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PAUL BENZON

1 Racialized surveillance and the US census Tabulating labor¹

J. D. Schnepf

On the evening of October 5, 1944, John Mauchly, a professor of electrical engineering at the University of Pennsylvania, was paid a visit by William Madow, an official at the Census Bureau. As Mauchly later recounted it, the bureau's representative expressed a keen interest in acquiring "rapid recording, computing and sorting equipment."² Madow made it clear to the professor that the bureau's current procedures for the "handling and sorting of census data could be speeded up, or taken care of more efficiently" and officials back in Washington were itching for change.³ After the meeting, Mauchly wrote, "the administration of the Census Bureau is active and forward-looking, anxious to try anything new and push it into service if it looks promising."⁴ Several years later, in accordance with this desire for greater efficiency, the United States Bureau of the Census would be the first institution to place an order for the UNIVAC computer from the fledgling Eckert-Mauchly Computer Corporation and would have it in operation by 1951⁵—in time for 20% of the 1950 census's punch card data to be processed by the newly acquired machine.⁶

The acquisition of the UNIVAC symbolized what Former Director of the Census Bureau A. Ross Eckler referred to as "the dawn of the electronic era of mass tabulation" for the United States government.⁷ Indeed, electronic computers have been integral to every national census since. As historians of information technology have pointed out, the development of the electronic computer is part of a long history of calculating technologies shepherded into operation by the Census Bureau to cope with the scale of the national count.⁸ In 1884, former census employee Herman Hollerith patented a series of mechanical tabulators that later became the Hollerith Electric Tabulating Machine, the first punch card system used for census tabulation in 1890.⁹ By the first decade of the twentieth century, the bureau had set up an in-house workshop to construct tabulating equipment of its own.¹⁰ Before the adoption of the computer, then, census compilation regu- larly relied on an array of information tabulating machines. To be sure, his- toriographies of the institution's data processing practices routinely trace the arc of its tabulating equipment's development from its mechanical be- ginnings through to the electronic age.¹¹ However, these accounts overlook

the dynamic relationship between the employees tasked with preparing the census and the tabulating machinery they used to process the count. In this chapter, I contribute to the historiography by examining the complex configuration of labor and machinery particular to the processing of the 1940 census—the last census conducted entirely without the assistance of a computer.¹²

A closer look at the data processing procedures adopted for this count allows us to see that, before the introduction of electronic computers such as the UNIVAC, the bureau's production process resembled what one might find in a Fordist plant: as William Rossiter put it, "The Bureau of the Census may be more correctly called a figure factory."¹³ Applying a Taylorist system of scientific management to the twentieth-century office meant "the breakup of the arrangement under which each clerk did his or her own work according to traditional methods, independent judgment, and light general supervision."¹⁴ In the case of the bureau's Washington office, this meant that rather than charge a single clerk with a complex data processing task, the entire process would be atomized into simple, repetitive actions that expected little need for independent judgment on the part of the employee who performed them. By distributing discrete clerical tasks across its massive workforce, the bureau deskilled its office staff while increasing the overall efficiency of its data processing. Organized according to these principles, the bureau's clerical pool churned out demographic information about the millions of Americans visited by enumerators. Surprisingly, it also looked inward, collecting statistical knowledge about its own Washington, D.C. workforce as well. This is significant because the harvesting of employee data would have dire material consequences for those most vulnerable to state surveillance—the African American women hired by the bureau on a temporary basis for the express purpose of completing the 1940 count (see Figures 1.1 and 1.2).

At nearly every stage of the data processing operations, clerical workers were required to double back to verify that the employee who last handled the population data had done so completely and correctly. Any errors detected were fastidiously recorded: for example, clerks assigned to keep track of the population and housing schedules by hand were required to keep count of errors and fill out a 'Verifier's Report of Errors Found' (Form P-305) to report the final tally.¹⁵ Workers assigned to transcribe preliminary sample data (dubbed "comparison clerks" by one procedural history) were also required to "[fill] out the verifier's report of errors found."¹⁶ At the end of the day, these error reports were delivered to a section chief who posted the total errors committed by each clerk to the daily production record. For punchers and coders, this meant that an errant punch or an incorrect code would be seamlessly transmuted into revelatory and indisputable information about the laborer who placed it there. For the bureau, this meant that through the steady accumulation of verification paperwork it compiled efficiency records to track workplace productivity at the same time it compiled the nation's vital and economic statistics.

