

# The Larkin's Technologies of Trust

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In September 1932, Darwin D. Martin, recently retired from his position as corporate secretary at the Larkin Company, published a small pamphlet in which he took credit for an invention that he claimed had changed the way his former company did business.<sup>1</sup> The Larkin Company was founded in 1875 in Buffalo, New York, as a modest soap-manufacturing facility, but it had grown exponentially in the first decade of its existence thanks to an ingenious marketing strategy.<sup>2</sup> Known as the “Larkin Idea,” this strategy had two crucial components (Figure 1). First, starting in the 1880s, the company began offering premium incentives—everything from tea sets to “Chautauqua” desks—alongside soap. This premium system became so successful that by the turn of the century the Larkin had become one of the primary mail-order businesses in the United States.<sup>3</sup> Second, the company targeted customers directly through a “factory-to-family” delivery system.<sup>4</sup> This meant that instead of middlemen, the company used its female customers as its sales force. These women, who signed up to form “Larkin Clubs” and volunteered as “Larkin secretaries,” effectively became the company’s foot soldiers, marketing its products all over the United States.<sup>5</sup>

A rhetoric of “family” was crucial to the success of this double-pronged marketing strategy. Not only did the company refer to its employees as core family and its customers as an extended family of sorts, but it also prided itself on delivering directly to familial networks. As the first historian of the company, Mildred Schlei, explained in 1932, the growth of



**Figure 1** Cover of the premium catalogue *The Larkin Idea* (Buffalo, N.Y.: Larkin Soap Company, 1901).

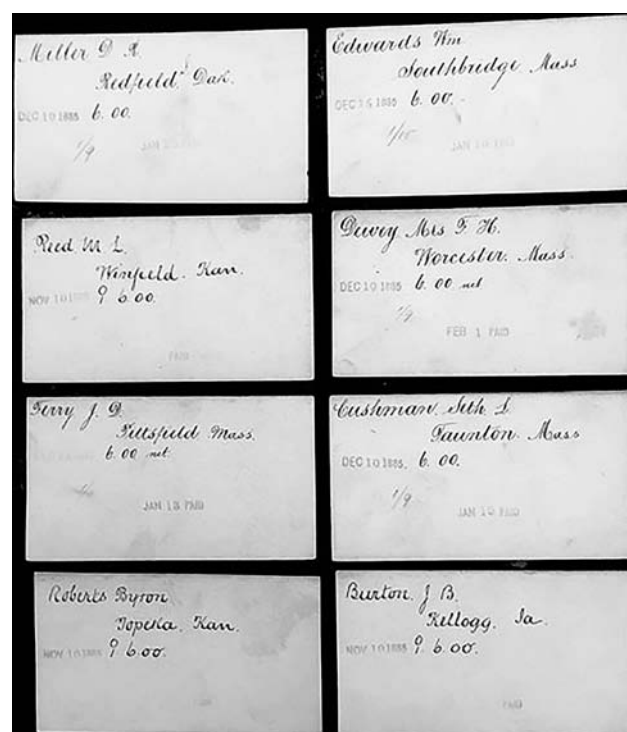
these networks depended on personal bonds of acquaintance.<sup>6</sup> Customers could attain first-class status, which entitled them to the more desirable “Club Premiums,” only by demonstrating their trustworthiness, which meant enlisting and vouching for other “responsible” new customers.<sup>7</sup> Historians have described this kind of enterprise as “welfare capitalism” and the Larkin as a benign form of corporate entity. Unlike many of their contemporaries, Larkin employees—at least the salaried ones at the company’s headquarters—received competitive

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pay and were able to participate in a profit-sharing scheme; the company also supported social clubs and provided in-house publications, subsidized meals, free classes, and extra-curricular activities, including field trips. There was even a dental clinic housed within the Larkin complex in Buffalo.<sup>8</sup>

Yet the Larkin's success also produced a significant challenge for Martin, who was responsible for overseeing the company's bookkeeping in the early years. By 1885, the company had expanded its manufacturing facilities to keep up with the growth in sales, but its offices remained more or less the same size. This was despite the fact that, with no middlemen selling merchandise in large quantities, every single sale had to be processed at the company's headquarters.<sup>9</sup> The bookkeepers were overwhelmed. According to Martin, adopting the "Burr's Patent Combination Index," the latest industry-standard ledger, did not improve matters.<sup>10</sup> As heavy volumes of bound company ledgers kept piling up, each bursting at the seams with names, addresses, and accounts of debit and credit, Martin was at a loss. "The ordeal of months and the rather arduous daily work with the cumbersome broad index-volume of the ledgers," he wrote, "bore in upon me the necessity of something more efficient."<sup>11</sup> Only then did it occur to him that the Buffalo Public Library was using a new indexing system that could be adapted for bookkeeping purposes. In fact, the Library Bureau, founded in Boston by Melvil Dewey, inventor of the eponymous decimal system of book classification, had been manufacturing index cards since the mid-1870s and supplying them not only to libraries but also to such diverse enterprises as railroads, banks, hospitals, publishers, and government offices throughout the country.<sup>12</sup> Martin reasoned that keeping accounts on index cards would be convenient for several reasons. First, unlike ledgers in bound volumes, a system of index cards could be expanded with little effort as the number of accounts increased. Second, index cards could be arranged, updated, and rearranged within a drawer, a department, or a branch of the company as needed. Finally, such a system would allow the more menial aspects of the job to be delegated to an army of clerks, who, like most "human computers" before the advent of electronic computing, were primarily women.<sup>13</sup>

Martin's groundbreaking invention, then, had nothing to do with innovations in manufacturing or sales but rather with the seemingly humdrum matter of bookkeeping. In September 1885, the Larkin Company abandoned its bound ledgers and started to keep track of debits and credits on index cards. While the system evolved over the years, Martin's idea of dedicating a separate card to each account, identified by the customer's name, address, and a designated Larkin number, would remain in use until the company's demise in 1942 (Figure 2). Furthermore, the company would subsequently adopt the practice of recording almost every bit of information—from personnel records to supplier accounts—



**Figure 2** Card ledger used at the Larkin Company (B76-1, box 2, folder 1, Darwin D. Martin Papers, Research Library, Buffalo History Museum).

in a similar manner. The U.S. government recognized the ingenuity of the system, and in 1917 the Council of National Defense asked Martin to assist in coordinating the movement of military supplies.<sup>14</sup> The card ledgers, in other words, organized more than accounts. As I aim to show in this essay, they organized the logistical movement of commodities, labor, and capital across the United States.

Martin, however, at first failed to see the full potential of his own invention. According to his initial plan, once a customer had paid in full, the records associated with that customer, known as "weeds" (or "dead" accounts) were to be destroyed.<sup>15</sup> Fortunately, Elbert Hubbard, then responsible for sales at Larkin, intervened to preserve all card records, including the weeds.<sup>16</sup> It was these, after all, that established which customers had paid and which had not. Hubbard thus recognized a condition that would be central to the information economies to come: the Larkin Company's most valuable asset was neither soap nor other merchandise manufactured and sold, but its inventory of names and addresses annotated with indications of trustworthiness—what we would today call its customer database.<sup>17</sup>

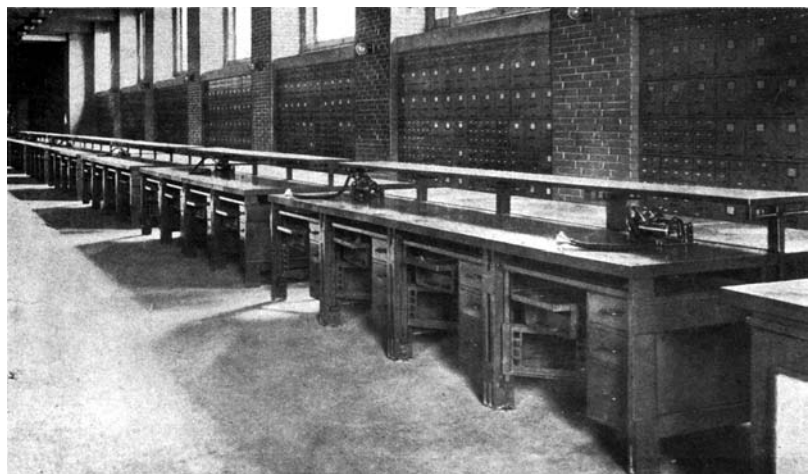
The primary setting of this protodatabase was a building that is today familiar to any student of architectural modernism: the Larkin Administration Building in Buffalo, New York, designed by Frank Lloyd Wright (Figure 3).<sup>18</sup> The building was commissioned in 1903 in no small part thanks to Darwin D. Martin, for whom Wright also designed

a house in the same city.<sup>19</sup> Prominent in histories of architectural modernism even after its demolition in 1950, the Larkin Administration Building has been analyzed from multiple perspectives. Among the most important of these are Vincent Scully's and Neil Levine's examinations of Wright's tectonics and Reyner Banham's provocative argument that the Larkin's air-conditioning system signaled a new—albeit unrecognized—ecological direction for modern architecture.<sup>20</sup> More recently, Michael Osman has continued Banham's line of inquiry by starting his study of environmental regulation in the nineteenth-century United



**Figure 3** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, atrium (LC-1-1, Larkin Company Photograph Collection, Research Library, Buffalo History Museum).

**Figure 4** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, filing cabinets and type C desks (*The Larkin Family Magazine*, Jan. 1909, 7).



