

Shifting Attitudes: Women in Computing, 1965-1985

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The low rate of female employment in today's computing industry is an area of concern in contemporary discourse, and indeed has been for the better part of two decades.¹ Though this indeed a major concern today, much of the discussion inspired by it is highly ahistoric, presuming that the contemporary low rate of female participation in the computing industry reflects long-standing trends (a logic which finds its most extreme expression in essentialist arguments about gender differences, but which seems a tacit presumption of even more moderate discourse). In fact, almost the opposite is true. Women have been part of the modern history of computing from the original programmers of the ENIAC on.² Furthermore, an examination of Bureau of Labor Statistics data shows that both the percentage of the computing industry workforce which was female and the percentage of computer science degrees earned by women increased steadily in the decades before the 1980s, peaking in the middle of that decade at around 38%.³ Given the explosive growth of the industry as a whole in this period, this high growth in relative numbers if anything understates a truly massive growth in absolute terms. It was only after 1985 that these percentages began to decline and the contemporary situation began to take hold, but it is a useful reminder of the historically contingent nature of this situation that academic work based on data from the mid-1980s was discussing the 'feminization' of the computing industry as late as the early 1990s.⁴ The story of women in the computing industry is an integral one in that of the industry's first decades.

Nonetheless, this story has remained relatively neglected until recently. Work like Thomas Misa's

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- 1 See Jane Margolis and Allan Fisher, *Unlocking the Clubhouse: Women in Computing*, Cambridge, MA: The MIT Press, 2002, for a discussion of work reflecting this concern in the late 1990s.
 - 2 W. Barkley Fritz, "The Women of ENIAC," *IEEE Annals of the History of Computing* 18 no 3 (1996).
 - 3 Caroline Clarke Hayes, "Computer Science: The Incredible Shrinking Woman," in Thomas Misa, ed, *Gender Codes: Why Women are Leaving Computing*, Hoboken, NJ: John Wiley and Sons, 2010, p. 33.
 - 4 See e.g. Rosemary Wright and Jerry A. Jacobs, "Male Flight from Computer Work: A New Look at Occupational Resegregation and Ghettoization," *American Sociological Review* 59 no 4 (1994).

edited collection *Gender Codes*⁵ and Janet Abbate's *Recoding Gender*⁶ have contributed to redressing this neglect, but more remains to be done. This paper represents the preliminary results of an ongoing project at the Charles Babbage Institute, supported by a Sloan Foundation grant, intended to contribute to this literature. Its intent is to study publicly held computing industry attitudes toward female participation from the 1960s to the 1980s, through a longitudinal study of the trade journal *Datamation*, and a comparative study of recruiting and other materials from the Burroughs and Control Data Corporations.

As Carolyn Martin noted in her discussion of late 19th century electrical trade journals in *When Old Technologies Were New*, the discourse contained in such journals can serve to define a professional identity by including some and excluding others. 'Humorous' treatments of the ineptitude of low-status people (immigrants, racial minorities, women) could serve this purpose of exclusion, privileging the knowledge of the (white male middle-class) electricians in contrast.⁷ This logic of self-identification of a young profession applies to computing trade journals like *Datamation* just as well. Public expressions within professional forums like *Datamation* are more than ephemeral chatter: they can represent the building of a professional identity for some and exclusion for others. *Datamation's* treatment of women in the industry is significant as both a window into the climate they faced, and as a potential driver for historical change (a hostile environment serving to discourage female participation, with a more open environment potentially serving to encourage it).

The 'woman programmer' was an occasional object of derision and study in *Datamation* in the early 1960s. "Women programmers who don't wear lipstick," for instance, were among the things declared to be "OUT" in 1961 comedy piece, "IN and OUT."⁸ A female programmer is likewise one of the three

5 Thomas Misa, ed, *Gender Codes: Why Women are Leaving Computing*, Hoboken, NJ: John Wiley and Sons, 2010.

6 Janet Abbate, *Recoding Gender: Women's Changing Participation in Computing*, Cambridge, MA: The MIT Press, 2012.

7 Carolyn Martin, *When Old Technologies Were New: Thinking About Electric Communication in the Late Nineteenth Century*, New York: Oxford University Press, 1988, p. 17-32.

