

Practical Genius: Science, Technology, and Useful Knowledge in Godey's Lady's Book

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Abstract: *This article explores the ways in which the popular nineteenth-century periodical Godey's Lady's Book challenges three binaries: the arts (or humanities) versus the sciences, domesticity versus the world of work, and ornamental versus useful knowledge. Through an analysis of articles featuring content from what we today would refer to as the science, technology, engineering, and math (STEM) fields, I argue that although the Lady's Book is known primarily for its fashion plates, stories, and how-to guides, its inclusion of detailed, technical information and diagrams of scientific processes and innovations indicates that it meant to initiate women into a discourse about science and technology.*

Keywords: *science, engineering, technology, extracurricular education, literacy sponsors, nineteenth-century America, Godey's Lady's Book, useful knowledge*

In a recent article in *Peitho*, Jordynn Jack examines the gender-coded messages about roles for boys and girls as “future scientists and engineers” contained in scientific toys (n.p.). Whereas toys in the early twentieth century encouraged boys to participate in “pseudo-scientific institutes” and to imagine themselves as future scientists and engineers, similar toys marketed to girls appear only more recently, and, in Jack’s words, the “scientific and technical elements” are “feminized” in order to “limit the disruptive potential of these toys, confining them safely within the pink world girls are used to” (n.p).

Jack’s article calls attention to the fact that despite efforts to include women, science in the twenty-first century is still predominantly seen as male, technical, and insular. Contemporary discussions of the cultural barriers against the entry of women and girls into scientific fields suggest the need not only to interrogate gendered associations with the sciences but also the superficial (but culturally entrenched) barriers between disciplines. This is evident in recent efforts to encourage women and girls to enter STEAM fields, which adds an “a” for arts to the traditional “STEM” acronym, in an attempt

to increase interest among girls in STEM fields through the use of art.¹ Ann Ruggles Gere's et al.'s work on disciplines and disciplinarity, citing work by Paul Prior and Anne Marcovich and Terry Shinn, similarly challenges the bounded and bordered nature of our conceptions of the sciences and of writing in the disciplines ("Interrogating Disciplines/Disciplinarity"). Such scholarship points to the need to continue to blur and cross boundaries, engaging in work that contests assumptions about gender, hierarchy, science, and the arts.

In this article, I explore the ways in which the popular nineteenth-century periodical *Godey's Lady's Book* challenges three such binaric lenses: the arts (or humanities) versus the sciences, domesticity versus the world of work, and ornamental versus useful knowledge. In many cases, these binaries overlay each other, so that the first terms in each of the binaries, "arts," "domesticity," and "ornamental" are associated with each other on one side, while "sciences," "work," and "useful" are on the other. Of course, embedded in all of these binaric lenses are assumptions about men's and women's spheres, in which women are more often associated with domesticity and ornamental knowledge in particular, while men, seen as public creatures, occupy the worlds of science and work.

Recalling Gere et al.'s imperative to investigate "borderland interactions that call upon 'resources belonging to other disciplines,'" this article attempts to locate the places in which simple binaries can no longer function as explanatory devices and to interrogate those spaces between that point to more textured and complex systems of relationships, not only between science and the humanities but between men's and women's work, public and private, and useful and ornamental knowledge ("Interrogating Disciplines/Disciplinarity" 245). Particularly when it comes to women's work in the nineteenth century, exploring the ways in which publications like the *Lady's Book* offered extra-curricular scientific content for women readers, in Nina E. Lerman's words, "demands attention to boundaries and to 'others': to science versus not-science; to technology versus art, or craft, or nurture; to engineering 'knowledge' versus artisanal skill" (42). The articles I examine from the *Lady's Book* are clear evidence of the blurriness of these categories, as they often wed technical knowledge with craft and invite women into discussions about the ways in which technology was changing not only their work in the home, but also public spaces like printing houses, shipyards, marble works, and foundries. They

1 For example, The National Science Foundation recently funded a collaborative project for the University of Alaska at Fairbanks, the University of Alaska Museum of the North, and the University of Washington-Bothell "to bring optics and biology content to art-interested girls through art-infused science experiences" ("Collaborative Research: Project STEAM").

also created openings for women to take interest in topics often associated more with men, including applied sciences like engineering.

In order to investigate the way in which messages about science and useful knowledge were communicated in the nineteenth century, I analyze articles featuring content from what we today would refer to as the science, technology, engineering, and math (STEM) fields from *Godey's Lady's Book* in the mid-nineteenth century, focusing particularly on a series called "Everyday Actualities," written by wood engraver Cornelius T. Hinckley. This series answered a perceived desire on the part of women to expand their scientific and industrial knowledge. I focus on the *Lady's Book* because by virtue of its wide readership, it was an influential extracurricular sponsor of literacy during the nineteenth century, as well as a significant force in the popularization of science in nineteenth-century America.² Here, I make reference to Gere's term "composition's extracurriculum," which she defines by pointing to the "need to uncouple composition and schooling . . . to focus on the experiences of writers not always visible to us inside the walls of the academy" ("Kitchen Tables" 79).³ My use of the term "sponsor" invokes the work of Deborah Brandt and gestures towards the way in which the *Lady's Book* acted as an agent that "enable[d], support[ed], taught, and model[ed], as well as recruit[ed], [and] regulate[d]" the literacy of its readership (*Literacy* 19). As editor, Sarah Josepha Hale frequently used the magazine, which Louis A. Godey premiered in Philadelphia in 1830, to advocate women's education, and she clearly meant the *Lady's Book* to serve as a means for its readers, predominantly middle-class to elite white women, to not only participate in this cause but also to continue their education by reading it.⁴

Past research on the *Lady's Book* attests to its influence and wide reach. Although it was not the first women's magazine in America, the *Lady's Book* was the first to become successful nationwide, reaching a circulation of 150,000 by the start of the Civil War, "the highest circulation of any magazine distributed in America," according to Laura McCall (217). It was, as Alexandria Peary

2 Alexandria Peary's article, "Walls with a Word Count: The Textrooms of the Extracurriculum," also uses Brandt's idea of sponsorship to examine the way in which *Godey's Lady's Book* offered women the opportunity to engage in informal writing beyond the classroom.

3 Gere points to the *Lady's Book* as an example of this extracurriculum, referring to the ways in which it offers "considerable advice to writers[,] . . . includes material on the technology of writing[, and] . . . gives attention to the processes of writing" ("Kitchen Tables" 79).