States with an examination of the historiography surrounding the Larkin Administration Building, arguing compellingly that its environmental systems should be viewed as an element in the “building’s administrative function.”<sup>21</sup>

My goal in this essay is not to challenge these valuable and provocative accounts. Rather, I propose that the Larkin Administration Building is worth reexamining for another reason: as a building whose design made it possible to handle vast amounts of information. More specifically, I will analyze the equipment designed and used for this purpose—that is, the filing cabinets that held Martin’s card index, the chairs and desks that clerks used as they processed information, and the electrical wiring that facilitated communication throughout the building (Figure 4). If we take at face value Wright’s mysterious claim that the building was an expression of the “Grammar of the Protestant”—an assertion uncannily resonant with Max Weber’s contemporaneous account of the spirit of capitalism—is it possible to find in this iconic building a different kind of technology, one that cannot be subsumed under the categories of the tectonic and the environmental?<sup>22</sup>

Offering a new reading of this well-known building is not my only goal here. Such a reading, I hope, will yield another kind of history as well. Martin’s innovative use of the card ledger established an information regime consisting of standardized and interchangeable units that could be manipulated by computers (even in the absence of electronic computing). Recognizing this might encourage a new way of thinking about the history of an epistemic arrangement pervasive in the present day: the database. Despite the ubiquity of debates concerning the mining, collection, and abuse of data, knowledge of the history of data as a concept remains surprisingly limited. It is assumed that data exist in a raw state; databases are imagined to be made up of discrete units that can be reorganized at will, and the collection of data is associated almost exclusively with electronic computers—with the predictable result that data are repeatedly presented as the inevitable



**Figure 5** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, postcard view of the building within the Larkin industrial complex, ca. 1920.

outcome of technologies that we call “digital.” Architectural history, I will argue, may correct such assumptions and provide a much-needed historicity to conceptions about data. Just as scholars of the early modern period have written compelling histories of the modern “fact” (another favored epistemic unit of modernity) by exposing its unexpected ties to preternatural monsters, double-entry bookkeeping, and note-taking, so might architectural historians be able to write spatial and material histories that challenge contemporary myths about data.<sup>23</sup> What would a historical ontology of data from the perspective of architecture look like?<sup>24</sup> How would such an account inform the historical circumstances under which data might be needed as an epistemic unit? And, perhaps most crucially, what kind of technology does a database represent?

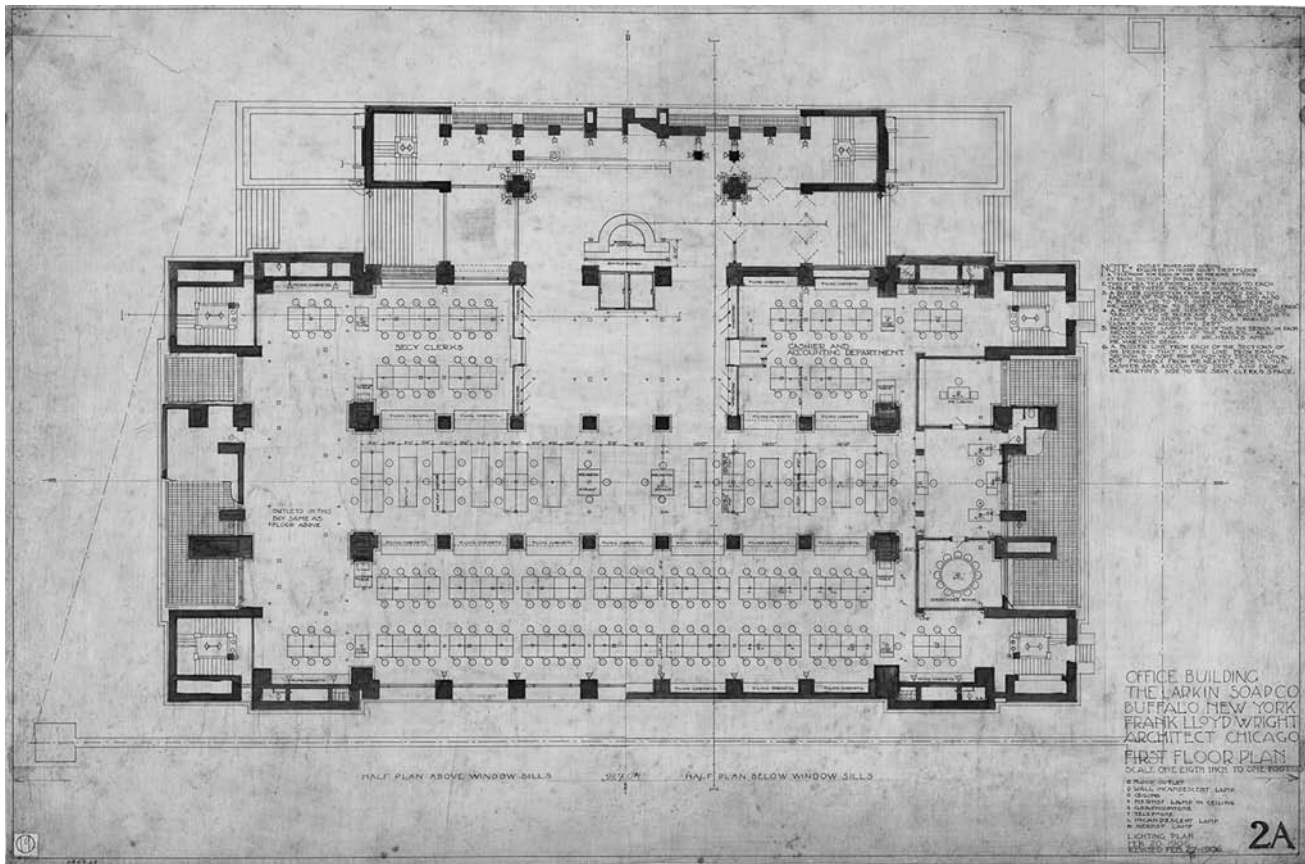
### Addressability, Interchangeability, Expandability

By the time construction of the Larkin Administration Building began in 1904, there were already a dozen eight- to ten-story factory buildings and warehouses on the Larkin grounds, just south of the new building’s site (Figure 5).<sup>25</sup> The office force had been accommodated on several floors of two of the earliest buildings until company executives decided to invest in a new building, the purpose of which would be, as Wright put it, “to house the commercial engine of the Larkin Company in light, wholesome, well-ventilated quarters.”<sup>26</sup> Completed in 1906, the Administration Building was a modest component in a vast complex, but, according to its architect, the new building was nothing less than the company’s “brains and nervous system,” built to “make its corporeal bulk count for something” and “make its nervous energy and intelligence effective to the utmost.”<sup>27</sup>

The building’s tectonic and mechanical systems have been examined at length, so it will suffice here to remind the reader of some key facts about it. The design went through several iterations, but the completed version consisted of two parts:

the seven-story main block, with a rectangular plan and a skylit atrium at its center, and a four-story annex, in which ancillary programs such as bathrooms, lounge, classrooms, library, and locker area were accommodated (Figure 6). The structure was steel framed, clad on the inside and outside with brick for fireproofing, in accordance with the mandate of company founder John D. Larkin, who had witnessed the Great Chicago Fire of 1871. With the exception of the directors’ offices on the first floor and some service spaces on the top floor of the main block, most of the building’s spaces were planned without walls or partitions—an arrangement now known as the open office. The five-story central atrium, which visually connected the building’s interior spaces, was reserved on the main floor for company executives. The balconies overlooking the atrium accommodated the mail, typing, and sales departments, each of which was organized geographically. Circulation was provided by staircases located in the four corner towers, which also served as oversized ventilation shafts. As is well known through Banham, Wright called the building “a simple cliff hermetically sealed,” a monolith that used an elaborate mechanical system whose main components were located in the basement to protect the occupants from the poisonous gases emitted by the industrial buildings and passing trains outside.<sup>28</sup> Some of the materials used in the building were novel, at least in the United States. For example, magnesite, a pour-in-place material reinforced with wood fibers, was used not only on floors but also on the tops and sides of desks, providing fireproofing as well as acoustic cushioning throughout the building.<sup>29</sup>

According to Wright, the entrance lobby’s information desk—adorned for a while with a copy of the sculpture *Winged Victory*—was the hub that held the building together and connected it with the outside world. Evoking the hearth that featured so prominently in many of Wright’s houses, the information desk contained “the telephone switchboards, with a capacity of 300 connections, the electrical Master



**Figure 6** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, plan of main floor (0403.065, The Frank Lloyd Wright Foundation Archives [The Museum of Modern Art | Avery Architectural & Fine Arts Library, Columbia University, New York]).

Clock controlling the numerous secondary clocks and register clocks and automatically ringing the signal gongs throughout the building. . . . Wires extend[ed] from the switchboards to all parts of the building, accessible through metal outlet boxes sunk in the floors, permitting at any desk a direct and invisible connection with telephone, phonograph, light or power, or all of them.”<sup>30</sup> The entire building was threaded together such that “the mere pressure of a button [put] any official of the organization in instant communication with any other member.”<sup>31</sup> Wires also extended outward: private telegraph lines from the information desk reached the offices of Western Union and the U.S. Postal Service (Figure 7).<sup>32</sup> Yet this flow of electrical signals was secondary to another: the flow of paperwork. Consider this account, published in 1909 in the *Larkin Family Magazine*, an in-house publication, about the movement of paperwork within the building, starting with the arrival of mail in the basement:

Pouch after pouch of mail is loaded in, each pouch containing hundreds of orders from enthusiastic Larkin customers. . . . [At the Administration Building] up in the elevator go the pouches, to the In-Mail Department, where as soon as unlocked, fifteen

or twenty young women quickly open and sort the mail into cabinets. . . . As soon as the order is delivered by messenger to its sales department, it receives a number, which serves as a means of future identification. Then, rapidly, quietly and with an accuracy almost mechanical, the order passes through several hands, due-bills and certificates receiving attention, records being examined, new entries made, remittances entered in the cash-journal and numerous other details including necessary statistics for the management, being taken care of. Then with equal rapidity a copy is made of the order on a slip so arranged that the packer can tell at a glance just what is to go into the case. After this the bill-of-lading and shipping-tags for Products and Premiums are made out.<sup>33</sup>

For all his technophilia, Banham failed to recognize that built into the very fabric of the Larkin Administration Building was one of modernism’s most essential technologies: bureaucracy, a particular way of governing whose “technical superiority” Weber would famously analyze.<sup>34</sup> The importance of this bureaucratic work for the company’s success cannot be exaggerated. As sales rose from \$200,000 in 1892 to more than \$15 million by 1906, Larkin became a mail-order business rivaling Sears, Roebuck & Company and Montgomery Ward.<sup>35</sup> By 1903, the mail department was receiving on



**Figure 7** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, information desk (LC-1-27, Larkin Company Photograph Collection, Research Library, Buffalo History Museum).