8 "IN and OUT," *Datamation*, June 1961, 22.

uninspiring job applicants featured in the 1962 humor piece “How to Hire a Programmer,” appearing alongside a slovenly and insubordinate sandal-wearing stereotype, and an outright charlatan. She “wears flat shoes, and she is a little crosseyed. Her figure resembles a full potato sack. Her dress and makeup indicate that she is a solid, plain-thinking person with no frills at all.” She “is the spitting (she chews Copenhagen) image of a lady programmer.” When offered a position, she “goes home to ask her mother about it”.⁹

A more serious examination of “The Woman Programmer,” penned by *Datamation* news editor Valerie Rockmael, briefly profiled the “increasing number of women [who] are directing their résumés at the data processing community.” “Their motivation,” she said, “stems from the belief that this is one industry in which women may enjoy complete equality and an above average salary.” However, “whether [prejudice] has been overcome in the programming profession or simply underplayed because of current needs is a matter for conjecture.” “While some companies are still hesitant at hiring women programmers, a few have expressed a preference for the distaff side,” she continued, due to perceived contentment with and greater suitability for programming positions. Rockmael also took pains to defend the femininity of female programmers, noting that “it is... felt that women have a humanizing influence, make working conditions more pleasant, and even add to the decor of an office. The notion that female programmers are dull, drab, lipstickless creatures is grossly erroneous.”¹⁰

Notably, this piece, which appeared in an issue devoted to “The People Problem,” was one of the first of several previous discussions of the growing programmer shortage to suggest increased female participation as a remedy, along with a 1962 editorial on including recruiting from high schools which noted that “many of the young ladies... have been told that programmers are restricted to the male sex” in a discussion of students’ misapprehensions.¹¹ Industry professionals surveyed in 1964 predicted

9 Jackson W. Granholm, “How to Hire a Programmer,” *Datamation*, August 1962, 32.

10 Valerie Rockmael, “The Woman Programmer,” *Datamation*, January 1963, 41.

11 “A Long View of a Myopic Problem,” *Datamation*, May 1962, 22.

increased female participation as a solution to the programmer shortage.¹² However, as a 1971 letter arguing for greater female participation in the field pointed out, discussions on the programmer shortage in the subsequent decade largely continued to ignore the potential contribution of women.¹³

A wave of ads for Optical Character Recognition machines in the late 1960s are particularly noteworthy. The adoption of OCR technology of course had a classic labor-relations dimension, allowing the deskilling of data entry labor through the purchase of capital (as one OCR service ad bluntly noted “typists are paid less than keypunch operators”).¹⁴ Nonetheless, the degree to which this deskilling of the almost exclusively-female keypuncher workforce was framed in gender terms cannot be neglected. As a 1967-1968 series of prominently featured ads for Recognition Equipment’s OCR reader declared, the machine “can do anything your keypunch operators do” without a series of the pictured operators’ feminine foibles, from wasting the working day with shopping and gossip,¹⁵ to crying and sulking when slighted [Figure 1],¹⁶ to “tak[ing] maternity leave... suffer[ing] from morning sickness, or complain[ing] of being tired all the time”.¹⁷ A 1970 Entrex ad was still more direct: “We taught our data entry system to speak a new language: dumb blonde,” it declared. “If a girl can type, she can enter data on our system. If she can read, she can verify it on the display. To her, it’s a typewriter and a nifty little tv screen: (She can be the dumbest blonde you can find)” [Figure 2].¹⁸ OCR ads in this vein continued into the early 1970s. Though these messages belittling keypunch operators were of course at the expense of the lowest rung of the computing hierarchy, the misogynistic climate these ads express cannot have been particularly welcoming to women higher in that hierarchy.

Incongruously, other advertisements printed virtually alongside these OCR ads were evidently

12 *Datamation*, February 1964, 69.

13 *Datamation*, March 1, 1971, 13.

14 *Datamation* March, 1970, 95.

15 *Datamation*, April 1967, 1.

16 *Datamation*, June 1967, 1.

17 *Datamation* February 1967, 1

18 *Datamation*, July 15, 1970, 83.

intended to showcase the diversity and social consciousness of their companies. A 1969 Ampex ad for magnetic tape, for instance, introduced the prominently pictured “computer programmer Carol Ching,” declaring that when she “ignores our tape, we know we’re doing our job” [Figure 3]¹⁹ Like the tape it advertises, the ad’s use of an Asian-American woman as an archetypal programmer goes unmentioned. A Control Data Corporation recruitment ad from the same issue features a drawing of a group of CDC employees, which includes an African American man and a white woman alongside a white man. Such a diverse group simply cannot be seen in the advertisements of earlier issues of *Datamation*.

