tries that should be of interest to anyone concerned with industrial relations, technological change, or public policy.

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Women's Positions

Women, Work, and Technology. Transformations. BARBARA DRYGULSKI WRIGHT and six others, Eds. University of Michigan Press, Ann Arbor, MI, 1987. viii, 387 pp. $29; paper, $13.50. Women and Culture Series. Based on a conference, Storrs, CT, Oct. 1984.

The product of a seven-person editorial committee and 16 paper-writers (the senior editor also wrote one, making 17 in all), this collection aspires to an interdisciplinary feminist analysis of technology. Wright, in the introduction, announces its focus: "technological development and its relationship to women workers." Wright considers several critiques of technology, concluding that feminists share with others the view that technology is problematic in its ideal of objectivity, in its reductionist methodology, and in its "will to dominate and control." Feminists go further, however, in linking these problems to "Western gender ideology" and proposing a "provocative alternative," a more human, less masculine technology. Wright then anthropomorphizes the concept: "Instead of imposing a given solution, technology must learn to proceed with empathy and affection—not only toward the natural and physical environment but *also* toward the people and institutions that comprise the social context" (p. 19), leaving the reader a little puzzled over *who* rather than what is the subject of that sentence.

After this exalted prescription, the papers seem prosaic; they are of mixed quality and character. They are arranged in three big sections: Historical Perspectives; Transformations of the Labor Process; and Access and Action.

The historical papers range from a derivative overview by Carol J. Haddad of "Technology, industrialization, and the economic status of women" to an expertly crafted case study by Ava Baron of men and women in the American printing trades (mostly newspaper publishing), 1850–1920. Baron describes how male printers' gendered definition of their jobs was transformed with the introduction of the Linotype machine in the 1890s; male dominance prevailed in the workplace through a redefinition that maintained the identification of work and masculinity and an implicit agreement with publishers in which the printers accepted the new technology but excluded women. Patricia Vawter Klein shows that early protective legislation for women workers in industries with high risks of lead poisoning was only reluctantly accepted by industry. In contrast, today it is industry itself that is establishing or maintaining selectively exclusive policies against women workers even though men are subject to reproductive risks as well. Klein does not speculate about the causes of the different behavior of present-day industry, but surely the current climate of liability law must be involved. In a lively essay in "contribution history" (women's contribution to . . .), Autumn Stanley reports on her review of a sample of the U.S. Patent Office's 1890 list of women inventors who received patents. About 25% are missing, and these women were largely inventors of non-domestic, non-traditional machines. Stanley makes an interesting case for assigning women a broader role in the recent history of technology than they have had heretofore.

The section on work process opens with two historical studies: one, by Timm Triplett, reflects on Hebridean women's perception of the great improvements in their everyday life the 20th century has brought; the other, by Christine Kleinegger, discusses the lightening of the work load of American farm women. Both authors discuss losses as well as gains, dashed aspirations as well as achievements. Eileen Appelbaum's review of the reorganization of work in the American insurance industry emphasizes unanticipated consequences of the intensified use of information technology in the 1970s and '80s. She finds that with advanced office automation, unlike factory automation with its rationalization and fragmentation, "functional specialization of tasks is reduced" and "control, communication, and decision making are decentralized" (p. 188). Appelbaum's comparison of present-day office automation with earlier factory changes leads her to this conclusion; if she compared changes in the insurance industry with present industrial manufacturing reorganization, she would find more similarity. The effect in insurance has been to eliminate middle-level jobs and produce an upper tier of "super clerks" and a lower tier of skilled clerks with high entry-level qualifications. The new system both truncates earlier internal career ladders and eliminates low-level jobs formerly held by minority women.

The essays in the third section primarily consider access to computer technology and jobs in that sector. A realistic reminder is offered here by Evelyn Nakano Glenn and Charles M. Tolbert II: although computer occupations are expected to be the most rapidly growing sector in the economy of the '90s, small numbers are involved because of the small base. "Slower growing but currently large occupations are expected to provide the lion's share of new jobs; these occupations are for the most part low-status, low-wage service jobs, such as building custodians, waiters and waitresses, and clerical positions" (p. 328). Glenn and Tolbert show (on the basis of a subsample from the *Current Population Survey* of March 1983) that racial-ethnic females are at present concentrated in the lowest-ranking computer job (data entry keyer), where they earn inferior wages. Gender and racial-ethnic integration would involve shifting these women to higher-ranking computer jobs with concomitantly higher educational qualifications. Minority access to better education, then, is a social issue intimately tied to how widely distributed jobs based on new computer technologies will be.