**Figure 8** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, in-mail department in basement, June 1920 (LC-2-29, Larkin Company Photograph Collection, Research Library, Buffalo History Museum).

average five thousand letters a day as a result of the company's "factory-to-family" strategy: eliminating middlemen (who typically made orders in bulk) meant a dramatic increase in the volume of information handled at the company's headquarters (Figure 8).<sup>36</sup> Thus, Martin did not overstate the significance of his contribution. His new accounting system was crucial to achieving what historian JoAnne Yates identifies as a pivotal transition in American business, from small family organizations relying on the oral transmission of information to complex corporations that "transcend reliance on the individual in favor of dependence on *system*."<sup>37</sup>

Yates further attributes this change to "control through communication." In the case of the Larkin Company this communication took place primarily in systematized paperwork that moved within the building via human messengers. Yet even in the absence of electrical signals, this paperwork manifested a "discretization" that rivaled that of telephony and telegraphy. As suggested by the program of scientific

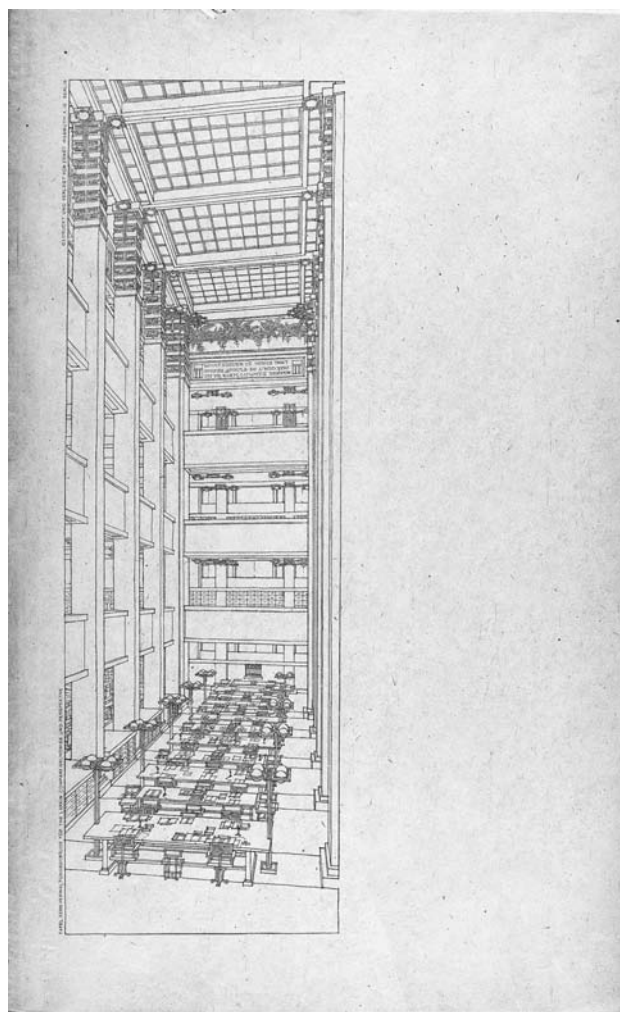
management developed by Frederick Winslow Taylor, every clerical operation that took place in the Larkin Administration Building—no matter how small—was broken up into its elementary, actionable components.<sup>38</sup> Once a task was translated from a complex action into a series of simple ones, each constituent task was given a distinct "form." With this division of tasks into discrete parts, each part—entering a debit or credit, requesting missing information, acknowledging a remittance, sending a premium coupon, and so on—could be handled by an unskilled clerk. According to sociologist C. Wright Mills, this strategy resulted in the complete reorganization of office labor. The difference between the old office that revolved around the judgment of an owner or skilled bookkeeper (like Martin himself) and the new kind that depended on the mechanical labor of numerous young, inexperienced, and poorly compensated clerks (like the Larkin's army of workers) was analogous to the difference between a pick and shovel and a mechanical power scoop.<sup>39</sup> Yet even after all of the



Larkin Company's clerical tasks were mechanized, utmost care was taken to avoid the appearance of impersonality: letters copied from templates in a letter book, for example, were designed to appear to customers as if they were unique responses to their requests, including friendly salutations and closings expressing warm regards.<sup>40</sup>

As the etymology of the word suggests, a bureaucracy is an arrangement in which power originates from a bureau. Or, in more concrete terms, bureaucratic control is exercised from behind a piece of office furniture.<sup>41</sup> Not coincidentally, the Larkin's unique bureaucracy was made possible by the building's furnishings, which, with the possible exception of the filing cabinets, were designed by Wright's office and custom-manufactured by the Van Dorn Iron Works of Cleveland. Some of the designs were patented, despite the fact that an extensive variety of mass-produced office equipment was available at the time.<sup>42</sup> So intense was the attention paid to the design of this equipment that, as Wright put it, "the building [was] its own furnishing" and "its furnishings a part of the building."<sup>43</sup> This becomes clear in the compulsively detailed drawings that Wright's office produced for almost every piece of the building's equipment, from the chairs, desks, and lighting fixtures to the suspended toilet bowls.<sup>44</sup> In an interior perspective from the Wasmuth portfolio, these furnishings compete with the building's much-vaunted tectonic order (Figure 9). Desks and chairs are carefully articulated and so too are the filing cabinets behind the heavy piers surrounding the central atrium. As Wright would note decades later, his only regrets were that his drawings for wastepaper baskets were not implemented and that he was not allowed to design the telephone apparatuses installed throughout the building.<sup>45</sup>

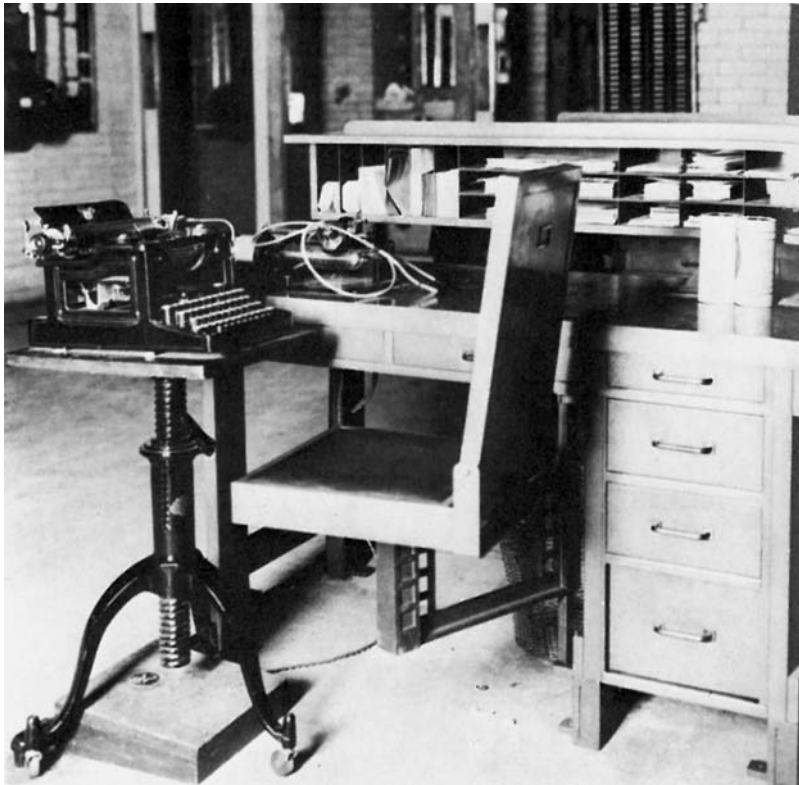
The Larkin Company's corporate hierarchy was inscribed into these furnishings. One could tell an employee's place in the pecking order not only from the location of his or her desk but also from its type. The building housed eighteen hundred employees, and most of these were seated at one of three types of desks. Type A desks were positioned in the atrium; each accommodated six employees, with two pairs of executives facing each other and two secretaries sitting between them (see Figure 3). These desks, furnished with their own filing cabinets and "disappearing covers" that could be pulled out or tucked in to hide or reveal typewriters, alternated with others equipped with graphophones—Larkin-patented devices that recorded executives' voices on wax cylinders for later transcription by typists. According to one observer, George Twitmyer, "by merely turning in his swivel chair," an executive could switch from the desk in front of him to the one behind.<sup>46</sup> Type B desks were designed for chief clerks. These incorporated stowable typewriter tables and arm-mounted chairs that swung free of the floor (Figure 10). Finally, type C desks, for the hundreds of clerical workers, could be fitted with



**Figure 9** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, interior (Frank Lloyd Wright, *Ausgeführte Bauten und Entwürfe*, vol. 1 [Berlin: Wasmuth, 1910], plate XXXIII).

drawers, filing cabinets, or pigeonholes and had openings for graphophones (see Figure 4).<sup>47</sup> Janitors cleaned the building using a vacuum system powered by pneumatic motors, and, according to Wright, equipment such as the arm-mounted chairs saved them significant effort.<sup>48</sup>

The three desk types did not simply accelerate the movement of paperwork. Rather, the furniture carefully modulated the pace of the workflow. While paper lingered on an executive's type A desk, for example, storage in the clerks' type C desks was purposefully minimized. The result, according to one account, was that "at the close of the day the chairs are folded up. . . . The [desk]tops are also cleared of all work, papers going into one of the desk drawers, books and cards filed into the cabinets provided for them. In less than two minutes from the sounding of the time-gong every clerk's desk in the building may be absolutely cleared, leaving not so much as a scrap of paper in sight."<sup>49</sup> If a form had to idle at a clerk's desk, there were strict rules about how it should do so; for



**Figure 10** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, desk type B (*The Larkin Idea* [Buffalo, N.Y.: Larkin Company, 1921], n.p.).



**Figure 11** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, typing department, undated photo (LC-2-17, Larkin Company Photograph Collection, Research Library, Buffalo History Museum).

example, company protocols defined the right and wrong ways to pin papers.<sup>50</sup> The discipline that company executives aspired to maintain through the arrangement of furniture (note that offices were frequently staged for photographs to be published in the company’s publicity material) was a point of pride for Wright. “The general scheme of the arrangement of the desks and filing system,” he wrote, “is as orderly and systematically complete as a well-disciplined army.”<sup>51</sup> The varied clothing of the clerks was the only distraction from this perfect order—a distraction that would soon be

eliminated, executives reportedly promised, with the introduction of uniforms (Figure 11).<sup>52</sup>

The filing cabinets into which Martin’s card ledgers went were crucial to sustaining the Larkin’s military-like order (Figure 12). Previously, the pigeonhole cabinet had been the primary organizing equipment in nineteenth-century offices, providing space for correspondence yet requiring that it be folded.<sup>53</sup> The late 1860s saw the introduction of various horizontal filing technologies that made such folding unnecessary.<sup>54</sup> While the use of card ledgers may have predated the



**Figure 12** Frank Lloyd Wright, Larkin Administration Building, Buffalo, New York, 1903–6, filing cabinets, ca. 1906 (LC-2-19, Larkin Company Photograph Collection, Research Library, Buffalo History Museum).