The climate of *Datamation* was not solely shaped through ads and articles, however. Its Letters section was a scene of lively debate on technical issue, and it was in this section that female and male supporters of female participation in the industry would find expression. One early example is 1963 letter by Professor Beatrice Worsley of the University of Toronto, who noted in response to “The Woman Programmer” the longstanding contributions of women to the field of computing, citing the achievements of Ada Lovelace, Grace Hopper, and Cicely Popplewell.²⁰ This letter conforms to a tendency in the early issues of *Datamation* to frame the field of computing in historical terms by invoking figures such as Babbage, and thus can be seen as a similar attempt to increase the legitimacy of women’s participation in the field by establishing the depth of its historical roots.

By and large, however, little other comment on gender issues found its way onto *Datamation*’s letters page until the 1970s. Beginning in 1971, however, letters challenging sexist advertisements and defending women’s roles in the industry began to make their appearance. The editorial stance toward these letters was condescending if not outright hostile. One letter challenging the ‘dumb operator’ genre of ads, for instance, was printed under the dismissive caption “Lib and Let Lib.”²¹ Another letter

19 *Datamation*, May 1969, 51.

20 *Datamation*, March 1963, 15.

21 *Datamation*, August 1, 1971, 11.

proposing a system of performance bonuses for programmers (and entirely unrelated to overt gender issues) was captioned “Bonus, Baby, apparently because its author was a woman.”²²

However, a general shift in editorial tone can be detected beginning in 1974. Letters’ captions displayed less of the condescending ‘humor’ of previous years (though some, like “Women Slighted” for a letter pointing out the illegality of a case of explicitly acknowledged pay discrimination in a previous article,²³ remained egregious). In addition, gender issues began to receive explicit acknowledgment (such as a debate on hiring practices, in which a structured approach was defended for its benefits to women and minorities),²⁴ culminating in the publication of a series of articles on women’s issues in 1975-1976.

The publication of the August 1975 article ‘Women Speak Out on DP Careers’ is indicative of this newfound editorial interest.²⁵ Authored by Winifred Asprey and Ann Wheeler Laffan, this article discusses the results of a questionnaire distributed among several hundred female computer professionals, outlining trends and sharing participants’ comments. While the very fact that such an article was published is itself telling, its contents also serve as a useful snapshot of respondents’ attitudes. Concerns included unequal pay, condescension and hostility from male peers, and insensitivity to ‘problems uniquely feminine’ such as the care of children and traveling and relocation expenses.²⁶

Access to and hostility encountered in management positions was a notable concern. Respondents generally agreed that “although women today can attain low and low-middle management positions rather easily, men have a monopoly on the higher management positions, often through a ‘buddy’ system,” and that ““seeing will cause believing”” on widespread corporate policies to remedy this

22 *Datamation*, May 15, 1971, 8.

23 *Datamation*, August 1974, 26.

24 “A Structured Approach to Hiring, *Datamation*, May 1974, 57; *Datamation*, August 1974, 23-26.

25 Winifred Asprey and Ann Wheeler Laffan, “Women Speak Out on DP Careers,” *Datamation*, August 1975, 41-43.

26 *Ibid*, 42-43.

situation. One respondent who had attained a managerial position reported that she had encountered a great deal of hostility from male peers in a middle management role, while there was a more welcoming atmosphere at the rarified heights of upper-level management. A backlash by some male coworkers to perceived unfair “reverse discrimination” was a “growing concern... in IBM, the men are reacting to the words which management spouts, not the reality... [which] is that fewer than 5% of managers are women.” The stigma of being perceived as ‘unfeminine’ was also a continuing concern: “By and large,” reported one 23-year-old respondent, “women who do attain management positions are aggressive, super-competent and competitive, and scorned by males as ‘unfeminine’ and ‘know-it-all’ types.”²⁷ It is noteworthy that the stereotype of unfeminine professional women had evidentially shifted upward in the corporate hierarchy since the early ‘60s, masculine and ‘lipstickless’ female programmers evidently having been replaced in the corporate id with masculine and aggressive female managers.