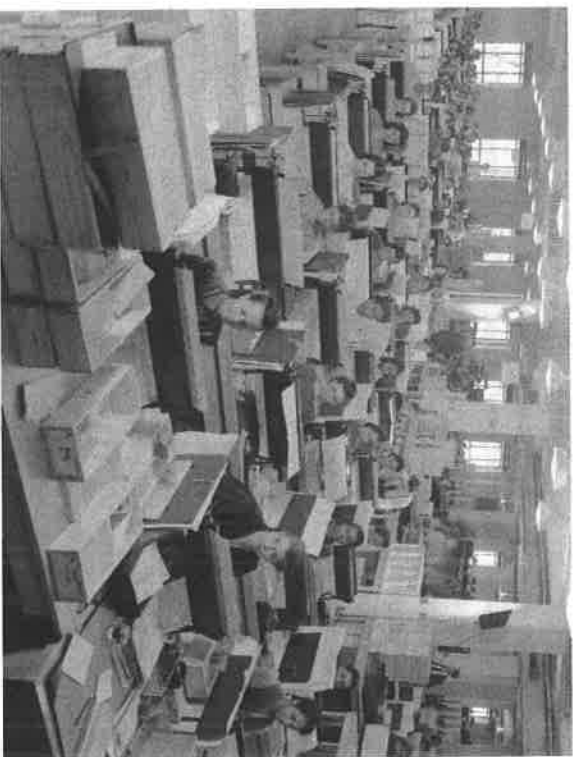


Figure 1.1 "Card Punch Operators Working on Population Cards, Negro Section."
Notes: Record Group 29. Records of the Bureau of the Census, 1790–2007. Series: Photographs Documenting the 16th Decennial Census, 1940–1941. Item: Card Punch Operators Working on Population Cards, Negro Section.



Figure 1.2 "Population and Housing Editors, Negro Section."
Notes: Record Group 29. Records of the Bureau of the Census, 1790–2007. Series: Photographs Documenting the 16th Decennial Census, 1940–1941. Item: Population and Housing Editors, Negro Section.

Tallying employee errors, the bureau trained its formidable recordkeeping capacities on its own workforce. While total supervision in the interest of labor management is a common feature of the Taylorist workplace, the bureau's techniques allowed quality control to be cast in the strictest of quantitative terms. This meticulous harvesting of numerical data from its workers is an example of a phenomenon sociologist Simone Browne, citing Fanon, calls the practice of "control by quantification."¹⁷ The practice of quantifying worker performance accords with Browne's contention that modern surveillance practices that "reify boundaries, borders, and bodies along racial lines, and where the outcome is often discriminatory treatment of those who are negatively racialized by such surveillance" constitute a form of "racializing surveillance."¹⁸ To be sure, the bureau had produced racialized subjects within the US population since the first federal count in 1790. Moreover, the potential for discriminatory treatment of racialized subjects was realized after the 1940 count when the bureau released census data volunteered by Japanese-Americans to the US Secret Service. In this case, "statistical information was used at the microlevel for surveillance of civilian populations," a decision that would enable the mass roundup and internment of Japanese-Americans during World War II (WWII).¹⁹ But the 1940 bureau's practice of in-house workplace surveillance marked the first time that census clerks conducting the tabulations became racialized subjects as an effect of their own tabulation labors. The statistical information they amassed about themselves would later be used to establish the grounds for employee dismissal, a practice that disproportionately affected the bureau's black women workers.

Although Coolidge officially put an end to legalized segregation in the federal government, the rise of racializing surveillance in the years that followed Jim Crow ensured that discriminatory practices would be carried out by other means.²⁰ The bureau subjected hundreds of African American women who received temporary appointments as clerical workers for the 1940 census to discriminatory labor practices that it nominally justified by citing quantified efficiency reports. As we will see, black office workers received lower efficiency scores than their white counterparts by a statistically significant margin. Lower efficiency scores effectively blacklisted this transient workforce, marking them as unfit for future service in the government. In this way, the labor of tabulating of the 1940 census was not incidental to the structural inequality experienced by the bureau's workforce but the very process that enabled it.

The task of tabulating the national census

"To take the count, and tabulate and analyze the returns, will require the services of approximately 150,000 persons," announced a *New York Times* story in 1938.²¹ Yet, as the article dryly noted, "The Census Bureau has a present personnel of about 700."²² The majority of the new hires, "an

army of 120,000 census enumerators,"²³ would handle the door-to-door field work, while the remainder would fill various clerical positions. About 10,000 of those positions would be assigned to staff the bureau's office in the nation's capital.

