This is a section of doi:10.7551/mitpress/13562.001.0001

Selling the American People

Advertising, Optimization, and the Origins of Adtech

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Citation:

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DOI: 10.7551/mitpress/13562.001.0001
ISBN (electronic): 9780262374248
Publisher: The MIT Press
Published: 2023

The MIT Press

2 ADVERTISING’S CALCULATIVE EVOLUTION

> Advancing skill in handling numerical data is a major facet of intellectual and material progress. Man, the marketer, is first of all Man, the counter. Whether he keeps his score on clay tablets or magnetic tapes, the perennial questions of the market place are: “How many?” and “How much?”
>
> —Wroe Alderson and Stanley J. Shapiro

This chapter elaborates some specific arguments about transformations and continuities in the business of selling the American people. Historians remember the late 1950s as the start of a “creative revolution” that reshaped advertising in the United States and elsewhere. The agencies representing well-known brands turned their backs on the preceding “organization era,” rejecting its icons of bureaucracy, rationality, science, and efficiency.[1] Without denying the significance of these developments, I argue that this moment also marks an inflection point for an equally profound trajectory in the opposite direction—a new phase in advertising’s “calculative evolution.” This term provides a different lens for analyzing the entanglements of marketing, media, and information technology across the second half of the twentieth century. Specifically, it helps us recognize how processes involved in market research, direct-mail marketing, and media planning and buying helped channel and amplify currents in surveillance, data processing, and behavioral and management sciences.

Social and industrial changes in the 1950s and 1960s made space for advertising to accommodate new consumer identities and lifestyles. Assembling narrower and more flexible market segments and delivering commercial messages to the right people called for systematic planning and decision making.[2] Agencies retreated from scientific approaches to preparing copy and art, but they moved decisively in the other direction in determining how to allocate advertisers' money. Even as advertising's place in popular culture became aligned with hip creativity, certain parts of the business absorbed the rationalizing pressures of Cold War politics and capitalist technoscience. Frequent and not-always-coherent efforts to account for more aspects of consumer and audience behavior empowered technicians and managers who promised to optimize objective metrics of efficiency and success. Operations that focused on distributing commercial messages, evaluating advertising opportunities, and measuring outcomes all hinged on methods of identifying, classifying, and appraising consumers. The intensification of a quantitative logic in audience construction and advertising distribution helped tune the heartbeat of the whole marketing system to the rhythms of rational calculation, in concert with the droning roar of computerization.

I do not mean for the term "evolution" to be taken too literally, and I certainly do not mean to imply normative improvement. My motivation is partly rhetorical, to draw a contrast with the creative revolution. That shift began at the same moment advertisers and agencies ramped up computerization and invested in management sciences. Over time, operations associated with data processing and optimization became magnets for the ambitions and eventual authority of calculative experts, lately nicknamed "quants" or "math men and women."[3]

Another reason for using the term is to recover the long histories of consumer surveillance, data mining, algorithmically aided decision making, and tendencies toward technical and mathematical expertise in advertising and marketing. I want to distinguish my claims—that pressures toward surveillance capitalism have been central to the businesses that commodify audiences and organize communications media as extensions of the marketing system—from claims that companies like Google recently pioneered a disruptive new mode of accumulation.[4] There have been undeniable changes in advertising associated with the internet, mobile devices, social media, and artificial intelligence, but those changes are rooted in a deeper tangle of capitalism, science, management, business cultures, and information technologies. Furthermore, those changes would not have been practicable without prior developments in these industries' underlying infrastructures and institutions, including logistical and administrative systems for organizing flows and contested hierarchies of knowledge and legitimacy. Surveillance capitalism vibrates with the echoes of earlier calls to optimize advertising and consumer behavior. To put it a bit too bluntly, it may be that advertising and marketing revolutionized the internet, not the other way around.

The calculative evolution, then, is meant as a critical heuristic for rethinking continuity and change. The next few chapters focus on a midcentury inflection point in that evolution. This chapter sets the scene by describing the historical roots of calculative cultures in advertising. Some of the attributes that seem distinctively digital are, we might say, more like expressions of the DNA in selling the American people.