Despite these issues, the general attitude was positive. “Two-thirds of the women responding felt they had equal status with their colleagues in pay, promotions, and overall,” the article reported.²⁸ Young respondents tended to be more optimistic about the accessibility of management positions, and, as one commenter noted, “younger men (under 35) are not as threatened by competent female colleagues.” The key to further progress in the field, the article concluded, was “sheer numbers- critical mass” of young professional women, which “we will approach... faster if [they] have role models they can emulate... We who are already in the field must make ourselves seen and heard.”²⁹

Within a few months, this article was followed by the Reader’s Forum piece “You’ve Come a Long Way, Baby.”³⁰ This piece, written by management consultant Robert L. Patrick, set out to address “the many survey articles... published concerning the status of women in computing.” According to Patrick,

27 Ibid, 41.

28 Ibid.

29 Ibid, 43.

30 Robert L. Patrick, “You’ve Come a Long Way, Baby,” *Datamation*, December 1975, 193-198.

“movements... aimed at improving the status of women,” had “burned their bras, raised their consciousness, organized for the common good (whatever that is), and generally made a lot of noise,” to be “treated... with benign neglect” by management. Notably, he said, “federal [equal opportunity] laws passed in 1964 took six years before anybody noticed them, and eight years before management started to take them seriously.” Nonetheless, “the past two or three years have seen some real changes,” and “in many cases equal opportunity does exist.”³¹ “One of my clients,” he continued, “has been active in establishing equal opportunity for some time, and half his programmers are females. With one or two rare exceptions, these are solid citizens of the professional community- not stridently militant, and not prone to lecturing about male chauvinist attitudes while wearing short skirts or tight slacks.”³²

Nonetheless, “there are a significant number of these women who don’t seem to take their work as seriously as do their male counterparts.” In contrast to male peers, who “[are] conditioned from a very young age to know [they] will have to go out on [their] own, be a breadwinner, and support a wife and family,” he argued, many professional women were not mentally prepared for the competition of the workplace.³³ “The first phase of the women’s movement is passing,” he counseled, “and the time has come for [women] to prepare technically and emotionally for promotion, to learn how the game is played, and then to make damn sure they are the most qualified before they think about raising too much hell.”³⁴

Patrick’s attitude did not go unchallenged. In subsequent months, a series of critical letters were printed, criticizing what one correspondent called “a catalog of the usual prejudices against women.” Notably, the editor’s captions on these letters were generally less hostile than the condescending ones prevalent earlier in the decade. Patrick briefly responded to these letters, stating that “it is difficult to

31 Ibid, 193.

32 Ibid, 193-194.

33 Ibid, 194.

34 Ibid, 196.

remain calm amid all the shrieking.”³⁵

This controversy subsequently served as a foil for ‘feminist management consultant’ Gonnie Siegel’s subsequent Reader’s Forum piece, ‘The Best Man for the Job May be a Woman.’³⁶ Patrick, she argued, was emblematic of many male executives, having consciously disassociated themselves from misogynistic views, but nonetheless continuing to labor under a visceral prejudice against women, “trying to pass off as logical” these “emotional feelings.” “Since ‘logic’ is considered a masculine trait and ‘emotion’ a feminine one, the executive is in a bind. If he admits that his gut feelings about women play a part in his executive decisions, it impairs his self image of his own masculinity- a fearful prospect.” Concurrently, female professionals who exhibit appropriately ‘logical’ management styles risk being “characterized as cold, unattractive, spinsterish, masculinized people who ‘think like men.’” They are described as ‘sexless,’ as hard, unfeeling freaks.”³⁷ By serving to keep qualified women from positions for which they are the best candidate, she warned, such unconscious biases served as a recipe for “financial disaster.” Subsequent letters responding to Siegel’s piece expressed “unqualified admiration,” again being printed under a caption which was a far cry from those of 1971.³⁸ Siegel’s piece and these letters served as the last word for the flurry of interest in gender issues in 1974-1976.

A second wave of articles addressing women in the field can be found from 1978-1980, this time adopting a retrospective viewpoint. This trend began with the 1978 Forum piece “Up From Programming,” in which author Dorothy A. Walsh discussed her career as a programmer of IBM 704s in the early 1960s, describing the skill of her female coworkers, and the sexism to which they were subjected.³⁹ “It would be quite a victory for women’s rights,” she concluded, “if women could be made managers even when they are only equal (not clearly superior) to male candidates.”⁴⁰ Subsequent letters

35 *Datamation*, March 1976, 8.

36 Gonnie Siegel, “The Best Man for the Job May Be a Woman,” *Datamation*, June 1976, 196-200.

37 *Ibid*, 196.

38 *Datamation*, September 1976, 8.

