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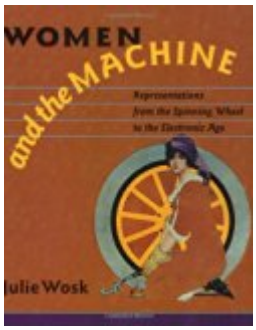
Julie Wosk. *Women and the Machine: Representations from the Spinning Wheel to the Electronic Age.* Baltimore and London: Johns Hopkins University Press, 2001. 320 pp. $23.95, paper, ISBN 978-0-8018-7313-3.



Reviewed by Kirsty Robertson

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Powder Puffs and Drill Bits

Julie Wosk's book *Women and the Machine* presents a wealth of information on the intersections of women with technology and machinery. Covering a wide period of time, her work presents a fascinating array of information that perhaps suffers from the selection of too great a time period and too wide a subject matter. The strength of Wosk's book is the immense collection of both high and popular culture examples--posters, stereographs, books, songs, paintings--simply an immense number of images. But it is also the sheer weight of information that overrides in-depth analysis with the result of a highly absorbing and useful read that occasionally falls into a frustrating listing rather than an examination of the images. On the whole, however, the positives by far outweigh the negatives, and Wosk's assessment of the challenges faced by women in the supposedly masculine world of machines is a highly readable and excellent source book on the issues, bringing together a great deal of research that plays among the disciplines of art history, visual culture, gender studies, and sociology.

In *Women and the Machine*, Wosk challenges the common stereotypes regarding the incompatibility of women and machines. Her goal is to show, through historical research, the variety of discourses with regard to this topic. As a result, the book is often set up as a series of comparisons between images showing women challenging stereotypes that cast them as too timid, fearful, or silly to use technology, and those that recast the same attitudes. This set-up brings to light a history of consistent challenge and control, a negotiation of boundaries, and a reconfiguration of those same boundaries to contain advances made by women. At times this approach is frustrating as the results are ephemeral, fragmentary and hard to pin down--how much (if any) progress has been made? But there are many fascinating examples that demonstrate not only challenges and reconfigurations of the system, but also the extent to which women participate(d) in their own subordination (xiii).

The book begins with an introductory chapter on the varying visual examples of women and machines--content women in the domestic space

seemingly ignorant of tumultuous industrial changes, women as able mechanics or alternately as dangerous and forgetful drivers. While women's progress is demonstrated through images found by Wosk showing them repairing their engines, putting together warships and tackling the sometimes dangerous hobby of cycling, men's (and also women's) fears are just as (if not more) often demonstrated through images of woman as a threat. Here women are frequently shown abandoning their role in the home in favor of the thrill of driving or bicycling. Often comic and occasionally outright misogynistic, this latter type of image is reported by Wosk, but rarely put within either a carefully explored social-historical contextualization or a deeper feminist analysis--one suspects that theory might have been sacrificed for increased accessibility.

Nonetheless, there are several important themes that play out throughout Wosk's book. The first is the intersection between women and machinery in advertising, and the idea of selling the woman at the same time as the object. In turn, these advertisements had two functions that often fell back on stereotypical notions of how women should behave around machinery: first, selling women on the idea of using machines, and second, selling men on the idea of women using machines (p. 23). Early advertisements for the typewriter and the sewing machine, for example, often used the idea that it was so easy "even a woman could do it." Given the work that has been done in this area (Kristin Ross's excellent book ***Fast Cars, Clean Bodies*** comes to mind), Wosk's conclusions are not groundbreaking, but again the sheer number of examples are an indispensable contribution to several areas of study.

Chapter 2 looks at the transformation of women's bodies through the use of metal crinolines, corsets, and bustles. While perhaps not as closely associated with machinery as the other chapters, there is an interesting link to be made between the simpler clothes of later generations, and the increased accessibility of women to machinery. Throughout the book there is a recurring theme of the trouble women often had with their clothing, accessories, or even hair in the vicinity of machinery developed for men. However, as Wosk points out, it was specifically during the height of industrial experimentation, in the nineteenth century, that women began to reshape their bodies through the latest technologies (p. 45). The steel-cage crinolines, together with steel-boned corsets and steel bustles worn at this time had the dual effect of widening the skirt, narrowing the waist, and increasing the buttocks, but also of making women's clothing lighter, if not less cumbersome.

As a marker of a woman's sexuality (in the hourglass figure), her morality (in the tightly laced corset), and her fecundity (in the broad hips), corsets and other clothing devices served a number of purposes. Not the least of these was to demonstrate class--the corset, because it severely restricted movement, was an explicit sign of leisure (p. 48). On the other hand, the steel crinolines were often the butt of satirical humour, their size and awkwardness provoking many an illustrator to poke fun at ladies' fashions. Wosk also notes the gender tensions inherent in the crinoline--a garment that at once provided an alluring figure, but also, through its size, kept men distant (p. 54). Wosk suggests that the largess of the crinolines might have had the added effect of feeding into male fears and fantasies of women as "huge, enveloping, protective mother figures" (p. 57), at once suggestive of protection, but perhaps overbearing and fearsome.

