."¹⁰⁶ Finally, while "inconspicuousness" and "disposability" were significant features, "answers to the questionnaires prove[d] emphatically that comfort [was] the first and most important requirement to be considered."¹⁰⁷

In his patent application, Johnson articulated that the new and improved Modess napkin was designed to "present a pleasing appearance, be highly efficient, readily disposable and as soft and conformable as though filled with absorbent cotton."¹⁰⁸ Designed with Gilbreth's findings in mind, the pad was thicker in the middle, tapered, and "decline[d] to feather edges," directly correlating with Gilbreth's recommendation to "cut off corners" to make the pads less bulky and better fitting.¹⁰⁹ According to the patent, by removing heft "where bulk is not necessary and ought not to be[.]" the new construction insured "comfort without the hazard of inefficiency."¹¹⁰ Furthermore, Johnson's claim that this sanitary napkin was "possessed of attributes to meet modern requirements of hygiene and dress" exemplified the results obtained from Gilbreth's extensive survey and provided the basis for the construction of a napkin better designed to fit the needs and wants of the modern woman but sounded like a statement straight from the mouth of Lillian Gilbreth.¹¹¹ Gauze folded around the entire pad encased in soft filler, and the pad had a new tapered shape designed for the modern women.

Through her research about women's bodies and their needs and desires, Gilbreth converted knowledge and packaged it into data points, which engineers then successfully embedded into new objects. Ironically, Gilbreth, with the characteristic success of a good translator, disappeared from the final product, leaving only Johnson with a state-sanctioned patent and ironically granting him legal protection to the ideas contained within.¹¹² Although he repeatedly referred to this new sanitary napkin as "my invention," it was inaccurate for Johnson to claim ownership of the design

105. GILBRETH, *supra* note 8, at 133.

106. *Id.*

107. *Id.*

108. U.S. Patent No. 1,705,366 (filed Mar. 12, 1929).

109. *Id.*

110. *Id.*

111. *Id.*

112. *See id.* (describing the Modess napkin, conceived almost entirely based on Gilbreth's findings, as "[Johnson's] invention" in his patent application in 1929).

that he neither created nor researched, despite his ownership right to the product under the law of intellectual property. Without Lillian Gilbreth's success as a gender translator and the input of over one thousand women, Johnson & Johnson would have been at a competitive disadvantage in the business of sanitary napkins.

Gilbreth had no illusions about receiving further acknowledgement or compensation from Johnson & Johnson. She fully understood her role as a consultant and facilitator to provide readable information to a scientific model of commodity production. At the same time, Gilbreth was shrewd in protecting her work and ensuring that the gendered knowledge she passed along continued without her. In the last numbered recommendation of the report, she strongly advised "that a woman be added to the staff of Johnson and Johnson and that all products be submitted to women for inspection of design and tests for actual use."¹¹³ She warned not to create "laboratory devices for testing" because "[t]he product must be tested by various types of women who make maximum demands of some sort."¹¹⁴ She cautioned the company to be selective in their hiring process and to employ an "intelligent woman" able to seek out problems and "trace [them] back to the ultimate causes," reasoning that, "an unintelligent tester would be worthless or worse because their findings might encourage the development of a poor product or discourage the development of a good one."¹¹⁵ Gilbreth was aware of the difficulties involved in finding a good gender translator, but once employed, a competent one could provide extremely useful knowledge, and therefore profitable data about women.

It is arguable that Lillian Gilbreth's 1927 survey for Johnson & Johnson, translated women's vernacular experiences into a gendered knowledge product. Johnson & Johnson in turn embedded Gilbreth's findings into improved sanitary pads, thereby commodifying the data, the women, and their experiences to create better products for many women. Gilbreth's work is also an example of women informing intellectual property. This expands our knowledge by filling in the blanks but is not as useful in pushing the boundaries of the field. Her work is also arguably feminist.¹¹⁶ She undertook a novel approach in 1927 with a goal of providing women with a better product that would improve "prior conditions" and take women's needs, wants, and desires into account.¹¹⁷ The development of

113. GILBRETH, *supra* note 8, at 133.

114. *Id.* at 133-34.

115. *Id.* at 134.

116. Debora Halbert, *Feminist Interpretations of Intellectual Property*, 14 AM. U. J. GENDER SOC. POL'Y & L. 431, 446 (2006) (arguing that the feminist interpretation of intellectual property hinges on the notion that construction of knowledge is inherently masculine, emphasizing the individuated male at the expense of female contributions).

117. Deborah Johnson, *Sorting out the Question of Feminist Technology*, in

better, disposable, and reliable sanitary napkins set in motion a revolution in bodily freedom and mobility for women, a revolution that was largely immeasurable and invisible to a masculine system of progress. Gilbreth, however, had no interest in undermining the ways that femininity or masculinity operated. In contrast, she required the stability of these notions to effectively package opinions, based upon traditional worldviews, as accurate data to Johnson & Johnson.