4 Because Hale's influence over the content of the *Lady's Book* was so significant, most studies of the periodical discuss her history and career at length. Although this influence is important to the present article, I do not recapitulate it and instead point readers to studies by Patricia Okker, Nicole Tonkovich, Alison Piepmeier, and Nina Baym.

notes, “the preeminent journal of its time,” with more subscribers “than the influential Dial” and a publication history that spanned most of the nineteenth century (“Eliza Leslie’s” 224). Because it included articles featuring science and science-related topics from its inception, the *Lady’s Book* offers an interesting glimpse into science and women’s education in nineteenth-century America, as well as into the ways in which technology and industry were presented as part of this education. I argue that although *Godey’s Lady’s Book* is known primarily for its fashion plates, stories, and how-to guides for housewives, its inclusion of scientific content, which contained detailed, technical information and diagrams of scientific processes and technological innovations, indicates that it meant to initiate women into a discourse about technical, scientific information as well, and that it did not see including this content as either superfluous to women’s education or in direct contrast to other more “domestic” or “ornamental” content. Instead, the *Lady’s Book* positioned “useful knowledge” for its readership as containing a wide spectrum of both technical and craft-based, artisanal information, suggesting the fluidity of these categories. My analysis of the “Everyday Actualities” also reveals that it appeared to be inviting women to take part in scientific inquiry not only as a way of learning more about the products in their homes but also to participate in it as patrons and in quasi-professional ways. This contention goes against previous work that has seen women’s contributions to scientific knowledge in publications like the *Lady’s Book* in more narrowly domestic terms.

Science and Domesticity in Scholarship on the *Lady’s Book*

Criticism on *Godey’s Lady’s Book* often focuses on the issue of how strictly it delineated the sphere of knowledge appropriate for women. Early scholarship primarily discussed its role in maintaining the conservative values about women’s role in public discourse. According to these critics, literacy in the *Lady’s Book* was explicitly connected to women’s performance of domestic tasks, like educating children and keeping house. The ideal of Republican Motherhood was based on the assumption that women, as the more moral of the sexes, “exemplified the neoclassic virtues of citizenship” and “integrated [these] political values into her domestic life,” including the education of children (Linda Kerber qtd. in Nicole Tonkovich “Rhetorical Power” 161). Barbara Welter, whose idea of “the cult of true womanhood” influenced scholarship on the *Lady’s Book* for decades, argues that even though the it might have appeared progressive, its articles merely reinforced the four cardinal virtues by which women were to be judged – “piety, purity, submissiveness, and domesticity”

(152). However, recent scholarship challenges both the assumption that publications like the *Lady's Book* merely relegated women to private sphere and the idea that we can so easily categorize women's activities as public or private. McCall contends that a systematic analysis of the women characters shows that "for the majority of women [depicted in *Godey's Lady's Book*] (64.5%), the presence or absence of domestic abilities simply was not discussed" (226). McCall, as well as others like Tonkovitch and Alison Piepmeier, demonstrate that early assumptions about the magazine's depiction of women as private, domestic creatures were overstated.

Although statements by public figures of the time like Catharine Beecher and Sarah Josepha Hale seem to add credence to the notion of separate spheres of action for men and women, as Margaret Nash argues, looking at women's educational opportunities through the lens of these figures' statements produces a skewed view of what women were actually learning and doing. Nash argues that although the "paradigm of 'separate spheres' . . . was present in prescriptive literature . . . many historians agree that the phrase did not reflect the reality of women's experiences, and that the spheres never were all that separate" (*Women's Education* 9). Similarly, Mary Kelley's work "challenges the familiar model that divides the nineteenth century into private and public, feminine and masculine, household and marketplace" (5). In other words, the dichotomies we have used to interpret women's intersections into public discourse, including the circulation of scientific knowledge, have produced oversimplified accounts of women's science education.

Very little scholarship has focused on scientific content in the periodical, and here the assumption that women's literacy in the *Lady's Book* is connected to domesticity (and that this was its way of justifying its usefulness) is also evident. Jan Pilditch, for example, argues that although articles in the *Lady's Book* "did disseminate scientific information" they did so "only insofar as it was useful within the limits of the domestic female sphere" (24). Even Nina Baym, who presents one of the most thorough accounts of scientific content in the *Lady's Book* (and one I reference frequently here), argues that it was "both progressive and conservative," clarifying, "it was progressive because it elevated women's minds and launched them into modernity; it was conservative because it assimilated women to the domestic sphere" (12). This last statement implies, however, that knowledge of science was most "useful" when it connected with women's work at home. Domesticity, in this sense, becomes a space in which women's work gets confined, much like the "pink world" referenced by Jack. Although works by Baym and Pilditch call attention to the *Lady's Book's* scientific content, they also reinforce the assumption that as a women's magazine, its primary goal was delivering ornamental and domestic content, such as the

fashion plates, stories, and articles on needlework and music that are more often the focus of scholarship on the *Lady's Book*.

Baym terms what Hale was advocating as “domestic science,” which presumes “that women should learn the sciences in connection with everyday duties” (50). However, as Kim Tolley has argued, the prominence of this domestic science rhetoric belied the widespread teaching of pure science that went on in girls’ schools during the first half of the nineteenth century (57). On first glance, some of the articles in the *Lady's Book* appear to reinforce the notion that science is only useful insofar as it connects to women’s roles as educators of children. While it is tempting to see any publication associated with Hale in terms of domesticity,⁵ science in the *Lady's Book* often had only a tangential relationship with women’s work in the home. Domesticity, embodied by references to objects in women’s homes, functions as the articles’ *context*, while much of the *content* is dedicated to detailed, technical explorations of the industries and scientific processes involved in producing these items.

Defining Useful and Ornamental Knowledge in *Godey's Lady's Book*

Much of the confusion about the inclusion of scientific and industrial content in the *Lady's Book* arises from anachronistic interpretations of the word “useful” as it is used in the periodical. Understanding this term’s relationship with “ornamental” content, as well as with many of the other terms in the binaries I mentioned earlier, including “arts,” “domesticity,” and “science,” provides a clearer picture of the kinds of education intended for its readership. In the nineteenth century, useful and ornamental knowledge were often treated as complementary, rather than opposing terms. This is evident in the title page for each issue of *Godey's Lady's Book*, which follows the periodical title with three descriptors, “Useful, Ornamental, and Instructive,”⁶ all of which point to the fact that, though famous for its fashion plates and stories, the *Lady's Book* intended to instruct women in what it calls the “useful arts” (Hinckley “Bleaching of Calico” 421).

5 Hale was, after all, responsible for popularizing many of the traditions associated with Thanksgiving and was the author of a cook book as well as titles like *Boarding Out: A Tale of Domestic Life and The Good Housekeeper: or, The Way to Live Well and to Be Well While We Live*.

6 References to “useful knowledge” were ubiquitous in nineteenth century America, as they were in the eighteenth when figures like Benjamin Franklin, David Rittenhouse, and Benjamin Rush, founders of organizations for science like Philadelphia’s American Philosophical Society and, later, the Franklin Institute, pursued ways of thinking they thought would benefit the new nation.

The term “useful” in the nineteenth century, though referencing pragmatic and vocational ends, was broader in its meaning and connotations than it is today. Donald Scott argues that for nineteenth-century Americans, “almost all knowledge was potentially useful” (801). Lerman contends similarly that both the terms “useful knowledge” and “technology” might refer to “needlework as well as metalwork, spinning as well as mining” (39). As Lerman’s words indicate, the boundaries between what was considered “useful” and “ornamental” were not fixed, and a number of occupations and pastimes might be considered both useful and ornamental. Likewise, Nash contends the term “ornamental” is often misinterpreted. Nash maintains that for many historians, the term “ornamental” “meant a frilly pursuit for women that coded a particular class-based definition of femininity,” when in fact it referenced a number of different subjects for both women and men, some of which were “decidedly vocational” (“A Means” 48).