Larkin Administration Building, the building's filing cabinets incorporated two further innovations: the vertical file system, which kept unfolded documents on edge so that they could be accessed more easily, and the sectional cabinet system, which housed these vertical files within a modular system whose elements could be interchanged as needed. Made of enameled sheet steel and lifted off the floor, the filing cabinets of the Administration Building were integrated within the spandrels between the piers, along the balconies and the exterior walls. The cabinets in the central aisle were provided with locks that controlled all drawers in a particular section. Annotations in the working drawings indicate that the filing cabinets were a consideration in the design of the plan.<sup>55</sup> To the extent that the office equipment generated its own spatial logic, the Larkin Administration Building could be characterized as an “enormous folder.”<sup>56</sup>

Yet what made the Larkin equipment most remarkable was not such metaphoric gestures, but the fact that the building aspired to a quality that information scientists would later call “addressability.” In information architecture, the address signifies the location of information in space (think of a file in a particular cabinet or on a computer), and the index is a way to find that address (think of a directory for a filing cabinet or folders on a computer). Information scientists have long imagined the possibility of a system in which the address overlaps with the index so perfectly that information is stored and retrieved not by its address but by cues from its content. As information scientists L. J. Endicott and P. J. Huyck put it, in such a spatial arrangement (sometimes called “connectionist”), the “user will rarely be aware of index entries, only information content.”<sup>57</sup> The design of the Larkin Administration Building approached this model through its spatial

organization, which was informed by the flow of paperwork, and through a built-in flexibility that allowed for adaptation over time. Even though the equipment was constructed of heavy materials such as steel and oak, it was designed to be movable, adjustable, and interchangeable. Thanks to elaborate swivel, pivot, and caster mechanisms and modular construction, desks could be interlocked with other desks to make a particular department smaller or larger as needed. Chairs swiveled to address various office machines. Filing cabinets could be switched with others within the same modular system. Paperwork could be arranged and rearranged as needed, sometimes placed in cabinets on casters and moved from one part of the building to another. More crucially, the human components of the system could be moved just as easily as the paper and equipment that they handled.

The Larkin Company's vision of infinitely flexible addressability was, in fact, more fantasy than reality. A system predicated on dividing things into their smallest operable components inevitably ran the risk of breaking down, and breakdowns often resulted in the need to devise administrative measures to maintain the organization's precarious equilibrium. For the Larkin Company, this meant that not only the building and the equipment but also the paperwork-handling system itself had to be specially designed. One instrument used to this end was the flowchart. One such chart, modeled on Sears, Roebuck & Company's “Information for Correspondents and Letter Inspectors,” specified in great detail every step of the process from the moment an order was received to the moment it was dispatched to the customer (Figure 13).<sup>58</sup> Every task and every possible outcome was included in the chart, along with the code of the appropriate department and the requisite form number. Likewise, the “Office

Taken from Sears, Roebuck & Co. Manual of Information for Correspondents and Letter Inspectors.

U.S. POSTOFFICE  
UNION STATION

HOW JOHN DOE'S ORDER WAS HANDLED.

DEPT. 145  
STAMPED IN.  
ENVELOPE  
OPENED

DEPT. 145  
MAIL OPENED  
AND READ

DEPT. 146  
PREADJUSTED - CLERK EXAMINES  
REMITTANCE AND ORDER; FINDS  
IT O.K. TO PUT THROUGH

DEPT. 162  
Index Card Showing Date, Invoice No., Depts. and Amt. of Order is filed by State, Town and Customer's Name.

DEPT. 147  
Order Entered. A separate ticket is written for each of the Four Merchandise Depts. Interested; Order Acknowledged by Postal; Index Card sent to 162; Order and tickets to 148.

Auditing.  
Amount and Form of Remittance on Order and Cash Entry Sheet are audited, Order to 147.

Cash Entry Clerk audits Remittance, enters Record on Cash Entry Sheet, Wrapper and Paid No. attached to Order and sent to Auditor. Money sent to Banking Dept.

DEPT. 148  
Received in Dispatching Div.  
Route Clerk  
Freight Receipt is  
Schedule Clerk Stamps  
Loading Date on Each Ticket.  
Tickets are distributed to Tube, and Order and Receipt

DEPT. 148  
Sorted to Route Clerk.  
Routes Via C.B. & Q.  
Scribed in Triplicate.  
Shipping Room Section and Car Freight Receipt and Wrapper  
The Four Merchandise Depts. By Are Sent to Shipping Room Section

DEPT. 166  
Cash Entry Sheet Filled. (Cash Book)

DEPT. 169  
Money Order Cashed. Banking Dept.

DEPT. 1  
1 Clk. Prices Ticket.  
2 Clk. Extends Price and Lists Sale.  
3 Clk. Enters Fcty. Order for Couch.  
4 Ticket and Factory Order to 166.

DEPT. 15  
1 Clk. Prices Ticket  
2 Clk. Extends Price and Lists Sale.  
3 Order Filled.  
4 Order checked.  
5 Ticket and Goods sent to shipping Room Section.

DEPT. 37  
1 Clk. Prices Ticket  
2 Clk. Extends Price and Lists Sale.  
3 Order Filled.  
4 Order Checked.  
5 Ticket and Goods sent to shipping Room Section.

DEPT. 6  
1 Clk. Prices ticket.  
2 Clk. Extends Price and Lists Sale.  
3 Order Filled.  
4 Order Checked.  
5 Ticket and Goods Sent to Shipping Room section.

DEPT. 166  
1 Factory Order Audited and Recorded.  
2 Factory Order Ticket Stamped "Factory" sent to Shipping Room Section to connect with other tickets.  
3 Factory Order O.K. and sent to Dept. 1 to forward to Factory.

TO SHIPPING ROOM SECTION

FREIGHT SHIPPING  
When Order and Receipt are received in Sorting Division, A basket is provided in the section into which the tickets and merchandise are placed when received from the other Departments.  
When all the tickets and Goods are received in the Section, the Order and Tickets are sent to Dept. 170 to Bill.

DEPT. 170  
The Tickets are balanced by the Bill Clerk and Enclosed in a Wrapper. The Tickets and Order then returned to the Section.

DEPTS. 185-186  
After Tickets and Order are returned to The section, they and the goods are sent to the Rechecker, if goods tally with the tickets they are packed.

DEPT. 191  
1 Box is sorted with Freight for C.B. & Q.  
2 Box is placed in C.B. & Q. Stall for Loading in Car.  
2 Box is Loaded in Car for Transfer to C.B. & Q., Billed to Aurora, Ill., and Original Receipt, signed by Customer Agent, is sent to 163.

The Goods and Bill are packed in a Box and Classified, "Box Shoes". The Box and Receipt are sent to the out freight Dept. and the order, after being stamped with date of shipment, to Dept. 163.

DEPT. 163  
1 Freight receipt held about one year in receipt file.  
2 Order and Papers held about four months in letter file.

**Figure 13** “How John Doe’s Order Was Handled,” flowchart taken from the Sears, Roebuck & Company “Manual of Information for Correspondents and Letter Inspectors,” undated (B76-1, box 4, folder 9, Darwin D. Martin Papers, Research Library, Buffalo History Museum).

Manual,” a copy of which Darwin D. Martin heavily annotated, spelled out every possible rule to be followed in the company using a peculiar language of acronyms, abbreviations, and codes: “Put Rem.-stamp L. in the upper right corner,” “Hfi. File Clk. Will write in Area 6 on Div. card,” “Ack. By F. 1303,” and so on.<sup>59</sup> Constant self-correction through internal feedback was crucial to such efforts. A call was made in the company publication *Ourselves*, for example, for employees to hunt down “alligators,” in-house jargon for wasteful elements within the system. In a similar spirit, a suggestion box was set up in the Administration Building and prizes were offered to employees whose suggestions were adopted. According to the regularly published book of suggestions, Mazie King from the Correspondence Division received a prize of two dollars in 1901 for proposing “to add O. No. and date to ‘Frb.’ Or ‘Fwo.’ on Div. C.”<sup>60</sup> As trivial as such revisions might seem, the company bulletin maintained that they played a crucial role in correcting the flaws in the overall system and in preventing employees from “getting into a rut” in their daily undertakings.<sup>61</sup> Despite such measures, mistakes were still made. For this reason, every order processed at the Administration Building was subject to a final review by inspectors, who would double-check the paperwork before sending it to the factory via pneumatic tubes.<sup>62</sup>

Even if the Larkin system had functioned as perfectly as its designers fantasized, it was bound to come up against the physical limitations imposed by the very architecture that made it possible. First, Martin’s index was neither infinitely expandable nor perfectly addressable after all. Nor was the equipment that facilitated the flow of paperwork. Even if one kind of form (or one kind of equipment) might be standardized for a while, forms (and equipment) of all sizes and shapes continued to proliferate, which created problems of compatibility over time. Second, spatialization of information was not a straightforward process. Although, theoretically speaking, the Larkin Administration Building created a flexible framework for information, ultimately every bit of information could occupy only one address at a time. What to do when the entries for the letter *A* overwhelmed the filing system? How to compare defaulting customers when some were filed under New York and others under Illinois? Like all information architecture, the Administration Building, by establishing the medium for the company’s memory and internal organization, inevitably made explicit the limits of that system and presaged its obsolescence. To put it differently, the Larkin Company’s ever-growing database inevitably came up against the walls built to accommodate it. Finally, the system faced resistance on the ground from users who insisted on changing it not according to the logic of information but rather as they saw fit. A minor mutiny almost broke out in 1914, for instance, when one clerk

asked for permission to replace his “very uncomfortable” Wright-designed steel chair with another.<sup>63</sup> The clerk’s request was denied, and the chair remained in place.