The impending hiring spree meant greater opportunity for African American clerical workers seeking federal employment. Since Herbert Hoover had abolished segregation in the Bureau of the Census in 1928, census work was seen as a relatively welcoming initiation into the civil service's bureaucratic fold.²⁴ As one local African American newspaper put it,

[t]he Census Office, long considered the "garden spot" in the District for employment for colored clerks and card punchers, has given work and thus financial aid to hundreds of men and women now in professional life in all parts of the world.²⁵

Another newspaper headline queried its readers: "Do You Want a Census Job? Better Hurry!"²⁶ Bureau officials also made direct appeals to potential African American applicants. In a letter sent to the National Urban League in 1939, David K. Niles, the assistant to the Secretary of Commerce, assured interested parties that there would be "[...] no discrimination in regard to race, sex, or religion in the selection of applicants for jobs with the Census Bureau."²⁷ Another official at the census office estimated

nearly 10,000 colored enumerators to be employed in the actual taking of the census. An additional five hundred or more will be brought to Washington in late April or early May to begin the task of compiling and interpreting the field reports.²⁸

In all, 983 African American clerks were hired and trained to work in the Washington office to process and tabulate the 1940 count.²⁹ Some of those hired to the "Office Force," as the bureau called it, worked as messengers or laborers, but the majority filled roles as clerks or card punch operators—office positions that dealt with the formidable task of processing and tabulating the nation's vital information.³⁰

In an effort to manage the staggering amount of information it received, the Washington Office adhered to the principles of scientific management, dividing the work of data processing into 12 discrete steps. When performed in sequence, these steps would "[produce] a flow of materials for the subsequent operations."³¹ All of these operations were performed by clerks assigned specific tasks such as hand counting, verifying, or coding the materials.³² Operations 1–3 required clerks to receive and examine portfolios sent to the head office from around the country. Operation 4 involved hand counts and the verification of additions performed in Operation 3, while Operation 5 verified the hand counts completed in Operation 4 along with other transcription data. Separation and numbering

clerks prepared housing schedules in Operation 6. In the second phase of processing and tabulation, clerks turned to coding operations. Coding, in bureau parlance, referred to the clerical steps by which “non-numerical entries were translated into numerical codes that could be tabulated by mechanical equipment.”³³ Operations 7–12 entailed coding of various data by clerks and verification of that coding to seek out errors. Finally, the punching pool converted coding data onto punch cards to be readable by the bureau’s machines. Under this system of modern management, the office staff’s coders and punchers transformed the handwritten personal information transcribed by enumerators into meticulously edited and double-checked punches on 175,600,000 45-column IBM cards by count’s end.³⁴

As the verification steps in this process attest, clerks were required to tabulate their own errors in a series of operations interwoven into the processing of the population data. The bureau’s method of supervision through self-reporting consisted of these double-checks on the clerical staff by other staff members a step or two down the line. While the management duly noted employee infractions as minor as leaving an open window unattended or tossing a cigarette butt to the ground,³⁵ on-the-job output was subjected to particular scrutiny by the very workers who carried it out. “It was necessary to keep a record of the production and errors of each individual and to monitor this record daily and weekly,” explained one procedural history of the 1940 census.³⁶ And yet, it noted, the amount of a “clerk’s work which was verified depended upon the clerk’s experience.”³⁷ For example,

[I]n the initial stages of coding, all work of each clerk was verified. However, as the clerks gained experience, the section chiefs were allowed to provide specific instructions to the verifiers that adjusted the amount of work verified for particular clerks [...].³⁸

In other words, experienced clerks had their work checked less often, resulting in fewer occasions for errors to accumulate. For new clerks, on the other hand, all work was subject to the rigors of constant inspection. For new punchers, errors found were reported “on a daily basis and plotted on a weekly basis.” To earn less oversight, a puncher needed to maintain near perfect record, defined as “a 4-week period [with] an average error rate of not more than one wrong card per 100 cards punched and no week of an average of 2 wrong cards per 100 punched.”³⁹ Verifying clerks would examine the work of both coding clerks and punchers and fill out a “report of errors found for each day’s work” that included the name of “every person whose work was being verified.”⁴⁰ These daily ledgers of small mistakes stayed with an employee—even accompanying her to other divisions should she happen to transfer. In this way, one’s errors accumulated and ultimately led to the assignment of her personal “efficiency”—a numerical score out of 100.⁴¹

Dismissals and the uses of data

Bureau officials initiated the practice of quantifying employee efficiency in an effort to curb mistakes in the census tabulation, a task made more difficult with a newly trained and rapidly expanding contingent workforce.⁴² By January 1, 1941, “[n]early 10,000 [employees] were on the rolls of the Washington office [...]” noted Chief Statistician Calvert Dedrick in an internal memo.⁴³ For him, the ballooning number of temporary workers was cause for concern:

At the beginning of the three and one-half year appropriation period for the decennial census the Bureau had 868 employees of whom 730 were permanent. On January 1, 1941, 18 months later, the Bureau had 9,987 employees including the small nucleus of 730 permanent trained employees. The training of more than 9,200 employees for temporary work is expensive and wasteful. Furthermore, the turnover of temporary employees is extremely high.⁴⁴