Understanding these terms in their historical context changes the way we might read much of the content in periodicals like the *Lady’s Book*; articles on art and music, far from merely being frilly or decorative, could be ways of inviting women into careers in these subjects, especially during a time when some women were being educated formally in the fine arts as a way to prepare them for a number of vocations.⁷ Similarly, articles labeled as “useful” might not have immediate, vocational ends or reference production as they would in the twentieth and twenty-first centuries. In particular, though past scholarship on the *Lady’s Book* has read its frequent references to useful knowledge in terms of fostering women’s ability to keep house or raise and educate children, this varied, less narrow way of reading the term “useful” opens up other possibilities for how articles in the *Lady’s Book* might have been received and challenges the notion that science education, in particular, was only linked to women’s work in the home.

Brandt’s work on literacy sponsorship also sheds light on this broader, less bounded and static interpretation of the term “useful,” in her argument that while nineteenth century conceptions of literacy would have acknowledged the potential for literacy to mold individuals into the right kind of citizen, they would resist the idea of literacy as production. Literacy in the nineteenth century, according to Brandt, “mattered most for what it supposedly did to people, not for what people supposedly could do with it” (“Drafting” 490). She contends that “the ability to read and write was . . . regarded as a duty to God or democracy,” whereas now it is “a duty to productivity” (*Literacy*

7 See Nash’s “A Means of Honorable Support: Art and Music in Women’s Education in the Mid-Nineteenth Century,” which I reference above, for an extended discussion of career and educational opportunities for women in the fine arts during the nineteenth century.

26).⁸ This is an important consideration in that it involves suspending twentieth and twenty-first century conceptions of literacy as merely a means to an end in order to gain a better perception of the kinds of literacy the *Lady's Book* was sponsoring. In essence, usefulness often seemed to be a way of noting an article or story's potential for educating its reader; what the reader *did* with this education was up to them.

Useful and Ornamental Knowledge in the “Everyday Actualities”

The “Everyday Actualities,” series, according to a brief description featured in *American Periodicals*, “provided a detailed and readable behind-the-scenes look at the manufacturing process of products that would be familiar to the readers of *Godey's* (Susan Williams, Steven Fink, and Jared Gardner 103). The title, “Everyday Actualities,” was meant to draw attention both to the fact that the processes being described were “everyday” and thus had a habitual and common connection to the “everyday” activities of its readership and to the fact that these “actualities” were “from real observation” (Hinckley “Ornamental Ironworks” 7).

Baym describes the series, saying that “Each article described the mechanical processes and connected them to an academic science: chemistry for bleaching; geology for artesian wells; organic chemistry for food preparation; mineralogy for diamonds” (46). The first four articles in the series focus on textile manufacturing, which is linked to chemistry and mechanics, before Hinckley turns to a description of “mechanical operations” involved in large printing houses, such as the one that created *Godey's Lady's Book* (“A Day's Ramble” 307).

Table 1 below gives a sense of the topics covered by the articles, including some of the scientific and industry-specific terms used in each article. All of the articles, except for a few at the end of the series, feature detailed engravings by Hinckley, many of them systems diagrams used to aid his descriptions of the mechanical processes taking place at the factories he presents. In fact, Hinckley's occupation as an engraver is perhaps why Hale selected him to author the series, rather than picking a woman author.

8 Brandt sees attitudes towards literacy as changing with World War II, arguing that “Literacy was irrevocably transformed from a nineteenth-century moral imperative into a twentieth-century production imperative transformed from an attribute of a ‘good’ individual into an individual ‘good,’ a resource or raw material vital to national security and global competition” (“Drafting U.S. Literacy” 485). This change in the public's rationale for mass literacy had significant consequences, because it changed literacy “into something extractable, something measurable, something rentable, and thereby something worthy of rational investment” (485).

Table 1: Description of Articles in the “Everyday Actualities” Series^{9,10}

Series No.	Date	Abbreviated Title	Science	Scientific and Industry-Specific Terms	Systems Diagrams	Images of Machinery	Page Length
1	Jun. 1852	Bleaching of Calico	chemistry	bucking, souring, chemicking	2	3	5.5
2	Jul. 1852	Calico-Printing	mechanics	cylinder, mill, lint doctor	2	3	5
3	Aug. 1852	Calico-Printing (Cont.)	chemistry	dunging, fugitive colors	2	4	5
4	Sept. 1852	Calico-Printing (Cont.)	mechanics	cylindering, patent finish, falling lap	0	4	4
5	Oct. 1852	Mechanical Dept. of the 'Lady's Book'	mechanics	pie, galley, footsticks	0	5	8.5

9 In the nineteenth century, many of the divisions between the sciences did not exist, or didn't exist in the same way they do today, making it sometimes difficult to assign a specific scientific category to each of the articles. For example, fields that we might today refer to separately as “applied mechanics,” or “mechanical engineering” might have been grouped together, perhaps referred to as the “mechanic arts.” In categorizing the “Everyday Actualities,” I used the category of “mechanics,” a term Hinckley uses often, to refer to articles that discuss the motion of machinery but which I would not categorize as pure physics. I use the term engineering to refer to articles that specifically discuss engines.

10 Hinckley divided the article on “Calico-Printing” into three installments so that he could first focus on the “mechanical portion” of the process before turning, in the second installment, to the “chemical portion” (9). In the third of the “Calico-Printing” articles, Hinckley returns primarily to a discussion of mechanical processes in his description of calendering.

6	Nov. 1852	Bookbindery of Lippincott, Grambo, & Co.	mechanics	vellum, fools- cap folio	4	5	10
7	Jan. 1853	Spring Garden Marble Works	geology, engineer- ing	poggio, lizzi, regulator	0	5	10
8	Mar. 1853	Manufacture of Gas and Gas-Fixtures	chemistry, physics	condens- ing, retorts, governor	0	4	7
9	Apr. 1853	Dyeing	chemistry	purpurum, buccinum, alum	0	4	5.5
10	May 1853	Manufacture of Bristles	mechanics	hair-pencil, dressing, set-dusters, trepanned	0	1	4
11	Jul. 1853	Ornamental Ironworks	mineralogy	stack, clinker, flask, breast	0	3	11.5
12	Oct. 1853	Artesian Wells	geology	strata, Jura limestone, bétoir	3	0	8
13	Nov. 1853	Artesian Wells (Cont.)	mchanics, geology	auger, aper- ture, solder	10	1	5.5
14	Dec. 1853	Enamel and Enamelling	chemistry, mechanics	vitreous, galli- pot, shoulder, firing	0	1	5.5