It was at such moments that the company’s family rhetoric came to the rescue. Inscribed on the walls of the Administration Building as daily reminders to employees were epigraphs presenting the Larkin organization as, first and foremost, an organism held together by natural ties, a social entity that was more *gemeinschaft* (community) than *gesellschaft* (society), to evoke the famous distinction made by sociologist Ferdinand Tönnies.<sup>64</sup> In promotional literature distributed to employees, the company was described as a “co-operative corporation,” whose spirit of solidarity, it was claimed, was no different from that found in historical liberation movements.<sup>65</sup> According to company historian Schlei, the friendship and trust that the company cultivated among its employees and clients constituted the greatest single contribution to its success. Another commentator compared the company to a “mammoth watch” and noted that, if “organized systems and methods [were] the jewel bearings” of this enterprise, “good will [was] its necessary lubricant.”<sup>66</sup> Apparently, many employees agreed with such characterizations; for example, after describing how two clerks working in the building’s atrium were killed by pieces of falling glass, former employee Mary E. Burke maintained that “[the Larkin] was like your *family*, it was closeness.”<sup>67</sup>

## At Home in the Office, at Work at Home

Historians have traced the increasing demarcation in the West between the spheres of family and work, or private and public life, to the beginning of the nineteenth century.<sup>68</sup> By the end of the century, depictions of the family as a social formation under assault from advancing capitalism were commonplace.<sup>69</sup> Wright, like many other modernists, presented domestic life as a bulwark against the threatening public realm.<sup>70</sup> “A ‘home,’ ” Wright wrote in one of his earliest essays, “may be the noblest of all works of art, and comprise in its entirety the quality and beauty of the most perfect of its artistic units.”<sup>71</sup> In 1954, approaching the end of a long life during which he designed numerous houses, Wright was still evoking the image of a *gemütlich* home: “Back in farm days there was but one big living room,” he wrote, “a stove in it, and Ma was there cooking—looking after the children and talking to Pa.”<sup>72</sup> Historians, for their part, have generally accepted Wright’s romanticization of the hearth as quintessentially American.<sup>73</sup>

Yet in Buffalo, where Wright designed not only the Larkin Administration Building but also a house for Darwin D. Martin, the administrative logic of the company seeped into the family even as the logic of family permeated the workplace (Figure 14).<sup>74</sup> Beginning in 1903 with a small house for Martin’s sister, Wright designed a domestic complex



**Figure 14** Darwin D. Martin (standing, center) and the Martin family in front of the Darwin D. Martin House, Buffalo, New York, 1903–5, photograph ca. 1907 (MS. 22.5 11.9, University Archives, University at Buffalo, The State University of New York).



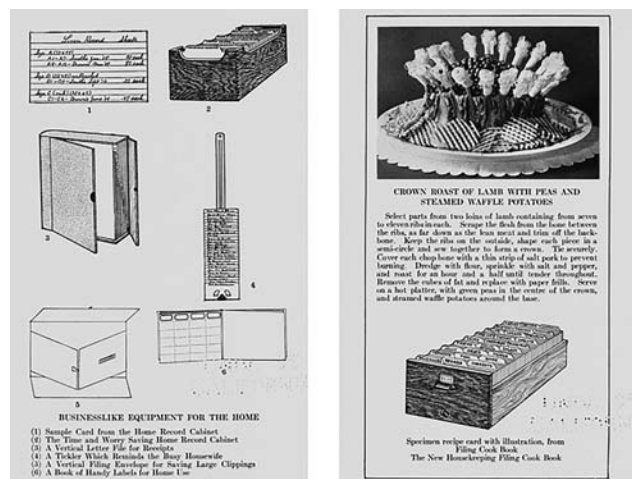
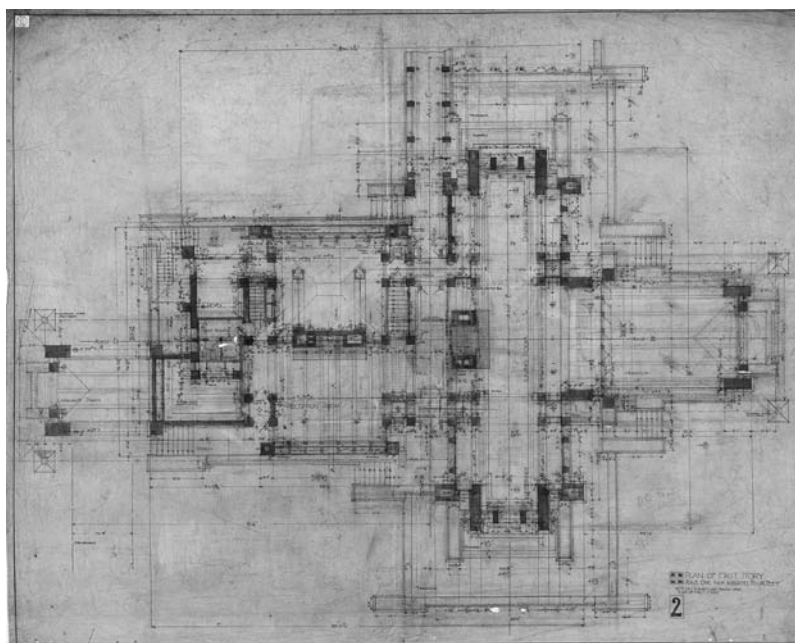
**Figure 15** Frank Lloyd Wright, Darwin D. Martin House, Buffalo, New York, 1903–5, view from Summit Avenue, ca. 1908 (photo by Henry Fuermann; MS. 22.5 F38, University Archives, University at Buffalo, The State University of New York).

consisting of a large main house for Martin, his wife, and their children, a garage, a conservatory, and a small cottage for the gardener. Like many of the houses that Wright designed around this time, the main house had a cruciform plan. While the upper bedroom level had a relatively conventional arrangement, the ground level merged living, dining, and reception rooms into one unified space separated by screens and windows rather than by walls and doors (Figures 15 and 16).

Even before his Wright-designed house was built, Martin was borrowing techniques from the workplace to organize his private life. In 1891, for example, he proudly reported in his diaries that he had transitioned to a double-entry system for keeping track of his personal finances and spent his spare evenings over an entire month bringing past accounts up to date.<sup>75</sup> By the time Martin married Isabelle Reidpath in

1889, he was able to afford an affluent lifestyle, yet he still insisted that his wife present him with budgets before receiving her allowance.<sup>76</sup> As his house was being designed, Martin brought components of his professional life into the domestic sphere, including a copy of the Winged Victory statue that ornamented the Larkin Building's information desk, a small office in the southwest section of the main house, and his idiosyncratic method of storing volumes of the *Encyclopædia Britannica* vertically. His wife, by contrast, had little say over the design; she asked her husband to plead with Wright on her behalf not to install three-legged dining chairs and a dining table with lampposts on its four corners. Decades later her children remembered vividly their mother's frustration about the house's design, especially after she lost her eyesight.<sup>77</sup> So irritated was she that she ultimately withdrew to the family's second house,

**Figure 16** Frank Lloyd Wright, Darwin D. Martin House, Buffalo, New York, 1903–5, plan (0405.001, The Frank Lloyd Wright Foundation Archives [The Museum of Modern Art | Avery Architectural & Fine Arts Library, Columbia University, New York]).



**Figure 17** Advice on “Businesslike Equipment for the Home,” ca. 1913 (Christine Frederick, *The New Housekeeping: Efficiency Studies in Home Management* [Garden City, N.Y.: Doubleday, Page & Co., 1913]).

Graycliff on Lake Erie, which, although also designed by Wright, was smaller and simpler in plan than the Buffalo house.

Treating domestic finances as if they were company finances was not a new idea: early twentieth-century home economists—sometimes called domestic scientists—maintained that a mastery of “household accounting” was among a housewife’s most important skills.<sup>78</sup> Melvil Dewey, whose card index inspired Martin, was a founder of the American Home Economics Association and host of the organization’s first meeting in Lake Placid in 1899.<sup>79</sup> Not surprisingly, Dewey’s index card system soon found its way into home economics textbooks, which advised women to keep track of recipes and finances alike on index cards (Figure 17).<sup>80</sup>

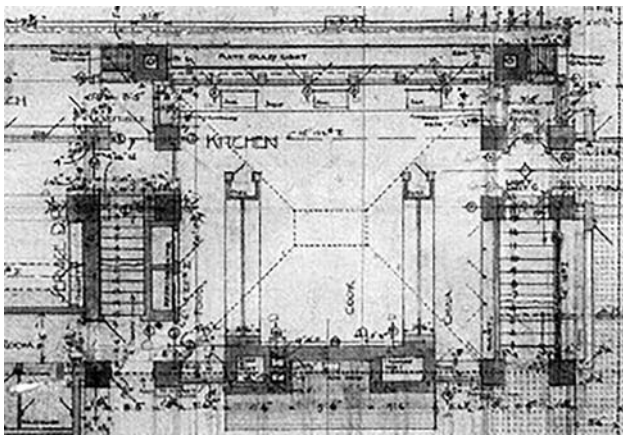


**Figure 18** Advertisements for kitchen furnishings from *Indiana City Directory*, 1876 (left), and *Ladies’ Home Journal*, 1901 (right).

More tellingly, mass-produced office furniture was reinterpreted for the early twentieth-century domestic kitchen. Historians have argued that the designs for turn-of-the-century American kitchen furnishings were heavily indebted to innovations in office equipment (Figure 18).<sup>81</sup> Both kinds of furnishings took advantage of ingenious storage and mobility solutions—expandable drawers, casters, swivel mechanisms, and so on—in the name of saving time and labor, even before efficiency studies were undertaken in the kitchen. The Larkin Company itself seems to have played a role in bringing the logic of the office to the kitchen: the kitchen cabinets featured in the company’s 1924 catalogue, for example, bore an uncanny resemblance to Wright’s



**Figure 19** Advertisement for kitchen cabinets from *The Larkin Book of Better Homes*, 1924.



**Figure 20** Frank Lloyd Wright, Darwin D. Martin House, Buffalo, New York, 1903–5, detail of kitchen plan (0405.004, The Frank Lloyd Wright Foundation Archives [The Museum of Modern Art | Avery Architectural & Fine Arts Library, Columbia University, New York]).



**Figure 21** Frank Lloyd Wright, Darwin D. Martin House, Buffalo, New York, 1903–5, interior view of kitchen, 1908 (photo by Henry Fuermann; MS 22.5 F53, University Archives, University at Buffalo, The State University of New York).

designs for the Administration Building, especially those for desks with swinging folding chairs (Figure 19).