Dedrick posed no solution to the excesses he identified here. Of course, the quandary was of the bureau’s own making. And while Dedrick and other administrators did not approve of the rapid turnover of clerical staff, they nonetheless continued to exacerbate the condition they railed against by calling for a series of mass firings. Just months after hiring for the 1940 census, the bureau abruptly terminated hundreds of clerical positions. On January 2, 1941, *The Washington Post* announced that the first round of temporary employee dismissals at the Census Bureau had already been issued in the editing and coding division and that more were on the way: “The first large cut will come on January 15. Three hundred editors and coders will be cut off then. The staff, however, will be maintained around the 9,000 level until early spring.”⁴⁵ At that point, census officials anticipated the removal of another 2,000–3,000 employees based on a department-wide dismissal policy:

Employees [sic] with efficiency ratings below 70 are being released first [...]. Next to be separated are employees [sic] who were living in the District, Maryland, and Virginia when appointed, who have had six months’ service, and whose efficiency ratings are below 80. Then will come employees [sic] from other States in the Eastern area such as New York, North Carolina, and Massachusetts.

With war raging in Europe, and America’s defense agencies growing, the report optimistically concluded that “a majority of the census employes [sic] should land jobs.”⁴⁶

Not surprisingly, bureau officials appealed to the quantified efficiency measurements in an effort to revoke employment in a manner that aligned

with the rational management standards of the day. Nevertheless, the policy of targeting recently hired workers of temporary status had a disproportionately negative effect on the bureau's recently recruited workforce of African American women. With all their errors counted and without the benefit of time to make good on their training and hone their technique, it was hardly surprising that those workers who had been on the job for only a few months often had the lowest efficiency ratings. On February 8, 1941, news broke that the census's methods of measuring efficiency would mean that hundreds of African American clerks who held temporary positions had no hope of making it on to federal replacement lists. United Federal Workers (UFW), a labor union representing government employees, asserted that "all colored workers in the bureau [except] card punch and messenger workers will be completely eliminated by the end of March." Local 23 of the UFW issued a bulletin outlining a sweeping series of grievances:

that of the first 600 dismissals, one-third are colored; in one division they have already been completely eliminated; that the bureau's policy is to shunt colored workers into positions that are poorly-paid and subject to the earliest dismissals;

That, in the agriculture division, all colored except messengers were eliminated when the routine clerical work was completed; that in the machine tabulation division colored workers are restricted to card punch machines and barred from jobs as operators of tabulating, sorting, and gang punch machines, paying \$1500 to \$1620;

That, in the population division, colored are restricted to those early operations (coding) from which a major part of the dismissals are being made, six hundred being fired between January 15 and 31, of which number about 200 were colored.⁴⁷

The pattern of discrimination was indisputable, the union charged. Across the bureau's various divisions, the numbers confirmed that black workers were consigned to those low-paying, temporary positions set for termination once the processing of the 1940 census was complete.

The UFW compiled and circulated these findings less than two months after its leader, Edgar G. Brown, met with officials at the Census Bureau, including the bureau's Assistant Director Virgil Reed. At first, Reed had pledged an end to bias in the federal government and a commitment to "observance of the U.S. Civil Service Commission's no-discrimination rulings."⁴⁸ The bureau underscored this commitment by announcing that 300 of the approximately 900 African American employees who worked on the calculations would receive \$60 raises, bumping up their \$1,440 salaries to an annual income of \$1,500.⁴⁹ Now, Reed responded to the UFW's charges with indignation: "I was distinctly upset by the receipt of your letter on Saturday which accused me of discriminating against your people," he told one union representative. "We hired 983 colored out of a total of 10,000

workers, which was a porportion [sic] of 9.83 when it should have been 9.70."⁵⁰ When pressed to justify the pending round of dismissals, Reed turned to numbers yet again, referring to the bureau's efficiency ratings as the objective grounds for the firings: "slips were given out on the basis of an efficiency rating which is determined by speed and accuracy without the recorder knowing the race of the worker." He then reiterated the bureau's stated policy: "Those with the lowest rating are dismissed first."⁵¹