39 [Worth mining for case-study information; should be covered in depth elsewhere]

40 Dorothy A. Walsh, “Up From Programming,” *Datamation*, November 1, 1978, 227-230.

in response were laudatory.⁴¹

Anne-Marie Lamb's 1979 "Profiling Computer People: A First Draft," briefly addressed equal opportunity employment in the field from a similarly retrospective viewpoint, arguing that though "one recent estimate placed the percentage of women programmers and systems analysts at 16.5," which "is probably as good as, if not better than, any other sector," the historical openness of the field to women in its early days rendered subsequent rates of growth disappointing.⁴²

Datamation's editorial interest in the retrospective viewpoint of women in the field was further demonstrated by the 1980 piece "Women in Management: A Conversation,"⁴³ a multi-page article which documents a round-table discussion engendered between five women in senior management roles related to computing. "No large corporation," they concluded, "can afford to discriminate."⁴⁴ This confident prediction of the future was echoed by the 1981 article "The Growing DP Job Market," which noted that in the field of computing "female employment grew more than 100% between 1972 and 1978," and that in the economy as a whole "by 1990, in the 20-24 age group, more women will work than men."⁴⁵ "Obviously," the article concludes, "current discrimination based upon ascribed characteristics such as race, sex, and age will have to be eliminated as a matter of economic necessity. By 1990, women and racial minorities will be recruited not because of legislation, but because their members are desperately needed in the dp workforce. Those organizations most successful at converting the rhetoric of affirmative action into aggressive and effective recruitment programs will have an advantage in reaching this important new source of potential programmers and analysts."⁴⁶

The 1982 article "The Old Clothes of Advertising" was emblematic of the tonal shift of the 1970s.

This retrospective of ads from the past 25 years of *Datamation* included a Recognition Equipment

41 Letters: 'Women in Computing,' *Datamation*, February 1979, 43.

42 Ann-Marie Lamb, "Profiling Computer People: A First Draft," *Datamation*, January 1979, 139.

43 "Women in Management: A Conversation," *Datamation*, April 1980, 131-140.

44 *Ibid.*, 139.

45 Daniel J. Hiltz, "The Growing DP Job Market," *Datamation*, April 1981, 219-222.

46 *Ibid.*, 222.

OCR ad promising that the machine would not take maternity leave among the old advertisements which were “good for a chuckle or two”. Entrex’s “dumb blonde” ad, however, was not included, because, the article notes, the company denied permission to reprint it.⁴⁷ While the tone of the article was one of amusement, not outrage, over the blatant sexism of the ads of yesteryear, the fact that the climate had shifted from Entrex’s use of a full-page, color ad to an unwillingness to allow it to be reprinted in a mere 12 years is notable.

A question left unanswered by this analysis, of course, is whether the shift in *Datamation’s* public rhetoric is at all reflective of actual industry practice. It would be naïve in the extreme to assert, for instance, that an increased publicly expressed concern for women’s issues in business meant that executives were actually ever seriously concerned about what percentage of their workforce was female.

Nonetheless, as discussed above, public rhetoric does not take place in a vacuum. Even a rhetorical shift from hostility and condescension toward female DP professionals to a more supportive attitude could be a significant contributor to aspiring professionals’ decision to enter the field, as could the increased visibility of potential female role models through articles profiling their progress in the industry. As a major forum within the computing industry, *Datamation’s* shift in editorial tone was potentially as important in affecting the industry’s climate as in indicating it.

Throughout the period surveyed, the percentage of women in the rapidly growing computing industry workforce itself continued to rise, peaking in the mid-1980s. Three major potential contributing factors for this were state and federal equal opportunity and affirmative action laws, the ever-present shortage of programmers as demand for their services outstripped even their explosively growing supply, and the general second-wave feminist movement.

Little concern with equal opportunity, much less affirmative action laws can be found in the pages

⁴⁷ Deborah Sojka, “The Old Clothes of Advertising,” *Datamation*, September 1982, 137.

of *Datamation*, potentially supporting Robert Patrick's assertion that "laws passed in 1964 took six years before anybody noticed them, and eight years before management started to take them seriously."⁴⁸

The programmer shortage was an ever-present background issue throughout this period, addressed within the pages of *Datamation* every few years. Nonetheless, the concept of women as an underutilized source of programming talent appeared only sporadically, and did not seem to attract much attention outside the Letters page. *Datamation*, of course, was not the personnel department of a computer company, where one would expect more attention to be paid to potential recruiting strategies. As it stood, however, within the public forum provided by *Datamation*, such strategies based on increasing female participation were not a particularly prominent area of discussion.