There are many similarities between the Larkin Administration Building and the Darwin D. Martin House, but unsurprisingly, the kitchen, which Wright described as a “chemist’s laboratory” and as the “working department,” was where Martin’s administrative logic became most apparent.<sup>82</sup> The Martin House kitchen was in many ways an anomaly in Wright’s work at this time. Its spatial arrangement was also unusual within domestic science, which at that moment recommended an efficient workflow but discontinuous counters and separate rooms for pantries.<sup>83</sup> In the houses that Wright designed for wealthy clients at the turn of the century, kitchens were frequently sprawling spaces with double pantries, cold closets, and servants’ rooms. For the Martin House, Wright designed a kitchen whose arrangement he would repeat only later in designs for more modest houses: an open plan marked with the designations “food,” “cook,” and “china”; built-in storage instead of multiple pantries; continuous work spaces instead of freestanding furniture or appliances; and, finally, an almost obsessive attention to orderliness (Figure 20). In this sense, the Martin House kitchen had more in common with the Larkin Administration Building than with Wright’s earlier domestic kitchens. A photograph from its early years shows the Martin kitchen as an immaculate space with counters made of white glass panels (Figure 21). Like the desks of the Larkin Administration Building, these counters are presented to the camera with none of the clutter that would enter a working kitchen. Curiously, these qualities of the Martin kitchen were reiterated less often in Wright’s later custom-designed houses for wealthy clients than in his more generic designs for moderate-income families. In both a 1907 design that Wright published in the *Ladies’ Home Journal* and his design for American System-Built Houses, realized in collaboration with the Richards Company to test the



possibility of reducing carpentry on-site, the kitchens featured continuous counters, built-in cabinets, and no pantries.<sup>84</sup> The Martin House, of course, was anything but modest; unlike the presumptive buyers of these last two examples, the Martins employed multiple servants. And yet, much as the custom-made equipment of the Larkin Administration Building was modeled on mass-produced office furniture, the Martin House's custom-made kitchen cabinets were designed to look like mass-produced cabinets of the future.

## Technologies of Trust

In 1919, Edward J. Barcalo, president of the Barcalo Manufacturing Company, which had been marketing its metal products through Larkin, disclosed in a letter to Martin the details of an anonymous "technical examination" of the Larkin Company's proposed "profit-sharing scheme," under which stock would be issued to the company's employees, thereby turning the corporation into a cooperative.<sup>85</sup> According to the report, whose source Barcalo did not reveal, "This [was] a profit-sharing scheme in which profits [were] shared last." The report claimed that Larkin Company employees were at a distinct disadvantage: not only were they ineligible to participate in the profit-sharing scheme unless they were U.S. citizens and had worked for the company for at least three years, but even those who were eligible ultimately had no say over the course of the company and no share of the profit until after the "first preferred stock owners" were paid. The profit-sharing scheme, the report concluded, was nothing but "a piece of camouflage."<sup>86</sup>

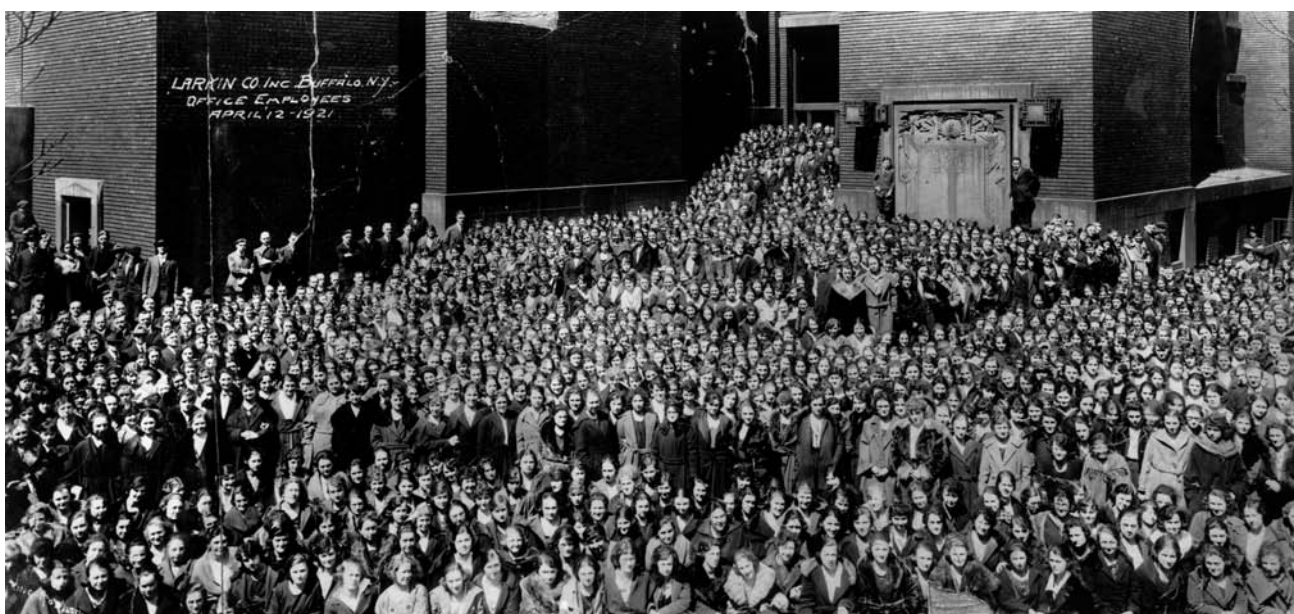
The proposal for the profit-sharing scheme coincided with a sharp decline in the Larkin's finances.<sup>87</sup> Announced to employees with much fanfare in Larkin publications, the scheme was part of company executives' plans to ramp up the family rhetoric in the hope of conniving their way out of a financial impasse: increased capital and employee partnership, they hoped, would boost business. In fact, the proposal was another, shadier version of the earlier Larkin Idea that had brought the company so much success. Much as the company built its customer base by having trustworthy class-A customers vouch for new class-B ones, the new profit-sharing scheme aimed to finance the Larkin family's preferred stocks through the sale of common stocks to employees, all the while spouting the rhetoric of family and cooperation.<sup>88</sup> The analysis cited by Barcalo came as no surprise to Martin, who had already reached similar conclusions about the profit-sharing plan. Further, he saw danger ahead in the breakdown of employee loyalties: in August 1919 Martin wrote to another executive expressing his concern over the fact that many female employees left the company to get married after having worked there for less than three years.<sup>89</sup> Even such clever schemes, however, did not suffice to keep the company afloat. Hard-hit by the

financial collapse of 1929, the Larkin Company converted the ground floor of the Administration Building to a department store. This turned out to be a disastrous mistake. Like other mail-order businesses that failed to adapt to the rise of retail, the Larkin Company went bankrupt in 1942. The Administration Building, after changing ownership a few times, was demolished in 1950.

"Honest labor needs no master, simple justice needs no slaves"—thus read the relief on the fountain that stood at the entrance to the Larkin Administration Building (Figure 22). This was not mere bombast or exploitative trickery; the rhetoric of family that the Larkin Company used with employees and customers alike was a crucial component of the firm's business plan. As Schlei noted in 1932, this was a system whose primary currency was trust.<sup>90</sup> The ingenuity of the Larkin Clubs was that they expanded the network from which the company could reliably collect debt not arithmetically but logarithmically. So crucial were these family values to the company's functioning that a letter from the Buffalo Merchants' Protective Association, written on behalf of the Larkin Company to collect debt from delinquent customers, referred not to legal consequences but to such values as honor, virtue, self-respect, and respect of one's neighbors.



**Figure 22** Richard W. Bock, intaglio relief on the fountain at the entrance of the Larkin Administration Building, Buffalo, New York, ca. 1906 (1-15, Larkin Company Photograph Collection, Research Library, Buffalo History Museum).



**Figure 23** Larkin employees at the entrance of the Larkin Administration Building, Buffalo, New York, 12 April 1921 (4-26, Larkin Company Photograph Collection, Research Library, Buffalo History Museum).

“Believing in the integrity of humanity as we do,” the letter concluded, “we expect an early arrangement for the settlement of this account.”<sup>91</sup> One of the foundation myths of the Larkin Company, after all, was that it owed its success to the trust it placed in its potential customers. According to company lore, while working as a traveling salesman in the early days of the enterprise, Elbert Hubbard would leave bars of soap at potential customers’ front doors before he had even delivered his sales pitch.<sup>92</sup>

The architecture of the Larkin Administration Building should thus be understood, first and foremost, as a moral technology. This term is not mine. Historians such as Theodore Porter have argued for some time that bureaucracy is, above all, a moral technology, a “technology of trust.”<sup>93</sup> That is to say, the Larkin Company relied on an information architecture with discrete and interchangeable units not only because of its massive scale but also because it needed to divide the administrative labor necessitated by this scale among hundreds of unskilled, inexperienced, and poorly paid clerks. The real ingenuity of this architecture was to create and manage novel networks of social relationships, which in an earlier economy would have been formed exclusively through face-to-face interactions. The rhetoric of “family” that the company used with its employees and customers, then, was part and parcel of a moral economy in which the maintenance of these networks was necessary to address the problem of moving capital and commodities. The “intangible bond of cordiality” and the “warmth of feeling” that countless observers noticed among employees and customers and

between customers and the company—in other words, the Larkin’s “welfare capitalism”—cannot be understood simply as the results of well-intentioned attempts to remedy the exploitative aspects of capitalism; this capitalism would have been impossible without such technologies of trust as the Larkin Administration Building (Figure 23).

At least since Weber, bureaucracy has been understood as an impersonal way of governing, but technologies of bureaucracy have also existed alongside attempts to “personalize” and “humanize” them. According to Porter, the urge to resort to numbers, quantitative manipulation, and what today we call data has historically emerged whenever individual discretion or judgment has become ineffective, untenable, or simply impossible. The double-entry bookkeeping technique was invented when early modern Europe began trading with far-away lands, the bureaucracy of postrevolutionary France was established to dispel anxieties about the abuse of power in the ancien régime, and the insurance business prospered in the nineteenth century when unpredictability itself became a commodity.<sup>94</sup> If the Larkin Administration Building is any indication, data and databases should be understood in more historical terms—not as the inevitable outcome of so-called digital technologies starting in the twentieth century, but rather as the primary unit of an epistemic regime that emerges in economies short on intimate knowledge and personal trust. If, as Honoré de Balzac put it in 1838, in the old office where all parties knew each other “there was devotion on one side and trust on the other,” then in the large office of modern bureaucracy there simply had to be more paper.<sup>95</sup>