But the matter wouldn't be put to rest. Charges of racial discrimination at the Census Bureau surfaced again that October when employees received word that a disproportionate number of African American clerks would be dismissed in the next round of firings. *The Baltimore Afro-American* newspaper revealed that in "the census bureau division located in the Department of Commerce Building at Fourteenth Street and Constitution Avenue, Northwest," workers with grades of "poor" or 'fair,' whether colored or white, would be displaced to make room for workers marked 'excellent' and 'very good,' from divisions that are being discontinued.⁵² Edward Gardner, an executive officer in the bureau's census division, commented on the precarious circumstances this created for outgoing workers by noting they would be prohibited from seeking further employment with the government: "Of course their names will not go on the emergency replacement lists, for their ratings for that must be 'good' or better."⁵³ The bureau also took the unusual approach of publicly pinning responsibility for the slew of low efficiency ratings in the division on Ada Fisher, a 26-year-old Howard University graduate who had supervised the project. According to reports, Fisher's "ratings were directly responsible for the dismissals." Newspapers stated that Fisher's "markings were wholly on the basis of efficiency and that she was not motivated by racial bias either for or against those whose markings were low."⁵⁴ The paper pointed out that, for some in the African American community, this explanation was suspect; it appeared that "Miss Fisher was apparently being used as a tool in the old game of ridding the department of colored workers who would in all probability be replaced by whites."⁵⁵ Once again, recently hired African American workers were put in the same pool as long-term employees with preference given to those with the lowest error rates. By yoking retention to the metric of efficiency, the bureau retained seasoned employees who held positions before the 1940 hiring spree while barring African American clerical workers it had actively recruited into the data processing industry from future government work.

In this particular instance, the bureau acted swiftly in response to mounting pressure from the United Government Employees (UGE) and *The Baltimore Afro-American* that brought the bureau's racializing surveillance practices to the public's attention by exposing the bias inherent in its efficiency ratings.⁵⁶ Although bureau officials did not rehire the temporary office staff who had been let go, they did make provisions to ensure those dismissed were eligible for federal employment in the future. By October 25, 1941, local newspapers

announced that “[f]orty-one former clerical employes [sic] of U.S. Commerce Department, Bureau of the Census, had their dismissal notices recalled” after “publication of the arbitrary efficiency [sic] ratings of sixty-nine for most of those discharged, just one point below the acceptable grade of seventy.”⁵⁷ To remedy the situation, the bureau changed the wording on the notices from, “terminated on account of inability to meet requirements of the service,” to read instead, “due to reduction of force and without prejudice.” As the *Afro-American* reported, the change “immediately restored to [the forty-one clerks] all their constitutional and Civil Service rights.”⁵⁸ This change of phrase—identifying systemic forces rather than individual failings as the cause for dismissal—proved vitally important: it allowed terminated employees to have their labor within the bureau count as work experience and to seek future employment within the federal government.

This victory was followed by new language introduced into the Ramspeck Act, an act guaranteeing federal employees permanent civil service status once they had completed “six months of continuous employment. The new language, adopted in 1942, read: “In carrying out the provisions of this title, etc., there shall be no discrimination against any person, or with respect to the position held by any person, on account of race, creed, or color.” This development had significant consequences for the African American women who held temporary employment at the bureau. As *The New York Amsterdam News* noted,

[Several hundred colored women, classified as card-punchers, clerks and typists, formerly employed on a temporary basis in the enumeration of the U.S. census and recruited from the replacement register, regardless of the quota law and mostly residents of the District of Columbia, will likewise share in the Civil Service benefits of the Ramspeck Act.⁵⁹

Conclusion

Before electronic computers such as the UNIVAC integrated tabulation procedures, the United States Bureau of the Census relied on a staggering array of information tabulating machines: census-built unit counters with 60-column recording sheets, sorting machines, and reproducers, as well as printer-tabulator machines developed by IBM, were crucial to the completion of the 1940 count.⁶⁰ Of course, none of these machines could operate without the bureau’s clerical staff. What’s notable about most historical accounts of the bureau’s contribution to the development of business machine technology and statistical methods is the absence of the workers whose labor made these machines effective tools for data processing. In particular, the absence of African American clerical workers—and the structural disadvantages under which they labored—has effectively erased a vital element of this nation’s pre-computer information processing labor history from public view.

This erasure is particularly striking given the intensive surveillance trained on their every error, and the foundational role the counting of these errors played in the development of new tabulation methods and technologies. In her comprehensive overview of the history of the US decennial population census, Margot J. Anderson recounts that 1940 census officials were eager to eradicate error prone methods and thus were the first to “evaluate their own planning and performance” through quality control tests. In an effort to perfect their work, they took a closer look at the process: “the statisticians noticed that errors crept into the data at a variety of points. [...] They noticed that coders entered the wrong codes for particular answers and that keypunchers might punch the wrong code on the population card.”⁶¹ Of course, it was the clerical workers who counted the thousands of errors that would feed into the bureau’s quality control tests. Based on what they learned from these tests, officials transformed tabulation methods and technologies in the years that followed to reduce census error and improve accuracy.⁶²