Instead, gender issues tended to reach the editorial consciousness of *Datamation* as an expression of feminist consciousness. Letters decrying sexism, and subsequent articles discussing the status of women in the field were oriented not toward laws or business strategy, but the sense that women's issues were worthy of comment in themselves. This is not to suggest, of course, that the editorial board of *Datamation* were converted into feminist agitators in the mid-1970s (gender issues continued to be addressed more in the breach than the observance even after this period; it is the shift in editorial tone in this period which is significant). Rather, the essential point is that this shift in tone seems to have been more in response to a general shift in (publicly acceptable) attitudes toward women than to a view of female participation as legally or economically advantageous.

While an analysis of *Datamation* provides a longitudinal view of industry discourse for the period in question, an company-focused view can provide a useful counterpoint. For this study, I have used the Burroughs and Control Data Corporation archives, held at the Charles Babbage Institute. While this study is ongoing, even the preliminary results are striking in their contrast.

48 Patrick, "You've Come a Long Way, Baby," 193.

Burroughs Corporation recruiting materials conform remarkably to the trends observed in *Datamation*. Burroughs recruiting brochures from the 1960s and early 1970s are conspicuous in their uniformity, picturing only white men in prestigious jobs such as engineering and marketing. The few women who are pictured in this period are shown exclusively in low-status roles, such as the assembly of computers or as clerical workers being directed by their high-status male peers who are the subject of the picture.⁴⁹ As with the pages of *Datamation* in this period, the impression given by these documents is of Burroughs as exclusively a man's world: an image-making narrative which could only have served to reinforce itself.

This image-making began to shift in the early 1970s, changing completely by 1974. In marked contrast to the almost exclusively male-dominated brochure of previous years, the brochure for that year, entitled "Consider Burroughs... Where People Make the Difference" features a degree of diversity as conspicuous in its presence as its absence was in previous material. Each two pages of this document, organized thematically by corporate department, features photographs of women (and African-Americans) employed in that department, displayed without comment alongside their white male peers as exemplars of that department's personnel [Figure 4].⁵⁰ Prestigious and technically-oriented departments, including programming, are no exception, in marked contrast to previous exclusive images of women in low-status jobs. Subsequent recruiting brochures (the collection continues to 1982) follow this general pattern.⁵¹

It seems clear that this sharp discontinuity is no accident: before the 1974 brochure was created, Burroughs' recruiting department made the conscious decision (or was instructed) to highlight images of diversity in the company's corporate image. Gender and race were apparently the major areas of interest in this emphasis. It is remarkable how closely the timing of this shift in Burroughs' public

49 CBI 90:20, Box 1, Folder 4-5.

50 "Consider Burroughs... Where People Make the Difference," CBI 90:20, Box 1, Folder 5.

51 CBI 90:20, Box 1, Folder 5-6.

image-making conforms to the editorial shift in *Datamation*: the first major positive treatment of women's issues in the industry, Asprey and Laffan's "Women Speak Out on DP Careers," was published just one year later, in 1975. At the risk of seeming cynical, it seems doubtful that *Datamation*'s editors and Burroughs' recruiting department became ardent feminists in the span of a year or two. It seems more likely that both came to regard a more-diverse public image as advantageous to hold around 1974-'75. The virtual simultaneity of this decision lends credence to the idea that it was not idiosyncratic. Rather, it seems reasonable to suggest that in the mid-1970s, members of the computing industry came to understand that it was no longer advantageous to promulgate a public image devoid of diversity.

In the case of a company like Burroughs, it is reasonable to ask whether this newfound commitment to diversity in recruiting materials represented a general concern with its corporate image, or a response to federal and state equal opportunity laws (note Robert Patrick's 1976 assertion in *Datamation* that laws passed in 1964 did not have real impact in the industry until the 1973-1975 timeframe). At the time of writing, the evidence to discern between these two explanations has not been uncovered, but it does seem clear that, whether the motivation was legal or merely one of public image, Burroughs conformed to a general industry trend of greater public attention to diversity in the mid-1970s.

Archival materials from the Control Data Corporation also display a growth in concern for equal opportunity in the mid-1970s. In 1975, for instance, the company ran an equal opportunity executive training seminar with the consulting firm Boyle/Kirkman Associates, which outlined federal equal opportunity employment laws, outlined compliance strategies, and reiterated a corporate affirmative action policy which called for the "aggressive recruitment, selection and placement... of women."⁵² The documents from this seminar are attentively marked in pencil, evidently having been taken seriously.