>From clothing, Wosk moves into a discussion of woman as muse for scientific experiment, as goddesses of electricity, but also as the squeamish onlookers to scientific experiment. In an era enchanted with all things electric, where the incandescent bulb, the telephone, gramophones, and cinema all appeared to enhance human vision, communication, and the ability to reproduce the

human body and image, the role of women was an often confused one (pp. 70-74). Wosk's discussion in the chapter focuses around the "Electric Eve," a perfect android replica of the female that was often constructed as being above the imperfections of the real woman, and outside of the necessities of reproduction. In the chapter, Wosk explores how this played out in movies such as Fritz Lang's *Metropolis* and novels such as Auguste Villiers's famous *L'Eve Future*. As in many of the constructions that Wosk outlines, through novels, movies, and advertisements woman were constructed either as the femme fatale/fallen woman or the respectable/virginal woman (p. 83). At times images using the "Electric Eve" granted women a modicum of power through powerful stances, and the control of electricity, while at other times this same control was exacted upon the bodies of women.

The next three chapters deal with the overlap of women and specific machinery--bicycles, cars, and planes. Each chapter tells a similar story of pioneering women willing to take risks by driving these new machines and being treated with a mixture of derision and respect, and eventually a grudging acceptance. Because they are grounded in the specifics of a single machine, these three chapters are, to my mind, the strongest, combining impersonal images of advertising with personal reminiscences and accounts of drivers and pilots.

In each case, Wosk uncovers photographs, illustrations, satires, and posters that portray women as "emblems of fierce determination and social progress as well as emblems of naughty women whose behaviour was scandalous and outre" (p. 93). For example, the 1890s bicycling craze was met with highly contrasting views. On the one hand, Wosk quotes a magazine article describing the bicycle as a machine that would be "a steed upon which [women] rode into a new world" (p. 97). This article, however, was matched by numerous satirical cartoons and write-ups reflecting cultural fears about women gaining new freedoms. These fears were answered, according to Wosk, through the depiction of women as helpless, delicate, and ridiculous in their new roles, as well as through a discourse on fashion that reacted disdainfully to clothing (such as knickerbockers) that might make bicycle riding easier (p. 110). While balancing a bicycle, a proper lady was also meant to balance decorum, good grace, elegance, and the traditional role within the domestic sphere.

These same elements carried into the automobile, where women, although among the earliest drivers, were often characterized as dangerous and mechanically incompetent. As in the other chapters, however, there are two other elements. The first is the personal accounts (combined with images, advertisements, and paintings) of how women saw themselves and the automobile, which was often as adventurous and mechanically competent. Included in this group is Blanche Stuart Scott, who received a great deal of coverage for her tour by car across North America, and shortly thereafter became a contender for the title of the first female aviator (p. 124). The second element is that of a female market, picked up by businesses and often combining attitudes of adventure with those confining women to traditional roles.

Early aviation also provided a small number of women with an opportunity for adventure, skill and, during the Second World War, service to one's country. Wosk again presents the fascinating stories of individual female pilots, the history of women's flying (including the Women's Air Derby, known mockingly as the "Powder-puff Derby"), and the work of women in both building and flying aircraft during the war (p. 149). Again, the same issues of prejudice and mockery and an eventual grudging acceptance pave the way through this chapter. It fits into Wosk's argument nicely (although she does not mention it), that Amelia Earhart, by far the most famous female pi-

lot, is also the one who dramatically failed to conquer the male domain of the aeroplane. Interestingly, Wosk writes, for many early women pilots who were denied access to commercial airlines during the First World War, the only open opportunity came as stunt pilots (p. 157). Passing through a series of photographs, posters, prints, and even songs and short stories, Wosk is again able convincingly to build up an argument of the varied, and occasionally paradoxical positions toward the at once romanticized and castigated women flyers.

The conjunction between women and aeroplanes introduces Wosk's final chapter concerning women in wartime. The war has traditionally been seen as a time of great progress for women, although more recent studies have shown that this progress was neither as great as was expected, nor as lasting.[1] Wosk picks up on this second analysis, despite the fact that there is an obvious difference between war and peace images of women and machines. In the wartime images, women must be shown to be competent with machines in order to recruit workers and to demonstrate the strength of the Allied forces as a whole. However, as Wosk points out, many of these images that appear specifically to create new strong roles for women, in fact reconfigure stereotypical views of femininity, delicacy, and lack of mechanical knowledge. In many images, the view of women and machinery is set up as a surprise, in order to shock and occasionally amuse. Thus, the working of women in sometimes dangerous situations was often subsumed into discourses on the retention of their beauty and femininity (p. 190). Wosk quotes one writer who claimed that the khaki worn by the women munitions workers was "extremely becoming" (p. 189). Women were portrayed as scared of the machinery and in need of teaching and guidance, while their maternal instinct caused them to become "attached" to their machines (pp. 192-93).

Wosk's book thus comes full circle. Although women have made progress with regard to using machinery, in many ways the same stereotypes found in 1830s-images concerning the wearing of corsets are present in current-day advertisements for refrigerators and stoves. Nonetheless, Wosk is able to demonstrate through the work of contemporary artists such as Donna Cox and Melanie Crean, the appropriation of machinery and machine images into specifically female discourses. It is an optimistic ending to a book that I found a satisfying and fascinating read, despite my earlier criticisms regarding the lack of in-depth analysis.

Note

[1]. See for example, Claire Culleton, ***Working-Class Culture, Women, and Britain, 1914-1921*** (New York: St. Martin's Press, 1999).

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