Despite her accomplishments, the question remains as to whether Lillian Gilbreth's work ultimately produced gendered intellectual property? This is a very difficult question to answer, but it illustrates the value of a historical approach. Historical methods allow researchers to see and hear the people that do not appear in patent records that may have fundamentally formed, shaped, and contributed to ideas receiving intellectual property protection. First and foremost, Lillian Gilbreth's experience demonstrates the historical invisibility of women in certain forms of intellectual property production. If Gilbreth had received a patent for Johnson & Johnson's new sanitary pad or appeared on any part of the final patent application, her contribution would have been more visible. Following the traditional intellectual property trail, Gilbreth and her work do not exist. She was not a salaried employee of Johnson & Johnson, and the company had no reason to acknowledge her contribution in any formalized manner.¹¹⁸ Her work is revealed only by moving in the opposite direction, beginning with an investigation of Gilbreth herself and her relationship with Johnson & Johnson before examining the patent records. This masculine corporate intellectual property phenomenon applies to myriad instances in the early-twentieth century where women contributed to forms of intellectual property. It is inherently difficult to work in this direction because one must first locate these individuals. Historically, there was little incentive for corporations to highlight the accomplishments and valuable work of individuals outside, as well as inside, the company. Similar to other early-twentieth century industrialists, such as Thomas Edison, the corporate leader was the solitary owner of all intellectual property rights.¹¹⁹ In the case of Johnson & Johnson, the men in the lab

FEMINIST TECHNOLOGY, *supra* note 43, at 42 (asserting that technology is considered feminist when it improves prior conditions or creates more gender-equitable social relations than those established by a previous technology or in the broader culture generally).

118. *See, e.g.*, U.S. Patent No. 1,705,366 (filed Mar. 12, 1929) (crediting Robert W. Johnson, exclusively, with the creation of the new and improved sanitary napkin to the detriment of Lillian Gilbreth whose work contributed enormously to its invention).

119. *See* WACHHORST, *supra* note 11, at 91 (explaining that Edison Lamp Works was removed from control and his name was deleted from the company title when General Electric, formed from Edison power industries in 1889, merged into a trust under J.P. Morgan in 1892).

were ignored as well as the women, and the negotiation between the laboratory staff and Gilbreth and her team is not documented. Ultimately, however, Gilbreth served as a successful gender translator, facilitating this exchange skillfully.

While the innovative women who contributed to technological advances often go unrecognized, it is particularly fruitful to locate these individuals because we can learn a great deal from them. They are skilled at translating knowledge and hold a degree of expertise, power, and authority to convert information into a readable format, especially to technical and scientific stakeholders. Revealing the translation of vernacular experiences of women outside of the power structures demonstrates that there is much interesting intellectual exchange of valued ideas that does not appear in records of intellectual property, similar to that of traditional knowledge. If a fuller understanding of the relations between gender and intellectual property is desired, more Lillian Gilbreths and fewer Robert Wood Johnsons are sorely needed.

No. 700,938.

Patented May 27, 1902.

R. W. JOHNSON.
BANDAGE.

(Application filed Mar. 1, 1902.)

(No Model.)

Fig. 1.

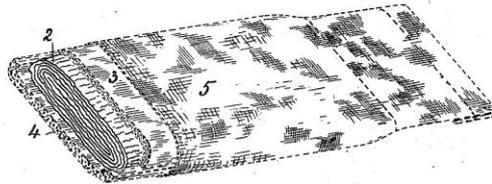
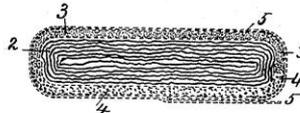


Fig. 2.



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THE MORRIS PETERS CO., PHOTO LITHO., WASHINGTON, D. C.

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SANITARY NAPKIN
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Fig. 1.

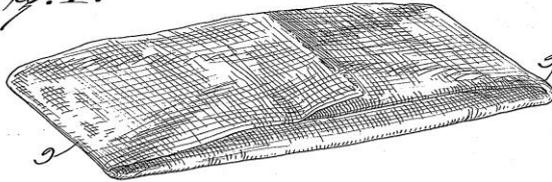


Fig. 2.

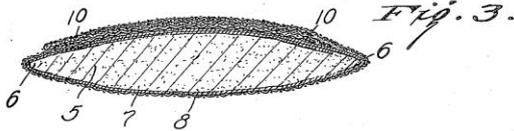
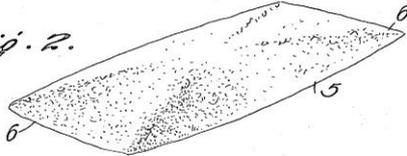


Fig. 3.

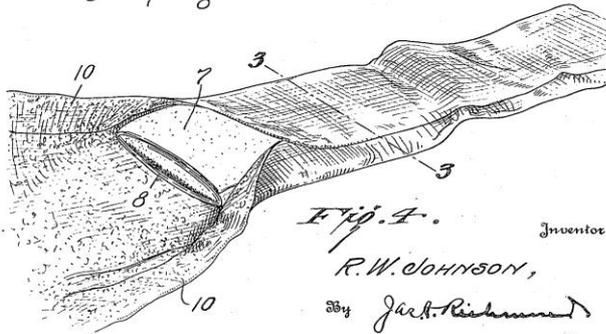


Fig. 4.

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