And yet publically administrators adopted the curious habit of speaking up about clerks only to affirm their belief that with advances in tabulation technology these human laborers would no longer be needed. To the press, for instance, officials spoke candidly of their hopes that the electronic computer and “its supporting devices for assembling census data” would reduce the bureau’s dependence on an office staff.⁶³ “One [electronic computing system], the bureau says, does the work of about 100 conventional tabulating-machine operators,” reported *The Washington Star*.⁶⁴ And “[o]n the basis of tests to date,” crowed the bureau’s James L. McPherson in 1953—with reference to the FOSDIC machine that would eliminate punch card preparation altogether—“we would hope that the device will enable us to advance the publication dates of the national census to some extent, and significantly reduce the size of the staff necessary in the central office to process census data.”⁶⁵

In 1955, three administrators from the Bureau of the Census directly addressed the matter of office personnel and technological development in hearings before the Subcommittee on Economic Stabilization on the effects of automation and technological advances on the American economy. Asked to reflect on the future of the clerical worker in the age of the UNIVAC, these men took stock of changing labor practices.⁶⁶ “By the time of our next decennial in 1960,” they projected,

we expect that, again, automatic equipment will influence greatly not only how fast we do things but how we do them. We foresee equipment which can greatly reduce our requirements for a large staff of temporary employees to convert the information on schedules to holes in cards. In past decennial censuses we have employed several hundred such key punch operators. We are hopeful that in the future, there will be available equipment capable of reading marks placed on census

schedules by our respondents or enumerators. Such equipment would eliminate the need for the large staff of key punch operators for a short-term job.⁶⁷

Just as William Madow had approached John Mauchly in 1944 with his hope that the “handling and sorting of census data could be speeded up, or taken care of more efficiently,”⁶⁸ the testimony of the bureau’s administrators, 11 years later, betrayed a similar desire, that automatic tabulating equipment would improve the pace of processing. At the same time, these officials spoke of the “large staff of temporary employees” to be eliminated with such equipment while betraying no awareness that their practices of labor management transferred enormous hardships to the bureau’s most vulnerable contingent workers. In the course of quantifying the labor of tabulation to root out errors, the bureau produced the conditions for racialized surveillance practices that perpetuated structural inequality and heightened precarity for the African American office workers who processed the 16th decennial census.

Those who ran the bureau and made the important decisions “about what questions to ask, [and] how to tabulate the answers” were “until quite recently ... overwhelmingly men.”⁶⁹ By uncovering the hidden practices of surveillance built into the 12-step process of tabulating the 1940 census, we see that the men making decisions about how to best conduct and tabulate the census could only do so thanks to the information African American women diligently gathered to about their clerical work. Though never formally recognized for their contributions to the bureau, these clerical workers were responsible for innovations in institutional structure and computing technology that transformed the Census Bureau in the interwar period.

Notes

- 1 With thanks to Dan Bouk, Paul Benzou, David Hollingshead, and the editors of this volume for their keen insights and valuable advice.
- 2 “Notes from a Conversation with Mr. Madow of the Census Bureau.” John W. Mauchly papers. MS Collection 925. Box 10, Folder 61. October 9, 1944, 1.
- 3 *Ibid.*, 2.
- 4 *Ibid.*
- 5 “John W. Mauchly papers,” University of Pennsylvania Finding Aids, accessed May 25, 2017, http://dla.library.upenn.edu/dla/ead/detail.html?id=EAD_upenn_rhml_PUSpMsColl925.
- 6 Keith S. Reid-Green, “The History of Census Tabulation,” *Scientific American*, February 1989, 98–103.
- 7 Joseph W. Duncan and William C. Shelton, *Revolution in United States Government Statistics, 1926–1976* (Washington, DC: U.S. Dept. of Commerce, Office of Federal Statistical Policy and Standards, 1978), 119.
- 8 See also Martin Campbell-Kelly and William Asprey, *Computer: A History of the Information Machine* (New York: Basic Books, 1996).
- 9 *Ibid.*, 116–7.