15	Jan. 1854	Dolce Campana Attachment Piano-Fortes	mechan- ics, engi- neering	horse power, sound- ing-board, bottoms	0	7	8.5
16	Feb. 1854	Dolce Campana Attachment Piano-Fortes (Concl.)	mechanics	lock-board, shellacked, crescendo	0	3	6.5
17	Mar. 1854	Manufacture of Paper	botany, engineer- ing	papyrus, chiffoniers, bucking keirs,	2	2	8.5
18	Apr. 1854	Manufacture of Artificial Flowers	botany	irons, calyxes, bracts	0	0	5.5
19	May 1854	Painting on Velvet	botany	full-green, azure	1	0	2.5
20	Jun. 1854	Preservation of Food	organic chemistry	pairs of ele- ments, binary compounds, putrefaction	1	0	7
21	Jul. 1854	Day at the Ship-Yard	naval engi- neering	mould-loft, spinning oa- kum, trenails	0	0	8.5
22	A u g . 1854	Second Day at the Ship-Yard	naval engi- neering	knees, part- ners, coam- ings, carlings	0	0	9
23	Sep. 1854	Lapidary Work	mineralogy	slitting-mill, carnelian, gim-peg	7	0	8.5

24	Oct. 1854	Diamond and its Uses	mineralogy	kuara, brilliant, culasse, girdle	8	0	9.5
25	Nov. 1854	Silk-worms	zoology	floss, coccon, aurelia	0	0	2
26	Dec. 1854	Manufacture of Buttons	mechanics	blank, shanks, fly-press	0	2	3.5

Hale and Hinckley framed the “Everyday Actualities” series using the rhetoric of useful knowledge from its inception. Announcing the series in the June 1852 issue, Hale says, “We continue, in this number, our series of *useful* articles,” which she describes further as “beautifully illustrated” and “sure . . . [to] please all our readers” (“Godey’s Arm-Chair” 518, emphasis mine). Although Hinckley uses the terms “useful” and “practical” throughout the series, he is vague in describing exactly how they are useful to readers of the *Lady’s Book*. However, a brief passage in an article on shipbuilding offers a clue as to how he is imagining the benefits of these articles for readers:

If the reader has expected to become a verifiable ship-builder by the perusal of this sketch, he will doubtless be disappointed; but, if it merely conveys to him some idea of the vastness, the variety, and the ingenuity of the operations involved in the construction of a ship, free from the embarrassment of the technical details necessary in a scientific treatise, the proposed object will have been attained.” (“A Second Day at the Ship-Yard’ 57)

In the passage, Hinckley is careful to frame the article not as a professional discourse or a “scientific treatise” but rather as a popular science publication. The usefulness of the article lies not in that it is a technical manual or that it has the immediate result of enabling someone to build a ship or enter a career in shipbuilding. Rather, usefulness is connected to readers’ self-cultivation and its resultant benefits for society. In reading about these shipyards, they can appreciate the advances made in science and technology and how these advances benefit humanity. It is notable in this passage that the male pronoun is used to describe the reader, even though the *Lady’s Book* is primarily a women’s publication. This could be a nod to the fact that the subject matter of this particular article, ship-building, was largely a male profession, although, as Helen Doe has established, at least in nineteenth-century Britain a number of women were involved in this industry as owners, entrepreneurs

and even ship-builders. More probably, the use of the pronoun establishes a wider readership for the article, including both women and men.

Indeed, in a number of the “Everyday Actualities” the most immediate goals seem to be making readers appreciators or even patrons of science and industry. In this sense, science education in the *Lady’s Book* has a nationalistic impulse in that it forwarded it as a necessary step towards America’s technological and scientific progress during the mid-century in which periodicals were depicting American scientific progress as beginning to come apace of advances in Europe.¹¹ As Tolley says (specifically referencing geography), nineteenth-century promoters of women’s science education believed it could “instill habits of good citizenship, develop national pride, and create public support for surveys or scientific expeditions” (14). These goals, in Tolley’s words, bound together reasons of “utility, nationalism, and self-improvement” (14). Hinckley repeatedly emphasizes the benefits derived from scientific research in his articles, portraying, for example, calico printing as an “art” that is “of great importance to the world” (5, emphasis mine). (“Bleaching of Calico” 421; “Calico Printing” 5). Rather than tying the subjects of these articles to women’s work at home, Hinckley’s words indicate that what is contained within the articles might be of interest to anyone, giving the series a broader importance.

Technical Language in “Everyday Actualities”

Although in the passage cited earlier from the “Ship-Yard” article, Hinckley contends that his articles are free of “the embarrassment of the technical details,” the articles in the series contained a great deal of detailed, technical information. As literacy research has demonstrated, exposure to such language is a crucial means by which initiates into a new discourse become socialized so that they are able to practice its ways of knowing and patterns of language use. Shirley Brice Heath discusses, for example, how fifth grade children in a community in the Carolinas during the 1970s made lists of scientific terms, engaged in scientific methods, and talked about “ways of obtaining and verifying information” (319-320). David Bartholomae argues for the importance of college students being able to participate in the discourses of the university by “learn[ing] to speak our language . . . and try[ing] on the peculiar ways of knowing, selecting, evaluating, reporting, concluding and arguing” (134). Further, Teresa Thonney, citing Robyn Woodward-Kron, points to the ways

11 For example, an 1860 article titled “American Engineering” in *Scientific American* points the fact that the United States no longer has to depend on Europe for the manufacture of tools for working with wood and iron, saying that the United States “will soon shoot further ahead” in both the manufacture of tools and the “superior and rapid construction of machinery” that is dependent on these tools (307).

in which academics use technical language to “denote . . . [their] membership” in their community (356). Although Hinckley specifically characterizes the “Everyday Actualities” as different from publications for science specialists, he invites readers of the *Lady’s Book* into a discourse about science in at least three specific ways: by modeling scientific inquiry in his emphasis on “practical observation,” or empiricism; by using technical, industry-specific terms in the descriptions of the industrial and mechanical processes he observes; and by including illustrations of machinery and diagrams illustrating how this machinery worked (“A Day’s Ramble” 307).

Hinckley frequently draws attention to the close observations he made while touring the factories, using words like “inspect” (“Ornamental Ironworks” 7) and “practical observation” (“A Day’s Ramble” 307) and documenting what he observed in painstaking detail. The following is his description of “casting” at the Ornamental Ironworks of Robert Wood:

While the moulder is employed in his branch, the charger is engaged in getting the *cupola* or melting-pot in working order. The cupola is an upright cylinder, about twelve feet high and thirty-eight inches in diameter, and lined with five inches of fire-brick all around. A certain amount of sand is put in the bottom of this cylinder to keep the iron from running out, and upon the top of this a quantity of wood and coal, after which pig-iron broken in pieces, and also the imperfect castings of the day before. After a certain amount of space is thus filled, coal is again put in, and upon the top of that, iron. At the bottom of the cylinder is an opening called the *breast*. (8)

Hinckley’s description of casting, which continues for another column and a half, calls attention to close observation as a necessary part of scientific research, thus connecting readers to scientific ways of gathering data and understanding the world.

As the above passage indicates, one of the most striking aspects of the “Everyday Actualities” is the level of detail Hinckley gives in his descriptions of the scientific and mechanical processes he witnesses in the factories he tours. Hinckley describes the method for “making a saturated solution of chloride of lime” by including a diagram of a “stone chamber” (“Bleaching of Calico” 422). Detailing the chemical reactions taking place, Hinckley explains,

The chlorine is obtained from common salt – chloride of sodium – by the action of black oxide of manganese and sulphuric acid. About ten hundred weight of salt are mixed with from ten to fourteen hundred weight of manganese, and the introduced, by an aperture at c, into a large leaden vessel of a nearly globular form” (422).