Two essays return to the issue of female values raised in Wright's introduction. Linda H. Lewis discusses ways to foster the involvement of females and computers. She builds on her understanding of Carol Gilligan's work a notion of distinctive female and male contributions: the first cooperative and personalized, the second competitive and controlling. Sandy Weinberg writes in the same vein about "Computer equity for women." He also perceives computer science (whether practiced by males or females) as based on "traditional male values" and proposes a different computer training strategy that emphasizes cooperation and an "androgynization" (in which, however, only men can become androgynous; women are women) of language and style. Lewis, Weinberg, and Wright underestimate the diversity among women that other contributors emphasize and come perilously close to an essentialist notion of women's character and values. Their approach represents but one strand of feminism, which, like women, is more diverse than they conceive it.

Maria-Luz Daza Samper's comparison of "Responses to office technology in the United States and Western Europe" is a useful—and sobering—review. She shows that in Western Europe there are legislatively mandated guidelines for the introduction of technology, worker participation in decision-making on this matter, and worker access to research and training. In the United States, there are no such guidelines or laws. The American level of unionization is only 18%, compared to rates twice that and more in Europe. Samper's recommendations focus primarily on increased unionization in this country, especially in the service sector, a prescription that has not met with much success in recent years.

Wright's closing essay on the problems

associated with university-affiliated technology parks offers a reasoned critique of the relatively new trend and calls for community, minority, and female input. By comparing the policies of several university-affiliated parks, she demonstrates that an arena for choice exists; Yale University stands out in particular in its sensitivity to minority concerns in its planning. Wright notes here (p. 354) that business foresees labor shortages in the '90s and hence promotes research on capital-intensive production methods. Her response, that "this diagnosis jars with steadily rising unemployment rates and chronic unemployment in ever larger segments of the American work force" (p. 354) is ill-informed. The statement is imprecise, but by most definitions it is simply not correct. Jobs are still being created in the American economy, but the composition and distribution of them is changing. In fact, further, the predictions about job loss made in several papers in this collection should be put in the perspective of smaller cohorts entering the job market in the next 10 years. Predictions over a longer period are risky, given the interaction of technological change with social and economic factors that the essays show so well. Some occupations may disappear and there will be skill mismatches and groups that lose out in the reorganization of production, but aggregate job loss in the major sectors of women's employment is unlikely in the short run.

This very ambitious volume is provocative and wide-ranging. Its conclusions are by now familiar, emphasizing the embeddedness of technological change in economic and social change and workers' need for meaningful participation in the implementation of technology in the workplace. How that influence is to be achieved and what shape it will take are still open issues.

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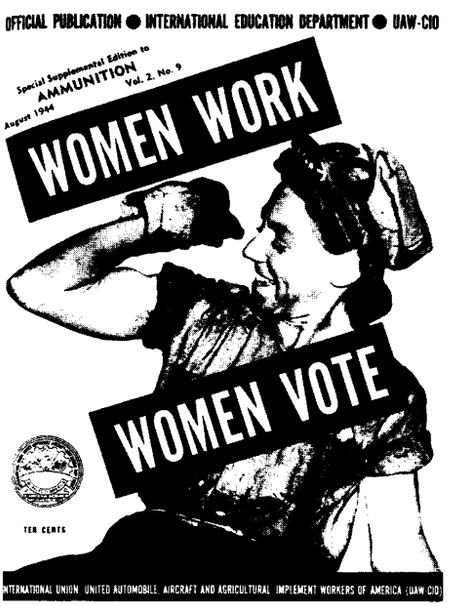
Short-Lived Opportunities

Gender at Work. The Dynamics of Job Segregation by Sex during World War II. RUTH MILKMAN. University of Illinois Press, Urbana, IL, 1987. xvi, 213 pp., illus. $32.50; paper, $8.95. The Working Class in American History.