- 10 Reid-Green, “The History,” 102.
- 11 *Ibid.*, 102–3; Duncan and Shelton, *Revolution in United States*, 116–44; Leon E. Truesdell, *The Development of Punch Card Tabulation in the Bureau of the Census, 1890–1940* (Washington, DC: Government Printing Office, 1965), 207–8.
- 12 Historian JoAnne Yates notes that studies that do examine the shift from pre-computer to computer technology from a user perspective generally look to government and defense contractors and less frequently look to user industries or corporations (4). For example, Yates tracks the “transition across what is often assumed to be a great divide between pre-computer information technologies and the computer” in the life insurance industry (4). See JoAnne Yates, *Structuring the Information Age: Life Insurance and Technology in the Twentieth Century* (Baltimore, MD: The Johns Hopkins University Press, 2005).
- 13 Quoted in Margo J. Anderson, *The American Census: A Social History* (New Haven, CT: Yale University Press, 1988), 16.
- 14 Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*, (New York: Monthly Review Press), 212.
- 15 Robert Jenkins, *Procedural History of the 1940 Census* (Madison: The Center for Demography and Ecology, University of Wisconsin, 1983), 52.
- 16 *Ibid.*, 56.
- 17 Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham: Duke University Press, 2015), 6.
- 18 *Ibid.*, 15–16.
- 19 J.R. Minkel, “Confirmed: The U.S. Census Bureau Gave Up Names of Japanese-Americans in WWII,” *Scientific American*, March 30, 2007.
- 20 Archival photographs of the Washington office during the 1940 count clearly show workplace segregation. When questioned, the bureau claimed “this had been the desire of the colored workers who asserted that in that way they could have more supervisors and section heads from their group.” See “Bias Rampant in Census Bureau, UFW Charges,” *The Baltimore Afro-American*, February 8, 1941, 8. An ample body of scholarship traces how federal Jim Crow was at work across the federal government in the late nineteenth and twentieth century. See Desmond King, *Separate and Unequal: Black Americans and the US Federal Government* (Oxford: Clarendon Press, 1995); Nicholas Parler, *Jim Crow and the Wilson Administration: Protesting Federal Segregation in the Early Twentieth Century* (Boulder: University of Colorado Press, 2004); Eric Yellin, *Racism in the Nation's Service: Government Workers and the Color Line in Woodrow Wilson's America* (Chapel Hill: The University of North Carolina, 2013); Samuel Krislow, *The Negro in Federal Employment: The Quest for Equal Opportunity* (Minneapolis: University of Minnesota, 1967).
- 21 “Census Bureau Faces Heavy Task for 1940: Changes in Nation's Life Make Decennial Count Difficult,” Special Correspondence, *The New York Times*, November 6, 1938, 84.
- 22 *Ibid.*, 84. To cite just one example of the disparity between the staff size during regular operations versus census operations, one report from the Machine Tabulation Division—where “cards are punched and tabulations made for all studies requiring the use of punch cards”—confirmed that, as of March 20, 1937, it maintained a staff of only “105 people.” However, the report went on, “[i]n the Census of 1930 there were employed approximately 2,000 punching cards and 950 on tabulating and work incidental thereto.” See “Machine Tabulation Division” report, April 1, 1937, Entry 210, Box 222, Folder: Misc. Bureau Activities. Record Group: 29. Title: Records of the Bureau of the Census, Administrative Records of the Bureau of the Census, Records of the

- Office of the Assistant Director for Statistical Standards, Records of the Chief Statistician, General Records Maintained by Calvert Dedrick, 1935-1942. Vital Statistics; Miscellaneous. Washington, DC.
- 23 Luther A. Huston, "Census Preparations Set on Gigantic Scale: Myriad Questions for Decennial Survey Took Two Years to Evolve, and Army of 120,000 is Needed to Ask Them," *New York Times*, March 3, 1940, 72. The pre-count estimate of 120,000 enumerators was confirmed after the 1940 census in the "Rescheduling of Census Inquirers" report, Entry 210, Box 222, Folder: Misc. Bureau Organization. Record Group: 29. Title: Records of the Bureau of the Census, Administrative Records of the Bureau of the Census, Records of the Office of the Assistant Director for Statistical Standards, Records of the Chief Statistician, General Records Maintained by Calvert Dedrick, 1935-1942. Vital Statistics; Miscellaneous. Washington, DC.
- 24 Desmond King, *Separate and Unequal: Black Americans and the US Federal Government* (Oxford: Clarendon Press, 1995), 23.
- 25 "209 Commerce Employees Get \$291,000 Annually," *The Afro-American*, October 23, 1937, 22.
- 26 "Do You Want a Census Job? Better Hurry!" *The Baltimore Afro-American*, February 10, 1940, 11.
- 27 "No Bias on Census Job, Bureau Promises," *The Baltimore Afro-American*, November 18, 1939, 6.
- 28 "200 on Job as Census Workers," *The Baltimore Afro-American*, February 17, 1940, 24.
- 29 "Bias Rampant in Census Bureau, UFW Charges," *The Baltimore Afro-American*, February 8, 1941, 8.
- 30 "Efficiency Report," Entry 203, Box 1, Folder: Appointments. Record Group: 29. Title: Records of the Bureau of the Census, Administrative Records of the Bureau of the Census, Records of the Office of the Assistant, Director for Statistical Standards, Records of the Chief Statistician. Office File of Joseph A. Hill, 1912-1940.
- 31 Jenkins, *Procedural History*, 46.
- 32 For example, one procedural history of the 1940 census lists Washington office workers with titles as varied as "receipt clerks," "control file record clerks," "examination clerks," "comparison clerks," "verification clerks," "separation clerks," "numbering clerks," "coding clerks," "routing clerks," "control clerks," and "occupation coding clerks," in addition to "migration editors," "age-assigners," "general population coders," "verifiers," and "card punchers." See also Jenkins, Chapter 4.
- 33 Jenkins, *Procedural History*, 61.
- 34 *Ibid.*, 80.
- 35 "Circular Letter, October 1937," and "Circular Letter, July 18, 1937," Entry 202, Box 3, Folder: General Orders, 1931-1937. Record Group: 29. Title: Records of the Bureau of the Census, Administrative Records of the Bureau of the Census, Records of the Office of the Assistant, Director for Statistical Standards, Records of the Chief Statistician. Correspondence of Joseph A. Hill, 1911-1940.
- 36 Jenkins, *Procedural History*, 74.
- 37 *Ibid.*
- 38 *Ibid.*
- 39 *Ibid.*, 80.
- 40 *Ibid.*, 74.
- 41 "Efficiency Report" for Nell B. Spence, Entry 203, Box 1, Folder: Appointments. Record Group: 29. Title: Records of the Bureau of the Census, Administrative Records of the Bureau of the Census, Records of the Office of the