ADVERTISING AS A FIELD OF KNOWLEDGE PRODUCTION

Modern advertising has always had an appetite for science. Many practitioners and commentators have believed, or found it convenient to suggest, that advertising follows discernible regularities, with success measured against objective evidence. The golden criterion is usually sales. Proof is elusive, but for more than a century, advertising professionals have promised to tame the uncertainties of commerce with expert knowledge and technique. These distinctive capacities have been central to status and authority in the advertising business.[5]

Historians have tended to focus on how debates about science in advertising manifest in competing approaches to copywriting and persuasion. Close attention to fashions in creative production follows from the supposition that advertising is about producing ads. Certainly, advertisers want effective or meaningful ads, and plenty of research arranged by advertisers and their agencies has been dedicated to that goal. But advertising is not only about creating specific types of commercial messaging. As Joseph Turow points out, "lavishing attention on what trade parlance calls the 'creative' side of the business leaves out essential aspects of advertising's social role."[6] The broader advertising system produces populations, processes and circulates business information, distributes commercial messages, and evaluates success. "Advertising," here, refers not just to the creation of advertisements but to a vast network of relationships involving merchants, manufacturers, corporate management, marketing agencies, media companies, administrative researchers, and information and technology providers attempting to accelerate and track the circulation of commodities. Advertising is a strand of capitalist technoscience.

There is an understandable urge to qualify advertising "science" and to discount it from histories of science and technology, despite the industry's long record of organized commercial research. In general, advertising has helped itself to whatever theories and techniques seemed useful for dazzling clients and disarming superiors.[7] Researchers may be less committed to finding the best answers than to finding the answers best suited to their company's needs. According to one possibly embellished anecdote, when an operations researcher devised a mathematical model that suggested advertising agencies ought to spend much more money on preparing and testing their creative work, "a leading New York ad agency offered a 'lifetime supply of martinis' to the analyst who could refute these results."[8]

To be sure, advertising research itself is often a form of advertising or negotiation. But an applied technoscience need not satisfy outsiders' expectations to have power within organizations and industrial fields. Advertising has taken a pragmatic stance toward knowledge production, recognizing that "things *perceived* as real are real in their consequences," to borrow a phrase from Geoffrey Bowker and Susan Leigh Star.[9] Parts of the advertising business embraced the legitimizing force of science as a discourse for organizing people and processes, and they built institutions around information and truth claims that could be mobilized to some advantage. Agencies leveraged specialized techniques and expertise to help position themselves as intermediaries among advertisers, media businesses, and consumers. The uncertainties, rivalries, and misalignments of trust among these actors have often accentuated the reliance on numbers and objectivity rituals.[10] The business of audience measurement, whose "ratings" mediate advertising transactions and other industrial activities, provides a vivid example of using strategic truth-making conventions to stabilize contestable realities.

Whether or not we think this should count as science, advertising was and is involved in the production of subjects and knowledge—about markets, consumers, audiences, behavior, and influence. That knowledge, however selective and strategic, structures all sorts of consequential choices and relationships. Commercial knowledge practices are threaded throughout modern political economies and material cultures. Major parts of the advertising industry have used science and technology to produce consumers, and a consumer society, in action and in information.

Advertising's promiscuous relationship with science is, in fact, crucial to this story. It has allowed distinct, divergent, and even highly dubious paradigms to coexist and contribute to this calculative evolution. For example, twenty-first-century machine learning differs in important ways from postwar operations research, yet I argue in subsequent chapters that operations research and other management sciences, despite their early failures, made today's "algorithmic episteme" possible by intensifying investments in information infrastructures (including data collection, algorithms, and quantitative or technological expertise) and socializing marketing professionals in the languages of probability and optimization. These disciplines helped produce a culture of calculation in which people were prepared or even compelled to accept decisions that had been made using computers and complex mathematics, despite often not knowing how they worked. This history of advertising technoscience reveals a not-quite-coherent but still-productive rationalizing project. Its nascent tendencies were already there at the outset of modern advertising, and a dramatic inflection point in the middle of the twentieth century defined the idiom for data-driven digital advertising. The result has been less a cumulative body of truth than the iteration and empowerment of techniques and professional habits of optimum seeking.