52 "Memo on EEO/AA," CBI 80:6, Box 5, Folder 2.

The internal company policy cited in this seminar, however, dates in full from 1971.⁵³ In addition to exhortations for the “aggressive recruitment” and “increas[ed]... numerical participation” at all levels of the company, this policy explicitly outlines the logic which can be inferred from Burroughs recruiting material: “when employees are featured in product or consumer advertising, employee handbooks, or similar publications... men and women should be pictured.”⁵⁴ “When employees are pictured in... help wanted advertising,” it goes on to say, “women should be shown,” and “help wanted advertising should be expanded to include... women's interest media.”⁵⁵ What is particularly noteworthy about this policy is that it was enacted several years before any comparable shift can be observed in Burroughs materials or the pages of *Datamation*, which was at the time giving letters protesting sexist ads condescending captions like “Lib and Let Lib.” Furthermore, it appears that Control Data was making similar recruiting efforts aimed at women as early as the late 1960s.⁵⁶ These efforts can appear misguided to contemporary eyes (a proudly touted 1969 'Happen-In for Women,' intended as a recruiting tool, in which a “buffet, music, prizes, and fashion show highlight the event which will include interviews of other career girls in the computer industry” is a particularly egregious example).⁵⁷ The fact that this effort was being made at the time that it was, however, is noteworthy, and stands in contrast to the Burroughs and *Datamation* examples.

Further evidence for Control Data's relatively early interest in recruiting women can be found in the educational services it offered, especially the Control Data Institutes. These were a series of private vocational schools set up by Control Data on a for-profit basis beginning in the mid-1960s, eventually numbering several dozen. Though oriented toward training technicians, at least some of the CDIs

53 Ibid, Appendix G.

54 Ibid, Appendix G, p. 35.

55 Ibid, p. 37.

56 See Figure 10.2 in Janet Abbate, “The Pleasure Paradox: Bridging the Gap Between Popular Images of Computing and Women's Historical Experiences,” in Misa, ed, *Gender Codes*, p. 216.

57 “Control Data Plans Happen-In to Recruit Women,” February 19, 1969, CBI 80:13, Box 3, Folder 1.

produced programmers, according to *Datamation*.⁵⁸ The course of Control Data's public portrayal of the CDIs in its press releases shows a growing rhetoric of female participation. Though press releases touting the early CDIs in 1965 and '66 ignored gender issues,⁵⁹ by 1967 statements emphasizing gender neutrality (the substitution of the word “individuals” for the earlier “young men,” and the repetition of a quote by the company's president, William Norris, calling for 100,00 new “men and women” to become programmers) began to abound,⁶⁰ and by 1968 and 1969 (when many press releases touted the programming courses offered at the CDIs)⁶¹ explicit attention was being paid to the number of women trained at the CDIs, with a quote by CDI director Layton Kinney emphasizing that “both men and women” graduated from the CDIs, in which “he noted that about 20 percent of the programming technology courses include women” being commonly repeated in press releases about the CDIs in those years.⁶² Control Data likewise partnered with liberal arts colleges to offer programming courses in this period, with one press release touting this fact prominently quoting Kinney as saying that “many women do not realize the computer industry can offer them good jobs...” and that “one objective of our course is to attract and train women for an industry they have largely overlooked.”⁶³

It seems clear that Control Data was consciously pursuing public rhetoric encouraging the training of female programmers in the late 1960s. The motivation for this is not clear, though the programmer shortage of the period seems a likely candidate. Motivation aside, however, this Control Data rhetoric stands in marked contrast to Burroughs' monolithic images of white men in prominent jobs, or *Datamation's* generally misogynistic image-making in this same period. The point here is not to tout Control Data as some sort of paragon of social virtue, but to emphasize the heterogeneity of the public images presented by it and Burroughs. Though the the virtual simultaneity of *Datamation* and

58 *Datamation* November 1972, p 211.