Hinckley's descriptions of chemical processes were similar to the kinds contained in a number of textbooks used in science courses for women's academies in the nineteenth century. These texts, according to Tolley, "omitted symbols, formulae, and calculations, and conveyed principles of chemistry through description and demonstration" (66). Still, as Tolley points out, women's textbooks at the time "were no more elementary in content than . . . texts used in male academies" (67). Following Hinckley's descriptions would have taken a great deal of attention, and he assumes a readership that would be interested and intelligent enough to do so.

As Table 1 on pages 11-12 illustrates, all of the "Everyday Actualities" include a number of industry-specific terms, which, as in the example above, Hinckley italicizes and defines as they arise in his descriptions. The articles gave women the chance to expand their literacy by engaging in other discourse communities and taking on their jargon, which would have been essential for readers of the *Lady's Book* to feel like members of the scientific community. Hinckley's detailed descriptions, which included measurements and definitions, invited readers into both a scientific and ideological discourse and encouraged them to engage in similar observations in order to satisfy their curiosity.¹²

Hinckley further develops women's scientific knowledge by tying his descriptions to diagrams of the instruments used in the factory in order to concretize readers' understanding of these complex processes. An article on "The Manufacture of Paper," for instance, includes images of two engines used to wash wood pulp and process it into paper (see Figure 1). Hinckley describes the mechanisms by which the engines work, saying,

The cylinder C is firmly fixed to the spindle s, which extends across the engine, and is put in motion by the pinion, which engages other wheels set in motion by water or steam-power. The cylinder is of wood, but is furnished with a number of teeth or cutters attached to its surface parallel with its axis, and projecting about an inch from it. Immediately below the cylinder is a block of wood B, also furnished with cutters, so that when the cylinder revolves its teeth pass very near those of the block, the distance between them being regulated by elevating or depressing the bearings //, on which the next of the spindle s s are supported. (52).

Hinckley's description of the engines continues for another column (or half-page), making reference to the letters in the diagram to explain the movements

¹² For example, Hinckley concludes the first installment of "Everyday Actualities," on the bleaching of calico, by including a "Bleaching Experiment for Our Readers" (426).

of the engines. The detailed attention to how these engines work is typical of articles in the series. Forty-two percent of the articles in the series contain figures accompanied by descriptions that refer to labeled parts of the apparatuses being described and 65% contain images of machinery (see Table 1). Following the descriptions would have required some experience with reading diagrams. As in the other articles, the descriptions include specialized terms that would contribute to readers' knowledge of science.

Although ostensibly, articles in the series were attempts to educate housewives about the products already in their homes, the articles themselves contain few references to domesticity or to the link between the scientific content being discussed and women's everyday lives. Instead, articles on science and science-related fields in the *Lady's Book* often used domesticity as their *context* but departed markedly from domesticity in terms of their *content*. This distinction, which I borrow from Tolley's discussion of domestic science, is important because while an article on calico printing might imply that women might be interested in this subject as someone who has purchased or sewn with calico prints, the content often connected only loosely to knowledge women would need to raise children or keep a home, if it did at all.¹³

Most of the "Everyday Actualities" launch right into descriptions of the history of particular scientific or manufacturing process being described and contain no apologia explaining why this information might be of interest to women readers. Other science articles in the *Lady's Book* are framed by a connection to something in women's homes or to a conversation between a mother and daughter (the context), but then include scientific information as their content. For instance, an article titled "Polytechnics: A Conversation" in the October 1861 issue is framed as a conversation (presumably at home) between a girl named Jane and her mother. Jane asks her mother to define "polytechnics," proclaiming, "I heard brother employing it today, and I think he said it came from two Greek words" (E.C.J. 352).¹⁴ However, what follows in the passage is essentially a discourse in which mother persuades daughter of the importance of careers in science and engineering, complete with an invitation at the end to visit Pennsylvania Polytechnic College, indicating the potential for Jane to further her education by touring the college and participating

13 Tolley makes the same point when discussing this "so-called domestic science" in relationship to some of the popular textbooks for children at the time, like Almira Hart Lincoln Phelps' 1834 *Chemistry for Beginners* and Richard C. Parker's 1850 *Juvenile Philosophy: or Philosophy in Familiar Conversations* (58).

14 The format of the conversation as a way for instructing children in science was popular at the time. Jane Marcet's *Conversations on Chemistry* also uses dialogue as a mode for instruction. For a discussion of how the format of dialogue relates to the "polite culture" of the late eighteenth and early nineteenth century, see Bahar, Saba. "Jane Marcet and the Limits to Public Science."

in public lectures and demonstrations (352). In this case, the setting of the article is a domestic scene in which a mother is educating her daughter, but the content of the article points to interests beyond the home.

In the "Everyday Actualities," domesticity seems largely to be functioning as metalinguistic strategy to connect scientific information to products and settings already familiar to women. Women readers of these articles are asked to step outside of their roles at home and become observers of products and processes from the viewpoint of science. In this sense, they are entering into what Heath describes as a "two-way manipulation of knowledge" (321). On the one hand, they can gather new terms from the scientific community and use them as a vocabulary for understanding products and processes both within their homes and in public spaces like artesian wells and shipyards. On the other, domestic knowhow acts as a "fund of knowledge," which Luis Moll et al. refer to as "historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning or well-being," that authorizes them to enter the realm of science (133). Seen from this angle, the implicit references to domesticity in these articles are not attempts to limit women's scientific contributions to the domestic sphere but rather function as "cultural and cognitive resources" for women readers to contextualize the scientific and technical information being presented (Moll et al. 134). Domesticity in these articles functions quite differently from the "pink world" referenced by Jack, instead moving towards enabling women to create what Jack calls "heteroglossic identities" that enable women to take interest in both science and domesticity ("Princess Engineers and Young Inventors" n.p.). Rather than being a space of confinement, domesticity is elevated and connected to science.

Readers today might also interpret religious references within articles on science as evidence of a more conservative or cautious approach to science in the periodical. However, the idea that religion and science were at odds during this time, is, according to Tolley "anachronistic . . . because science was not in conflict with natural theology in the early nineteenth century" (26). Hyman Kuritz concurs that "The notion that science and religion were at war in nineteenth-century America has been thoroughly discredited" (270, footnote). In addition, although Hale sometimes referenced religion in her discussions of science in the "Editor's Table" or "Godey's Arm-Chair" articles, religious references in the "Everyday Actualities" series were rare. In the only one I was able to find, Hinckley links a scientific fact, that iron ore "is often found in immediate connection with the coal and limestone flux required for its reduction" to an assertion that the juxtaposition of these elements was somehow done purposefully for the benefit of mankind ("Ornamental Ironworks" 5). This mention

is brief, however, and does not detract from the technical, scientific information presented in the article.