INFORMATION, TECHNOLOGY, AND MANAGEMENT

Advertising optimization has deep historical roots. Industrial capitalists adopted systematic accounting and management techniques developed to control enslaved people on plantations and to administer empires and adapted them to enterprises requiring less violent means of command.[11] Tendencies toward calculation were flourishing in parts of US business by the turn of the twentieth century. Confronting a "crisis of distribution,"[12] modern advertising and mass marketing were part of a broader pattern of leaning on information and communication resources for the efficient management of expanding operations. In particular, they tried to manage flows of commodities and practices of consumption to keep pace with the speed and scale of productive output.[13] The tethering of consumer-demand management to an attention economy helped stimulate and shape the mass distribution of facts and stories about politics, markets, crime, conflict, scandal, and whatever else might boost the circulation of print media. As Harold Innis puts it, "the exploitation of human curiosity and its interest in news by advertisers anxious to dispose of their products created efficient channels for the spread of information."[14] Likewise, the "rapid and extensive dissemination of information" within organizations and markets was essential for synchronizing labor, capital, and commodities to the technological and geographic intensities of industrial capitalism.[15] "When we think of the Industrial Revolution," Dan Schiller explains, "we may picture grimy smokestacks, a clattering din of machinery, and 'unskilled' factory 'hands.' Even at its outset, however, the process of industrialization also gripped information generation, processing, and management. Corporate information processing bulked up to process the sales orders, support the accounting and financial initiatives, and—beginning in the late nineteenth century—develop the systematic marketing and technology research plans that were all predicates of national capital."[16]

Bureaucratic restructuring saw large corporations delegate more decision-making responsibilities to middle management and outside experts hired to apply specialized know-how to firms' marketing needs.[17] Across the second half of the nineteenth century, advertising agencies transitioned from a sales force for newspapers, to independent brokers buying space wholesale from publishers and selling retail to advertisers, and into hired representatives of the advertiser, eventually providing a suite of services and being paid in the form of commissions on media spending. This last metamorphosis spawned the "full-service" agencies that dominated throughout the twentieth century. They decided where to place ads and purchased access to audiences (functions called media planning and buying), prepared art and copy for clients' campaigns, conducted market research, and later produced broadcast programming. N. W. Ayer, J. Walter Thompson, Lord & Thomas, and others got the ball rolling for Batten, Barton, Durstine & Osborn (BBDO), Young & Rubicam, McCann Erickson, Leo Burnett, and Ted Bates to manage the business of influence in an electronic age.

Advertising agencies and the newspapers and periodicals supported by advertising tried to bolster their legitimacy by marketing themselves and defending their strategies and choices in vocabularies drawn from systems, science, and efficiency—all considered agents and indices of progress. Both these businesses would claim special insights into the public's tastes and, at times, present themselves as modernizing forces in American culture and economy. A mere commitment to evidence-based judgments, whatever the quality of the evidence or judgment, fit with cultural dispositions toward discipline and rationality in business. Particularly from the 1890s onward, many practitioners and commentators invested in the idea that the advertising trade could cement its economic and cultural power by using scientific techniques to analyze and manage the details of markets and consumption.[18]

Advertising agents pinned some of their earliest claims of expertise on their skills at selecting advertising placements and buying access to audiences of consumers. Their authority derived from their experiences and relationships with publishers. Buying frequently and in bulk from many publishers, agents professed to have more knowledge and bargaining leverage than the advertisers they represented. For starters, they simply knew better than manufacturers and retailers what publications were available for advertising. Enterprising agents began organizing information about newspaper circulations and advertising rates by the mid-nineteenth century. Volney Palmer, serving as a sales agent for newspapers, shared this information with advertisers; George Rowell, an independent space broker and later the founder of the trade magazine *Printers' Ink*, published and sold collections of such facts as media directories.[19] Buyers could consult these resources as they sought to place ads and negotiate prices, and publishers could wield them for promotional purposes and to justify their rates—assuming the reported figures were flattering. These information digests also made it clear that advertisers and publishers were participating in a market for audiences. Describing *Rowell's American Newspaper Directory*, Zoe Sherman writes, "It reads as a catalog of the size and character of the readership of each newspaper."[20]