- Assistant, Director for Statistical Standards, Records of the Chief Statistician. Office File of Joseph A. Hill, 1912-1940.
- 42 See Anderson, *The American Census*, on tabulation errors in the 1940 Census, 194-9.
- 43 "Rescheduling of Census Inquiries" report, Entry 210, Box 222, Folder: Misc. Bureau Organization. Record Group: 29. Title: Records of the Bureau of the Census, Administrative Records of the Bureau of the Census, Records of the Office of the Assistant Director for Statistical Standards, Records of the Chief Statistician, General Records Maintained by Calvert Dedrick, 1935-1942. Vital Statistics; Miscellaneous. Washington, DC.
- 44 *Ibid.*
- 45 Jerry Kluntz, "The Federal Diary," *The Washington Post*, January 2, 1941, 13.
- 46 *Ibid.*
- 47 "Bias Rampant in Census Bureau, UFW Charges," 8.
- 48 "Pledging End to Civil Service Bias," *The Baltimore Afro-American*, Dec 14, 1940, 8.
- 49 *Ibid.*, 8. This by no means put the matter to rest. On behalf of the United Government Employees, Edgar G. Brown met with White House and United States Civil Service Commission officials in May 1941 to seek assurances that "recently reported cases of discrimination against Negro clerical eligible for positions in the federal service" would come to an end. See "United Government Employees Win No-Discrimination Pledge From U.S. Civil Service," *Cleveland Call and Post*, May 10, 1941, 4.
- 50 "Bias Rampant in Census Bureau, UFW Charges," 8.
- 51 *Ibid.*
- 52 "Census Bureau Denies Bias," *The Baltimore Afro-American*, October 11, 1941, 10.
- 53 *Ibid.*
- 54 *Ibid.*
- 55 *Ibid.* On Ada C. Fisher, see 1940 U.S. Census Federal Census for Washington, DC, sheet number 20A, line number 29, available at AncestryLibrary.com.
- 56 "Recall Census Workers after AFRO Expose," *The Baltimore Afro-American*, October 25, 1941, 11.
- 57 *Ibid.*
- 58 *Ibid.*
- 59 "The Nation's Capital: Thousands of Negroes lose permanent 'white collar' jobs under NYA, FSA, and WPA in 1942, but gain Civil Service status in CCC, Federal Security and Federal Work agencies." *New York Amsterdam News*, January 10, 1942, 12.
- 60 Jenkins, *Procedural History*, 82-83.
- 61 Anderson, *The American Census*, 194.
- 62 *Ibid.*, 197.
- 63 Truesdell, *The Development of Punch Card Tabulation in the Bureau of the Census, 1890-1940*, 208.
- 64 "Automation and Technological Change." *Congress of the United States, Hearings Before the Subcommittee on Economic Stabilization of the Joint Committee on the Economic Report* (Washington, DC, Monday, October 24, 1955), 229.
- 65 "Census Gets New Machine: Standards Bureau Obliges With Helpmate for 'Brain.'" *The Baltimore Sun*, Dec 8, 1953, 7.
- 66 "Automation and Technological Change," 1.
- 67 *Ibid.*, 78.
- 68 John W. Mauchly papers, 2.
- 69 Anderson, *The American Census*, 2.