The Mechanical and the Artistic: Science and Craft Knowledge in the “Everyday Actualities”

Although one of the primary purposes of the “Everyday Actualities” was to educate readers of the *Lady’s Book* in science, the articles didn’t just discuss scientific content, and the science included was, itself, not bounded or purely technical in ways it might be presented today. Instead, for Hinckley, there was an art to science, and science itself was an art. Hinckley emphasizes this throughout the series by repeatedly referencing science’s connections to other subjects, history in particular. Especially at the beginning of many of the articles, Hinckley traces processes being described to previous discoveries before characterizing the ways in which they have evolved based on newer discoveries. For example, in his first article on “Artesian Wells,” he talks about how the term “Artesian Well” comes from research conducted in the French province of Artois on means of discovering subterranean water, before tracing knowledge of these wells and the processes for extracting water to Italy and the “ancients” (295). Passages like this imply that even discussions of recent innovations have historical precedent and that history is important in understanding contemporary scientific advances.

Hinckley further unites science and the humanities by blurring boundaries between humans and technology and between aesthetic, craft knowledge and mechanical skill, reflecting, as Lerman argues, that many of the products and processes falling under the nineteenth-century “rubric of technology” connected to artisanal culture (40). Marcovich and Shinn similarly point out that the “economic expansion that called for enhanced technology . . . [acted] as a spur to both craft and more advanced and formal forms of learning” (37).¹⁵ As Table 2 indicates, the words Hinckley used throughout the series emphasized the connection between useful and ornamental knowledge, as well as science (or technology) and the arts.

15 As Marcovich and Shinn also point out, as many of the applied sciences, like engineering began to open schools in the latter half of the nineteenth century, knowledge in these fields became increasingly technical, utilitarian, insular and professionalized, marking a turn away from the craft-based, artisanal culture that Hinckley seems bent on emphasizing in the “Everyday Actualities” (43-44).

Table 2: Combined References to Useful and Ornamental Knowledge in “Everyday Actualities”

Series No.	Date	Title	References to Useful and Ornamental Knowledge
1	Jun. 1852	Bleaching of Calico	“useful arts” (421)
2	Jul. 1852	Calico-Printing	“mechanic arts” (5)
8	Mar. 1853	Manufacture of Gas and Gas-Fixtures	“beautiful and useful” (198) “art and science” (198) “its presence ornamental as well as useful” (199) “mechanical and artistic operation” (199)
12	Oct. 1853	Artesian Wells	“The formation of Artesian wells in our own day depends on the <i>practical</i> application of the <i>science</i> of Geology to the <i>Useful Arts</i> ” (47, emphasis mine)
14	Dec. 1853	Enamel and Enameling	“An enamel is a vitreous substance used for painting on glass, porcelain, &c., and for covering metals with various kinds of <i>useful</i> and <i>ornamental</i> work” (47, emphasis mine)
19	May 1854	Painting on Velvet	“Papers on <i>ornamental</i> work are exceedingly <i>useful</i> ” (393, emphasis mine)
20	Jun. 1854	Preservation of Food	“it has been improved by . . . chemical discovery and the diffusion of chemical knowledge among persons engaged in the <i>useful arts</i> ” (487, emphasis mine)

Articles in the series acquainting readers with new technological advances, such as the steam-press and roller-printing of fabric, reflect nineteenth-century Americans’ obsession with technology. Scientific lectures at mechanics’ institutes, lyceums, and newly opened polytechnic schools acquainted both men and women with the newest technical innovations. As Tolley points out, “Since the eighteenth century, the American, British, and European public, male and female, enjoyed demonstrations of experiments with magnetism, electricity, and steam” (60). The fact that many of the “Everyday Actualities”

series end with an invitation to the reader to tour the factory or public works being described points to this engrained cultural association between technology, entertainment, and personal cultivation.

Hinckley advocated industrialization and touted the importance and benefits of innovation in the "Everyday Actualities." In the first article in the series, Hinckley describes the "old manner" of bleaching calico, muslin, and cotton in terms of inefficiency:

It required several months' exposure to air, light, and moisture, before the goods were bleached. . . . This process, it will be observed, occupied much time and trouble, and it was in a matter of serious moment to obviate it in some degree. ("Bleaching of Calico" 421)

In the second article in the "Calico Series," Hinckley calls attention to the "invention of cylinder, or roller-printing" as "the greatest achievement that has been made in the art, producing results which are truly extraordinary; a length of calico equal to one mile can, by this method, be printed off with four different colors in one hour, and more accurately and with better effect than block-printing by hand" ("Calico Printing" 7). In both articles, Hinckley attests to the time saved by new machinery as well as the resultant quality of the goods, casting industry in a positive light for an audience of women who were consuming these products. Indeed, as Baym argues, Hale believed that "Even women who worked as mill operatives or domestic servants were better off . . . than they had been in earlier times, for they now worked with such contrivances as mechanical looms, sewing machines, reliable cooking stoves, and spigot faucets" (38). Hale (via Hinckley) thus wanted to emphasize industrialization as progress rather than exploitation and to connect the processes involved in industrial machinery explicitly to women.

The desire to frame industry and innovation in a positive light also makes sense in that, as a mass circulating magazine, the success of the *Lady's Book* depended on technology like the steamroller press that enabled cheap and efficient reproduction of printed text. Hinckley directly states this in "A Day's Ramble" contending, "The advantages of stereotyping for the advancement of literature are incalculable. It makes knowledge cheap, by giving publishers the power of issuing any number of editions of a work without the expense of resetting the types" (307). For Hinckley, the ability to produce cheap literature becomes important for the advancement of mass literacy rather than a capitalist abuse of power. In the context of the *Lady's Book*, the invention of the steamroller press is connected explicitly to opportunities for women to expand their knowledge of science and industry.

The defense of industrialization present throughout the *Lady's Book* reflects a debate that was bubbling to the surface and that itself prompted a

closer consideration of literacy and the lower class. Only two years later, in September of 1854, *North and South*, Elizabeth Gaskell's revealing critique of industrialization in England, was released in serial form, and in April of 1855, Herman Melville's "The Paradise of Bachelors and the Tartarus of Maids," which demonstrated the exploitative conditions of industrialization, appeared in *Harper's New Monthly Magazine*. As Hinckley's words indicate, industrialization was tied in important ways to the ability to read and write; in both England and America, the opening of factories also heralded attempts at efficiently spreading literacy. As Robert Pattison notes in *On Literacy*, "Business and government have much to gain and little to lose from a working class trained to understand written instructions and published notices, and at the same time this skill recommends itself to workers themselves as an accomplishment necessary for economic survival" (151). However, the works of Gaskell, Melville, and, later, John Ruskin also criticized the spread of what Pattison terms "mechanical literacy" because of the rapidity with which it was spread and the ways in which it trained workers not to appreciate literature but to understand factory notices and mechanically obey their dictates (152).

In the "Everyday Actualities," Hinckley's implicit argument seems to be that scientific, mechanical, and industrial processes can also be seen as human, aesthetic, and artistic. He explains the process of "distribution," which involves the compositors returning the types to their cases, as a "most beautiful process," contending that "probably no act which is *partly mental and partly mechanical* offers a more remarkable example of the dexterity to be acquired by long practice" ("A Day's Ramble" 309, emphasis mine). Throughout the series, Hinckley calls attention to the fact that, though efficient, these workers are performing actions that require "care and nicety" as well ("Marble Works" 7). By uncovering the art and beauty in industry, and highlighting the actions of workers as careful and dexterous as well as efficient, Hinckley makes the case that knowledge of these operations and aesthetic knowledge are related, subverting the distinction between the literacy needed to work in a factory and literacy for personal cultivation.