59 See e.g. press release for April 13, 1965 CBI 80:13, Box 1, Folder 15.

60 November 21, 1967, CBI 80:13, Box 2, Folder 5.

61 June 6, 1968, CBI 80:13, Box 2, Folder 7; July 30, 1968, CBI 80:13, Box 2, Folder 8.

62 May 8, 1968, CBI 80:13, Box 2, Folder 7.

63 August 4, 1969, CBI 80:13, Box 3, Folder 5.

Burroughs' shift in image-making around 1974-1975 does suggest that though the computer industry as a whole faced pressures to change public images, the previous actions of Control Data emphasize that the industry cannot be treated solely as one unit. Idiosyncratic corporate cultures and situations must be accounted for in discussing industry attitudes, as the contrast between Control Data and Burroughs shows. The roots of this idiosyncrasy are not as yet clear (though the socially liberal politics of Control Data's management, leading to programs like the construction of inter-city plants, may have played some role), but its very existence is notable.

This contrast between the two corporate cultures evidently continued to reflect in both companies' historical memory of themselves. In the late 1970s, both Burroughs and Control Data produced company histories, which stand in marked contrast to one another. Control Data's contains a lengthy section on its pursuit of corporate social responsibility, mainly detailing its practice of building inner-city plants to employee minorities, but also including a section claiming to have enacted an affirmative-action plan for women in 1965.⁶⁴ As a retrospective official document the significance of this claim must of course be taken with a grain of salt, but it is a fascinating contrast with Burroughs' 1978 "The Burroughs Story," which makes no mention of social issues at all, including women's and minority employment.⁶⁵ Whatever the veracity of Control Data's claims, they provide evidence for its corporate self-identity as a socially conscious company. The authors of Burroughs' official history did not make any similar attempt to construct its past in diverse terms (writing, it should be noted, several years after the shift in public image in Burroughs recruiting materials).

All of this, it should be noted, represents preliminary work, more of which is required (and ongoing) in the CDC and Burroughs archives to solidify our understanding of their respective corporate cultures. Nonetheless, several conclusions can be drawn from this work as it stands now.

64 R. G. Lareau, "Legal Function," in John Sciamanda Executive History, Document B, p 10, CBI 80:23, Box 5, Folder 3. See also miscellaneous company histories, CBI 80:24, Box 2.

65 "The Burroughs Story," Various Drafts, CBI 90:48, Box 2, Folder 1-5.

The first is that much of the material from the 1960s supports Ensmenger's argument that the programming profession was undergoing a conscious campaign of 'masculanization' by its male practitioners in this period.⁶⁶ This push for masculanization can indeed be seen in the pages of *Datamation* in the 1960s, centering around 'humorous' treatments of the 'woman programmer' earlier in the decade and the explicitly gender-based advertisements for OCR machines late in the decade (while keypunchers were of course lower-status workers than programmers, a discourse openly focusing on their perceived feminine foibles is exactly the climate one would expect to support the attempted masculanization of higher-status jobs). Burroughs' recruiting images of its jobs as the preserve of white men likewise conforms to this masculanizing trend.

However, the second conclusion which can be drawn is that even in this period the computing industry did not behave as a monolith. Control Data's public narrative in the later half of the decade stands in notable contrast to Burroughs': the two companies simply cannot be treated unproblematically as interchangeable components of one general industry. The appearance of the series of 'Carol Ching' ads at the same time as the 'dumb blonde' genre of OCR ads likewise suggests that even in the 1960s, competing narratives within the computing industry cannot be neglected.

The third conclusion is that insofar as the industry as a whole *did* behave as a unit, it underwent a sea change in the mid-1970s, rapidly excising previous overtly sexist discourse, placing value on at least the appearance of diversity, and, in the case of *Datamation*, taking editorial notice of women's issues in the field. This is of course not to argue that public pronouncements of commitment to diversity by the computing industry are a sufficient condition for a high rate of female participation in it: if this were so, there should not be a problem of this sort today. It is not even clear that such statements are necessary for this high rate of participation: consider the perseverance and success of female computer professionals in the face of publicly acceptable open hostility of the kind Ensmenger

66 Nathan Ensmenger, "Making Programming Masculine," in Misa, ed, *Gender Codes*.

describes in the decades before the 1970s. It merely seems that a diminishing of this open hostility cannot have hurt. Far from suffering from an (open) push for masculinization from the mid-'70s on, the public discourse in the computing industry became markedly friendlier to women in exactly the decade, between 1975 and 1985, when the percentage of women in the field would surge and peak.

Finally, it seems that while the overtly misogynistic discourse of the 1960s did not return, *Datamation's* attention to gender issues dropped off in the early 1980s. The significance of this, in light of the plateau and decline of the percentage of women in the field in the middle part of the decade is as yet unclear, but this change from the relative attentive editorial treatment of the late 1970s, when the percentage of women in the field was surging, may be significant. This remains another area for further work.