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## Notes

1. Darwin D. Martin, *The First to Make a Card Ledger: Story of the Larkin Card Indexes* (Buffalo, N.Y., 1932).
2. For histories of the Larkin Company, see Margot C. Adams-Webber, "Soap-Slingers, Drummers, and Agents: Larkin Company Merchandising 1875–1885," *Marketing History Knows No Boundaries: Proceedings of the 8th Conference on Historical Research in Marketing and Marketing Thought* (East Lansing: Michigan State University, 1997), 123–32; Daniel I. Larkin, *John D. Larkin: A Business Pioneer* (Buffalo, N.Y.: Daniel I. Larkin, 1998); Howard R. Stanger, "From Factory to Family: The Creation of a Corporate Culture in the Larkin Company of Buffalo, New York," *Business History Review* 74, no. 3 (Autumn 2000), 407–33; Howard R. Stanger, "Ourselves: Welfare Capitalism in the Larkin Company, 1900–1939," in *LERA Annual Meeting Proceedings* (Washington, D.C.: Industrial Relations Research Association, 2003), 50–58; Howard R. Stanger, "Welfare Capitalism in the Larkin Company, 1900–1925," *New York History* 86, no. 2 (Spring 2005), 210–58; Howard R. Stanger, "The Larkin Clubs of Ten: Consumer Buying Clubs and Mail-Order Commerce, 1890–1940," *Enterprise & Society* 9, no. 1 (2008), 125–64; Howard R. Stanger, "Failing at Retailing: The Decline of the Larkin Company, 1918–1942," *Journal of Historical Research in Marketing* 2, no. 1 (2010), 9–40.
3. Stanger, "From Factory to Family," 407–8.
4. For an explanation of the Larkin Idea, see "Selling Talk," B76-1, box 1, folder 2, Darwin D. Martin Papers, Research Library, Buffalo History Museum. The idea is also explained in the numerous Larkin Company catalogues that were sent to customers. See *The Larkin Idea* (Buffalo, N.Y.: Larkin Soap Company, 1901).
5. By 1915, each of the company's catalogues included the "Larkin Club-of-Ten Members' Agreement" and information about how to form a Larkin Club.
6. Mildred B. Schlei, "The Larkin Company—A History" (master's thesis, State University of New York at Buffalo, 1932), 28–29.
7. *Ibid.*, 15.
8. The phrase "welfare capitalism" comes from Stuart D. Brandes, *American Welfare Capitalism: 1880–1940* (Chicago: University of Chicago Press, 1976). Historians have described the Larkin Company as practicing welfare capitalism despite the fact that labor unions repeatedly boycotted the firm. On the boycotts against the company, see Larkin Co. Secretary (Darwin D. Martin) to Harry W. Leidler, 29 Feb. 1912, MS. 22.6, folder 8-7, Darwin D. Martin Family Papers, 1878–1935, University Archives, University at Buffalo, The State University of New York (hereafter SUNY Buffalo Archives).
9. Martin, *The First to Make a Card Ledger*, n.p.
10. The novelty of the Burr's ledger was that it indexed names as "combinations"—that is, by the first two or three letters. Listed both in the main body of the text and in notches or thumbholes in the margins, these combinations could be seen on both the left and right sides of the bound book. For an explanation and illustration of the technology, see "Burr's Patent Combination Index," *American Stationer*, 20 Feb. 1890, 473.
11. Martin, *The First to Make a Card Ledger*, n.p.
12. One of the Library Bureau's customers from Charlestown wrote that his company had been using index cards since 1865—that is, well before the Larkin Company was established. See *Classified Illustrated Catalog of the Library Bureau: A Handbook of Library and Office Fitting and Supplies* (Boston: Library Bureau, 1890), 36. On this history, see Gerri Flanzraich, "The Library Bureau

- and Office Technology," *Libraries and Culture* 28, no. 4 (Fall 1993), 403–29. According to JoAnne Yates, the vertical filing of papers was introduced to the business world in 1893 when the Library Bureau presented an exhibit at the Chicago World's Fair. JoAnne Yates, *Control through Communication: The Rise of System in American Management* (Baltimore: Johns Hopkins University Press, 1989), 56.
13. David A. Grier, *When Computers Were Human* (Princeton, N.J.: Princeton University Press, 2005); Jennifer S. Light, "When Computers Were Women," *Technology and Culture* 403 (July 1999), 455–83.
  14. Memorandum of the Council of National Defense, Washington D.C., 31 Dec. 1917, MS. 22.8, box 1, folder 5, Frank Lloyd Wright–Darwin D. Martin Papers, SUNY Buffalo Archives.
  15. Martin, *The First to Make a Card Ledger*, n.p. Also see "New System of Handling Orders," *Ourselves*, 1 Aug. 1904, 2.
  16. Martin, *The First to Make a Card Ledger*, n. p.
  17. For a comparison, see Jesse LeCavalier, *The Rule of Logistics: Walmart and the Architecture of Fulfillment* (Minneapolis: University of Minnesota Press, 2016).
  18. The most comprehensive work on the building remains Jack Quinan, *Frank Lloyd Wright's Larkin Building: Myth and Fact* (Cambridge, Mass.: MIT Press, 1987).
  19. William Martin hired Wright to design a house in Oak Park before his brother Darwin invited the architect to design his house in Buffalo. Wright also designed houses for Darwin D. Martin's brother-in-law, George Barton, and for W. E. Heath, who also worked at the Larkin Company. For Martin's plea to John Larkin to hire Wright to design the company's building, see Darwin D. Martin to John Larkin, 20 Mar. 1903, MS. 22.8, box 1, folder 13, Frank Lloyd Wright–Darwin D. Martin Papers, SUNY Buffalo Archives.
  20. Vincent Scully, *Frank Lloyd Wright* (New York: G. Braziller, 1960); Neil Levine, *The Architecture of Frank Lloyd Wright* (Princeton, N.J.: Princeton University Press, 1996); Reyner Banham, *Architecture of the Well-Tempered Environment* (London: Architectural Press, 1969), xi–xxiv, here 185.
  21. Michael Osman, *Modernism's Visible Hand: Architecture and Regulation in America* (Minneapolis: University of Minnesota Press, 2018).
  22. The phrase can be found in the corner of a drawing published in Arthur Drexler, *The Drawings of Frank Lloyd Wright* (New York: Museum of Modern Art, 1962), 28. Wright wrote in his autobiography: "Rebellious and protestant as I was when the Larkin Building came from me, I was conscious also that the only way to succeed, either as rebel or as protestant, was to make architecture genuine and constructive affirmation of the new Order of this Machine Age." F. L. Wright, *An Autobiography* (London: Faber & Faber, 1946), 136.
  23. I am referring to Lorraine Daston and Katharine Park, *Wonders and the Order of Nature, 1150–1750* (New York: Zone Books, 1998); Mary Poovey, *A History of the Modern Fact: Problems in the Sciences of Wealth and Society* (Chicago: University of Chicago Press, 1998); Ann Blair, *Too Much to Know: Managing Scholarly Information before the Modern Age* (New Haven, Conn.: Yale University Press, 2010).
  24. Scholars are now beginning to tackle these questions. See, for example, Lisa Gitelman, ed., *"Raw Data" Is an Oxymoron* (Cambridge, Mass.: MIT Press, 2015).
  25. Seven more of these buildings would be added subsequently. For a list and a map of the entire complex, see the brochure prepared when the complex was put on the market in 1940: *Larkin Industrial Center*, Kenland–Larkin Industrial Center Building Floor Plans, C85-1, box 4, folder 4, Research Library, Buffalo History Museum. Reyner Banham taught a course in 1977 about the construction system used in these factory and warehouse buildings. See Reyner Banham, "Buffalo: The Industrial Heritage," 44/5/1133, Course Records, 1904–86, SUNY Buffalo Archives.
  26. Frank Lloyd Wright, "In the Cause of Architecture," *Architectural Record* 23, no. 3 (Mar. 1908), 166.