Hinckley's article on the printing of *Godey's Lady's Book* is particularly interesting when read in the context of the ongoing debate about the effects of industrialization. By describing the process by which the *Lady's Book*, one carrier of literacy, was produced, Hinckley links literacy to print culture in a way that undermines critiques of industry as dehumanizing. In the fifth installment in the series, Hinckley explicitly connects "capital," "labor," and "mechanical" operations to the literacy product enjoyed by the reader (307). He reinforces the process and its physical connection to the reader, saying that the article will "trace" the magazine's "progress through the various departments of their extensive establishment until a copy of a finished number of the 'Lady's Book'

is placed in their hands" (307-8). Hinckley is not specific about why readers might be interested in this information, and, indeed, his vagueness points, as I have been arguing, to the broadness of subjects that would be deemed useful for his women readers. He immediately establishes the article as a response to an audience eager for knowledge of print culture, framing the description as an expansion of readers' literacy.

The valorization of labor and craft present in other installments of "Everyday Actualities," is made explicit in "A Day's Ramble." Hinckley explicates the activity of the "compositor in picking up types" as "a matter of much surprise to strangers in the art" because "the boxes holding the types are not labeled" (308). The explanation Hinckley gives is that if the compositors were to look at the boxes they would actually be less efficient than they are when they use touch to feel their way to the correct box: the compositor must use his eyes instead to read the handwriting of the author while he searches for type-boxes (308). Hinckley alternates wonderment over the mechanical efficiency of the laborers and a reference to their work as a craft requiring aesthetic skill. Far from industrialization turning people into machines, Hinckley instead suggests the artistry and humanity inherent in machinery.

Hinckley's descriptions are more striking when compared to Melville's fictionalized account of Devil's Dungeon paper mill in New England in "The Paradise of Bachelors and the Tartarus of Maids," published two years later. The narrator's characterization of the factory is one devoid of humanity:

Not a syllable was breathed. Nothing was heard but the low, steady, overruling hum of the iron animals. The human voice was banished from the spot. Machinery – that vaunted slave of humanity – here stood menially served by human beings, who served mutely and cringingly as the slave serves the Sultan. The girls did not so much seem accessory wheels to the general machinery as mere cogs to the wheels. (88)

Instead of the "fair assistants" at Messrs. Collins who prompt Hinckley to remark, "We cannot say whether the attraction is in the beautiful working of the machinery, or in the faces of the bevy of industrious working girls who attend there" (311), Melville's narrator remarks on the "rows of blank-looking girls with blank, white folders in their blank hands all blankly folding blank paper" (88). In short, the beautiful, living, printed word so carefully crafted at Messrs. Collins becomes in Melville a blank, an erasure of both art and humanity.

Hinckley's descriptions of women workers throughout the series reflect Hale's larger efforts to draw attention to opportunities for women to support their families outside of the home. Piepmeier argues that the *Lady's Book's* position on industrialization reflects Hale's own bodily identification with print

culture. As one of these laboring women, she, in Piepmeier's words, refuses to be "excessively victimized" by print culture "like the shreds of cotton that constitute the paper itself" (186). Of course, one could argue that as an editor, Hale occupied a much different position from the women laborers at Messrs. Collins, but Hale, Hinckley, and Godey's frequent references to the women who worked for the magazine, many of whom hand painted the fashion plates that appeared monthly, suggests that Hale, as a working woman, did identify with these workers.

The *Lady's Book's* advocacy of women workers is reflected in six of the twenty-six "Everyday Actualities," which include descriptions and images of women working in factories. These illustrations are another way in which the *Lady's Book* depicted women in public spaces, demonstrating the fluidity of notions of public and private and showing how scientific and ornamental skill could be used in jobs outside of the home. In the final of the "Everyday Actualities" series, "The Manufacture of Buttons," Hinckley includes two images of women working in button factories and emphasizes that much of this work is done not only "by female hands" but that certain jobs are "the business of women" and are "performed with skill and celerity" (49, 50). The article on "A Day's Ramble" has two engraved images depicting women working the new steam-powered printing presses (see Figure 2 for one of the images).

Hale also uses her December 1854 "Editor's Table" to draw attention to the presence of women in other printing offices and in particular to encourage and support women who wanted to become typesetters. Referring to the Drexel Job-Printing Office in Philadelphia, she states, "If you are sincere, reader, in your profession of good wishes for the necessities of the feebler sex, you will take some pains to throw patronage into the only printing establishment which has ever dared to attempt so bold an innovation" (553). Here she advertises the *Lady's Book* as one of the publications on the forefronts of documenting advances in women's employments and issues a call for women to support each other as workers.

Given that working women are referenced in the "Everyday Actualities" series and that they appear in a number of the illustrations Hinckley engraved to accompany his articles, it appears that the *Lady's Book* was advocating roles for women in science-related fields, giving these articles a more concrete, vocational aim. In the passages cited above, Hale and Hinckley seem to be asking women to offer patronage to efforts to expand opportunities for women's

employment, as well as suggesting paths for women in need of supporting themselves and their families.¹⁶

Conclusion: Beyond “Everyday Actualities”

Although the series “Everyday Actualities” lasted for only two and a half years, the editors of the *Lady’s Book* continued to include content that commented upon the important contributions of science, engineering, and industry until the magazine folded at the end of the nineteenth century. It’s unclear why the series was so short-lived, especially given Hale’s commitment to including scientific content in the periodical. It could be because Hinckley couldn’t continue to author it anymore and Hale was unable to find a replacement who could create high quality engravings to accompany the text. This possibility is supported by the fact that toward the end of the series, a few of the articles, including two on “Boardman & Gray’s Dolce Campana Attachment Piano Fortes,” an article on “Painting on Velvet” and “Rearing and Management of Silk-Worms” don’t contain Hinckley’s by-line. The “Velvet” and “Silk-Worms” articles also are much shorter, and the illustrations not as detailed.¹⁷ In any case, the “Everyday Actualities” document a period in history in which women’s education in science was routine and science and industry still connected to artisanal culture.