Ruth Milkman's study of women's employment during World War II combines the best of sociology and history. Winner of the Joan Kelly Memorial Prize in women's history for 1987, *Gender at Work* is an important synthesis of women's history, labor history, and the sociology of job segregation. Making masterly use of archival material, Milkman compares the history of women's employment in the auto and electrical industries from their inception through the post-war period. She rejects the "deterministic" sex-segregation theories of labor market segmentation as well as those of the Marxist-feminists and moves beyond them by examining the structures and managerial practices of the two industries.

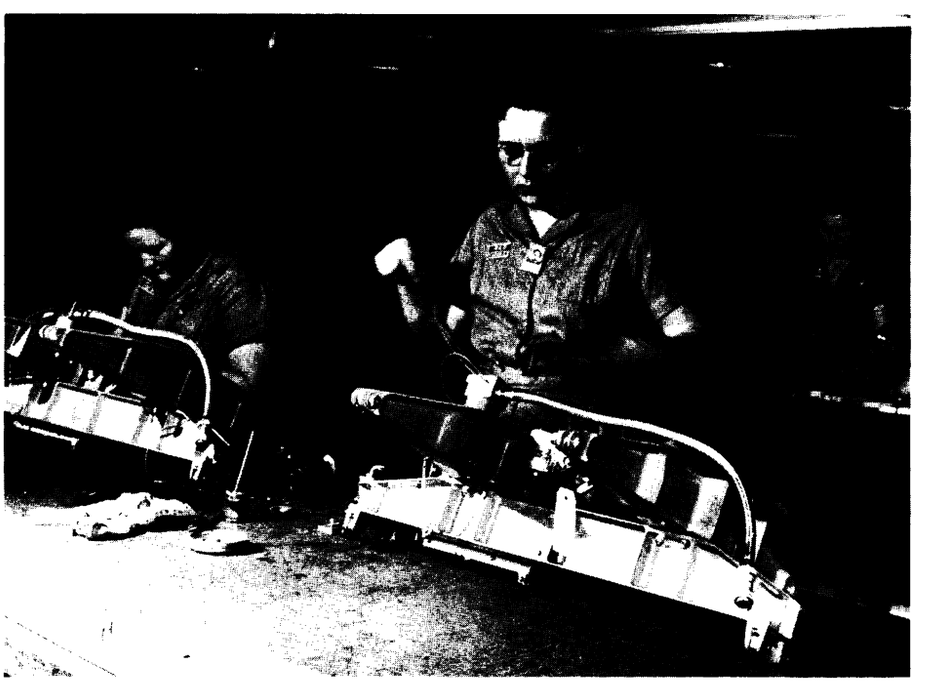


"Front cover, special supplemental edition to UAW-CIO *Ammunition*, August 1944." [From *Gender at Work*; United Automobile Workers]

At the time of these industries' formation, managerial strategies determined the sexual division of labor in accordance with the specific conditions of the respective labor markets. The industries had many features of mass production in common, and both employed women from the start. However, the labor-intensive electrical industry, where production was based on a piecework system, employed an increasing percentage of female workers, whereas in the auto industry, which concentrated on mechanization, women constituted a much lower percentage of the labor force. Both industries practiced sex segregation prior to the Depression and hired women only to perform specific tasks rather arbitrarily designated as women's work.

The introduction of industrial unions in the 1930s in both these industries did little to alter the ideology of sex segregation. Despite the progressive views of the CIO on discrimination, both the United Auto Workers (UAW) and the United Electrical Workers (UE) took stands that reinforced sex differentials in wages and separate seniority systems. The economic upheaval of the Depression left women's employment unaltered in both industries as unions attempted to protect the status quo.

Though World War II expanded job opportunities for women in both auto and electrical work, it also, according to Milkman, proved both the "resilience" and the "flexibility" of the ideology of occupational segregation. The war proved more disruptive to traditional hiring practices in the auto



"Women working on bomber parts at a De Soto plant, Detroit, 1942." [From *Gender at Work*; Wayne State University Labor Archives]