27. Frank Lloyd Wright, "The New Larkin Administration Building," in Quinan, *Frank Lloyd Wright's Larkin Building*, 140, reprinted from *The Larkin Idea* 6 (Nov. 1906). Prominent critic Russell Sturgis gave the building a negative review in 1908. Russell Sturgis, "The Larkin Building in Buffalo," *Architectural Record* 23, no. 4 (Apr. 1908), 311–21. Also see Jack Quinan, "Frank Lloyd Wright's Reply to Russell Sturgis," *JSAH* 41, no. 3 (Oct. 1982), 238–44.
28. Wright, *Autobiography*, 136. Banham quotes this phrase in *Architecture of the Well-Tempered Environment*, 86.
29. Wright, "The New Larkin Administration Building," 141–42, 143.
30. *Ibid.*, 142.
31. *Ibid.*
32. *Ibid.*
33. "Filling a Larkin Order," *Larkin Family Magazine*, Jan. 1909, 7.
34. Max Weber, "Bureaucracy," in *Economy and Society: An Outline of Interpretive Sociology*, ed. Guenther Roth and Claus Wittich (Berkeley: University of California Press, 1978), 956–1005.
35. Stanger, "From Factory to Family," 407–8. By the time that Martin wrote his pamphlet, the Larkin was the fourth-largest mail-order company in the United States.
36. *Ourselves*, 1 July 1903, 2. Various theorists have identified this condition as the distinguishing mark of economies predicated on information. See, for example, Manuel Castells, "The Transformation of Work and Employment: Networkers, Jobless, and Flex-Timers," in *The Information Age: Economy, Society, and Culture*, vol. 1, *The Rise of the Network Society*, 2nd ed. (Chichester: John Wiley, 2010), 216–354; James W. Cortada, ed., *Rise of the Knowledge Worker* (Boston: Butterworth-Heinemann, 1998); Aad Blok and Greg Downey, eds., *Uncovering Labour in Information Revolutions, 1750–2000* (Cambridge: Cambridge University Press, 2003).
37. Yates, *Control through Communication*, 11, emphasis added. Yates's study is based on Alfred D. Chandler's seminal book *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass.: Harvard University Press, 1977).
38. Frederick Winslow Taylor, *The Principles of Scientific Management* (New York: Harper & Brothers, 1911).
39. C. Wright Mills, *White Collar: The American Middle Classes* (1951; repr., London: Oxford University Press, 1969), 206. In 1919, for example, the majority of Larkin employees were women who had been employed for less than one year. "Employees—Statistical Analyses, ca. 1915–1919," B76-1, box 4, Darwin D. Martin Papers, Research Library, Buffalo History Museum.
40. These templates can be found in Advertising and Form Letters, B76-1, box 4, folder 7, Darwin D. Martin Papers, Research Library, Buffalo History Museum.
41. The suggestion was made by Bruno Latour: "The rationalization that has been granted to bureaucracy since Hegel and Weber has been attributed by mistake to the 'mind' of (Prussian) bureaucrats. It is all in the files themselves. A bureau is, in many ways, and more and more every year, a small laboratory in which many elements can be connected together just because their scale and nature has been averaged out: legal texts, specifications, standards, payrolls, maps, surveys." Bruno Latour, "Visualization and Cognition: Thinking with Eyes and Hands," *Knowledge and Society* 6 (1986), 28. Also see Cornelia Vismann, *Files: Law and Media Technology*, trans. Geoffrey Winthrop-Young (Stanford, Calif.: Stanford University Press, 2008); Ben Kafka, *The Demon of Writing: Powers and Failures of Paperwork* (New York: Zone Books, 2012).
42. Information about the furniture in the Larkin Administration Building can be gathered from Frank Lloyd Wright Architectural Drawings and Papers, 0403.025-63, Department of Drawings and Archives, Avery Architectural & Fine Arts Library, Columbia University.
43. Wright, "The New Larkin Administration Building," 142.
44. Note Anthony Alofsin's argument that Wright was more indebted to European designers (such as the Vienna Secessionist idea of total design) than he would ever acknowledge. Anthony Alofsin, *Frank Lloyd Wright—the Lost Years, 1910–1922: A Study of Influence* (Chicago: University of Chicago Press, 1993).
45. Wright, *Autobiography*, 136–37.
46. George Twitmyer, "A Model Administration Building," in Quinan, *Frank Lloyd Wright's Larkin Building*, 152, reprinted from *Business Man's Magazine*, Apr. 1907, 43–49.
47. See also the description of the furniture in the company-sponsored publication by Marion Harland, *My Trip thru the Larkin Factories* (Buffalo, N.Y.: Larkin, 1913), 11.
48. Wright, "The New Larkin Administration Building," 142.
49. Twitmyer, "A Model Administration Building," 152.
50. "How to Pin Papers and Write Memos—Wrong Way and the Right Way," *Ourselves* (15 Nov. 1916), 2.
51. Wright, "The New Larkin Administration Building," 142.
52. Twitmyer, "A Model Administration Building," 153.
53. Yates, *Control through Communication*, 28–29.
54. *Ibid.*, 33–36; Vismann, *Files*, 129–46.
55. Frank Lloyd Wright Architectural Drawings and Papers, 0403.025-63, Department of Drawings and Archives, Avery Architectural & Fine Arts Library, Columbia University.
56. This phrase comes from Mills, *White Collar*, 189.
57. L. J. Endicott and P. J. Huyck, "De Ludi Natura Liber Secundus," *Data-mation* (1 Dec. 1971), 33. A similar idea can be found in the "memex" as described in Vannevar Bush, "As We May Think," *Atlantic Monthly*, July 1945, 101–8. The idea of a connectionist network is described in William Bechtel and Adele Abrahamsen, *Connectionism and the Mind: Parallel Processing, Dynamics, and Evolution in Networks* (Malden, Mass.: John Wiley, 2002).
58. "Sears, Roebuck, and Company Manual of Information for Correspondents and Letter Inspectors," undated, B76-1, box 4, folder 9, Darwin D. Martin Papers, Research Library, Buffalo History Museum.
59. "Office Manual, Larkin Soap Co. Buffalo, N.Y., 1900," B76-1, box 5, folder 3, Darwin D. Martin Papers, Research Library, Buffalo History Museum.
60. "Adopted Suggestions from Employees of the Larkin Soap Co. Prior to January 1st, 1901," n.p., Employee Management Policies, 1901, 1914, and undated, B76-1, box 4, folder 4, Darwin D. Martin Papers, Research Library, Buffalo History Museum.
61. *Ibid.*
62. "Filling a Larkin Order," 7.
63. "Undated memo," "Memo from Mr. Puffer to Mr. Whitney, dated November 3, 1914," and "Memo from Mr. Heath to Mr. Larkin dated May 9, 1914," C85-1, box 4, folder 1, Larkin Company Papers, Research Library, Buffalo History Museum. Employees dubbed the notoriously unstable three-legged chair the "suicide chair," as it inevitably caused the uninitiated to tumble. Quinan, *Frank Lloyd Wright's Larkin Building*, 62.
64. Ferdinand Tönnies, *Community and Civil Society*, trans. Jose Harris (Cambridge: Cambridge University Press, 2001).
65. "Factory to Family: A Wholesome Cure for High Prices," B76-6, box 1, folder 2, Darwin D. Martin Papers, Research Library, Buffalo History Museum.
66. Twitmyer, "A Model Administration Building," 153.
67. Mary E. Burke (employee of the Larkin Company, 1916–24), interview by Jack Quinan, 25 May 1978, transcript, MS. 22.93, Oral History, Frank Lloyd Wright—Darwin D. Martin Papers, SUNY Buffalo Archives.
68. See, for example, Lynn Hunt, "The Unstable Boundaries of the French Revolution," in *A History of Private Life*, vol. 4, *From the Fires of Revolution to the Great War*, ed. Michelle Perrot (Cambridge, Mass.: Belknap Press, 1990), 2–45.
69. See, for example, Nicholas White, *The Family in Crisis in Late Nineteenth-Century French Fiction* (Cambridge: Cambridge University Press, 1999).

70. Frank Lloyd Wright, *Modern Architecture: Being the Kahn Lectures for 1930* (Princeton, N.J.: Princeton University Press, 1931), 70; Gwendolyn Wright, "Frank Lloyd Wright and the Domestic Landscape," in *Frank Lloyd Wright, Architect*, ed. Terence Riley (New York: Museum of Modern Art/Harry N. Abrams, 1994), 82. For a comparison, see the case of Adolf Loos as discussed by Beatriz Colomina, "Intimacy and Spectacle: The Interiors of Adolf Loos," *AA Files* 20 (Autumn 1990), 5–15.
71. Frank Lloyd Wright, "Art in the Home," *Arts for America* 7 (June 1898), 579.
72. Frank Lloyd Wright, *The Natural House* (New York: Horizon Press, 1954), 165.
73. For example, see Bruce Brooks Pfeiffer, "Frank Lloyd Wright and the American Home," in *Frank Lloyd Wright: The Houses*, ed. Alan Hess (New York: Rizzoli, 2005), 44–49; Richard A. Etlin, *Frank Lloyd Wright and Le Corbusier: The Romantic Legacy* (Manchester: Manchester University Press, 1994).
74. For a comprehensive history of the house, see Jack Quinan, *Frank Lloyd Wright's Martin House: Architecture as Portraiture* (New York: Princeton Architectural Press, 2004).
75. Darwin D. Martin, transcribed diaries from 13 Jan. 1891, typescript autobiography 1885–1898, 131, MS. 22.6, box 2, folder 7, Darwin D. Martin Family Papers, 1878–1935, SUNY Buffalo Archives.
76. Ibid.
77. Dorothy Martin Foster (daughter of Darwin D. Martin), interview by Sue Greenwood, Nov. 1971, transcript, MS. 22.93, Oral History, Frank Lloyd Wright–Darwin D. Martin Papers, SUNY Buffalo Archives.
78. On the relationship between domestic science and Wright's work, see Gwendolyn Wright, "Frank Lloyd Wright and the Domestic Landscape," 80–95. Also see Christine Frederick, *The New Housekeeping: Efficiency Studies in Home Management* (Garden City, N.Y.: Doubleday, 1913).
79. The first issue of the *Journal of Home Economics*, published in February 1909, announced the establishment of the American Home Economics Association and summarized the conclusions of the Lake Placid Conferences on Home Economics.
80. Wallace Hugh Whigam, *Household Accounting* (New York: Palmer, 1913).
81. Mary Anne Beecher, "Promoting the 'Unit Idea': Manufactured Kitchen Cabinets (1900–1950)," *APT Bulletin* 32, nos. 2–3 (2001), 27–37.
82. Frank Lloyd Wright, "A Small House with 'Lots of Room in It,'" *Ladies' Home Journal*, July 1901, 15; Frank Lloyd Wright, "Architect, Architecture, and the Client" (lecture, University Guild, Evanston, Illinois, 1896), 11.
83. See, for example, Maria Parloa, *An Ideal Kitchen: Miss Parloa's Kitchen Companion* (Boston: Estes and Lauriat, 1887).
84. Frank Lloyd Wright, "A Fireproof House for \$5000," *Ladies' Home Journal*, April 1907.
85. Edward J. Barcalo to Darwin D. Martin, 9 Sept. 1919, MS. 22.6, box 8, folder 12, Darwin D. Martin Family Papers, 1878–1935, SUNY Buffalo Archives.
86. Ibid.
87. Memo, Darwin D. Martin to John D. Larkin, 16 Oct. 1923, MS. 22.6, box 8, folder 12, Darwin D. Martin Family Papers, 1878–1935, SUNY Buffalo Archives.
88. A detailed account of the plan is provided in Schlei, "The Larkin Company," 48–50.
89. Darwin D. Martin to William R. Heath, 1 Aug. 1919, MS. 22.6, box 8, folder 16, Darwin D. Martin Family Papers, 1878–1935, SUNY Buffalo Archives.
90. Schlei, "The Larkin Company," 25.
91. Merchants' Protective Association, Buffalo, N.Y., to anonymous debtor (signed W. R. H.), undated, B76-1, box 4, Darwin D. Martin Papers, Research Library, Buffalo History Museum.
92. Alf H. Walle and M. L. Brimo, "Elbert Hubbard," *Journal of Personal Selling and Sales Management* 6, no. 3 (Nov. 1986), 66.
93. The phrase "technologies of trust" is used in Theodore Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, N.J.: Princeton University Press, 1995). Also see Theodore Porter, *The Rise of Statistical Thinking, 1820–1900* (Princeton, N.J.: Princeton University Press, 1986); Ian Hacking, *The Taming of Chance* (Cambridge: Cambridge University Press, 1983); Gerd Gigerenzer, Zeno Swijtink, Theodore Porter, Lorraine Daston, John Beatty, and Lorenz Krüger, *The Empire of Chance: How Probability Changed Science and Everyday Life* (Cambridge: Cambridge University Press, 1989).
94. Here I am thinking of Poovey, *A History of the Modern Fact*; Kafka, *The Demon of Writing*; Jonathan Levy, *Freaks of Fortune: The Emerging World of Capitalism and Risk in America* (Cambridge, Mass.: Harvard University Press, 2012).
95. Honoré de Balzac, "Les employés" (1838), in *Muse of the Department and Les Employés*, trans. James Waring (Philadelphia: Gebbie, 1899), 208. Balzac described bureaucracy as "the giant power wielded by pigmies." Balzac, *The Works of Honoré de Balzac*, vol. 12 (Philadelphia: Avil, 1901), 13.