Examining nineteenth-century articles on science like the “Everyday Actualities” reveals the extent to which current constructs of science have been represented as separate from humanistic, artistic endeavors. Gere et al. note this in their reference to a STEM-field faculty member’s statement that though his students had to learn to master disciplinary knowledge, their writing is still “writing as a human being” (“Interrogating Disciplines/Disciplinarity” 251). Despite research done by scholars in the rhetoric of science, stereotypes of science writing as purely technical or fact-based persist. A close look at the ways in which the “Everyday Actualities” sponsored women’s extra-curricular science education and gave them access to specialized, technical knowledge while still emphasizing its connections to domesticity and the arts demonstrates that the terms in the binaries I introduced at the beginning of this article cannot be so simply delimited. By projecting simplified accounts

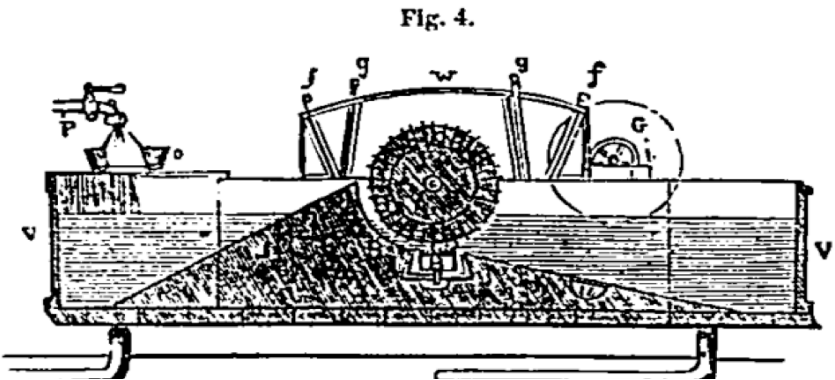
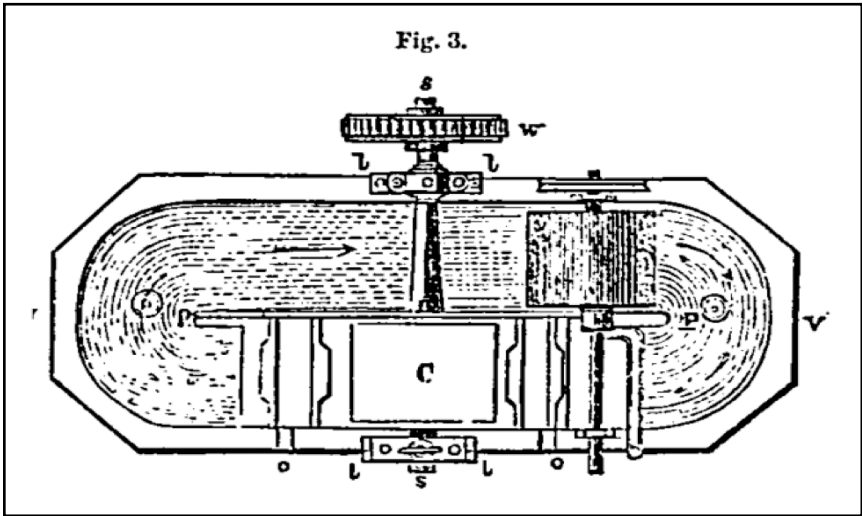
¹⁶ Although the *Lady’s Book* had a high subscription cost, Tonkovitch argues that women from all positions of society must have read the periodical, “since *Godey’s* was often loaned among neighbors, available on the center table of boardinghouses and women’s schools, or shared among a group of people who owned a single subscription” (*Domesticity* 60).

¹⁷ Hinckley retired in 1857, but he did occasionally write for the *Lady’s Book* after this date, authoring, for example, an article titled “The Art of Engraving” in the August 1859 issue (Hamilton 147).

of science onto the past, we not only skew our view of women's education in the nineteenth century but also for the future of women's science education.

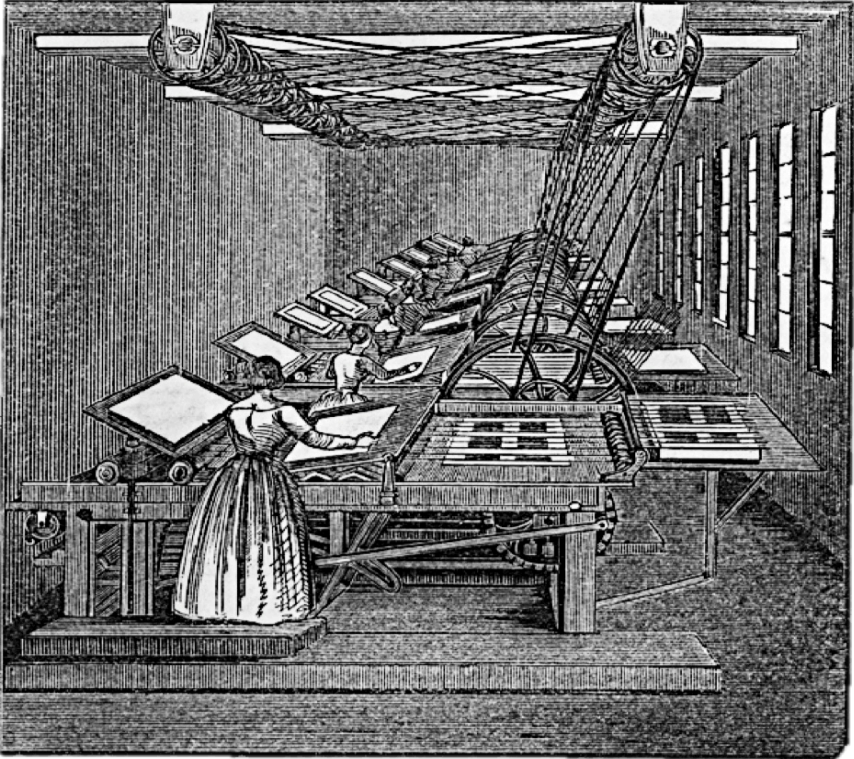
In arguing for the complexity of science-related material in the *Lady's Book*, I don't mean to suggest that the periodical was revolutionary or that Hale (or Hinckley) was some kind of proto-feminist. In the first place, scholars like Tolley contend that science education for young women, and particularly among elites, was common at the time, suggesting that the science articles in the *Lady's Book* were far from subversive. In addition, as Patricia Okker, Piepmeier, and Tonkovich have argued, Hale often used the rhetoric of separate spheres strategically, and she campaigned for the use of gendered terms, like her own favored term "editress" as "a means of acknowledging women's presence in the occupations" (Tonkovitch "Rhetorical Power" 172). However, to note Hale's rhetoric as conservative or to overextend the rubric of separate spheres is to misinterpret Hale, Hinckley, and the magazine's cultural work, especially since Hale often used this essentialism not to imprison women in the home but rather to elevate domestic and care-taking work so that it had the same status as other careers. Piepmeier argues Hale's "life and work are not legible through the binaric lenses of the public and private spheres nor the notions of victimization or agency" (182). As I have argued throughout this essay, the danger of using these "binaric" lenses extends to our differentiation of the arts and the sciences, domesticity and the world of work, and useful and ornamental knowledge as well.

Figure 1: Images of two engines used to wash wood pulp and process it into paper



Hinckley, Cornelius T. "Everyday Actualities.--NO. XVII. The Manufacture of Paper." *Godey's Lady's Book*, Mar. 1854: 199. This image originally appeared as part of ProQuest's American Periodicals Series product. Reprinted with permission from digital images produced by ProQuest LLC. www.proquest.com

Figure 2: Women working the new steam-powered printing presses at Messrs Collins, the press that printed *Godey's Lady's Book*



Hinckley, Cornelius T. "Illustration 5 - No Title," *Godey's Lady's Book*, Oct. 1852: 306. This image originally appeared as part of ProQuest's American Periodicals Series product. Reprinted with permission from digital images produced by ProQuest LLC. www.proquest.com

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