As advertisers became the primary clients of media buying services, the well-informed agent's pitch often hinged on finding the most cost-efficient placements. Rowell followed this tack, advertising his own agency in 1896 by promising a good return on investment: "Successful advertising means getting back more money than is paid out. . . . In this agency of ours, the constant endeavor is to make the cost smaller and smaller, and the results larger and larger. We have succeeded better than others simply because we know how to succeed." Among its sources of success, Rowell's company boasted of efficient media selection "by using the best media and rejecting the bad."[21] Some agents promised access to especially valuable audiences. By the 1870s, J. Walter Thompson (JWT) had a near monopoly over magazine advertising.[22] In 1887 JWT distributed a "catalog" of magazines, instructing advertisers in the benefits of using magazine placements to discriminate by class. By targeting prestigious titles, advertisers would gain "entrance to the *better* class of homes," populated by people of "taste" and "means," while avoiding the "ignorant classes [who] have no inclination to spend money" and "the poor [who] have none to spend."[23]

JWT was leading the pack here. At least until the 1890s, plenty of agents simply tried to procure the most space and circulation each dollar could buy (or, sometimes, they targeted publishers that paid higher-than-normal commissions to buyers). Nevertheless, it is clear that people in the business recognized that populations could be classified by their profit potential to advertisers, that different publications organized these populations into different audiences, and that strategic media buying could secure efficient access to desirable customers. These were relatively crude classifications, but they implied that inclusion or exclusion in this fast-growing part of public life—whether one counted in the American culture represented in popular media—depended on assessments of one's value as a consumer. A practical knowledge of class distinctions was an important part of the expertise modern agents sold to clients.[24]

Leading agencies conducted research and stockpiled information, responding in part to the demands of large advertisers that "concentrated on technique and its effectiveness."[25] By 1879, N. W. Ayer & Sons, a pioneer of the modern agency form, began assembling figures about its clients' industries and markets. In the 1880s it solicited new business by first studying a prospective client's business and then "calculating how best to improve on its current marketing by more efficiently placing periodical advertisements."[26] Publishers of mass-circulation periodicals also helped cement the production of consumer data as an institutional mainstay in ad-supported media. Urged on by demands for information about the readers accessible through these magazines, publishers sized up the lifestyles of lucrative audiences and discounted less prosperous groups (e.g., Black Americans, ethnic immigrants, rural poor), unless perceived vulnerabilities made otherwise undesirable people attractive targets for exploitative marketing.[27] Publishers eagerly collected names and addresses, as well, appreciating these mailing lists as valuable assets.[28]

At the behest of manufacturers and merchandisers, advertising and media industries were ramping up the production of consumers. This meant not only nurturing new tastes and buying habits but also producing knowledge to make consumers legible within contemporary systems of management and capital accumulation. As publishers, agencies, and advertisers examined US markets and audiences in search of profitable and often self-serving insights, their activities helped construct certain ideas about American consumers and their lived realities and operationalize them for business purposes. In alignment with cultural assumptions and the marketing priorities that motivated this research, they codified the ideal consumer as a white, middle-class buyer.[29] Expert knowledge of consuming subjects and the means of finding and managing them was a main credential of the modern advertising industry. Indeed, the industry was actively "making up people,"[30] defining and producing subjects for business to observe, record, and act on.[31]

"THE MATHEMATICS OF ADVERTISING"

A sensibility that drew on both accounting and engineering was gaining currency in the advertising business by the early 1900s. Earnest Elmo Calkins and Ralph Holden describe the scene in their canonic 1905 textbook *Modern Advertising*: "The present-day tendency on the part of experienced advertisers is to get at the facts—to reduce the art of advertising to a science—to develop what may be called the mathematics of advertising." Just as "the successful architect is capable of calculating the breaking strain of an iron beam," the successful advertising campaign—meaning one that has proved to pay off in sales—can be worked out through the "statistics of advertising."[32]

Such a mathematics implied suitable knowledge infrastructures. In a 1909 manual prescribing systematic principles for the organization of advertising and sales departments, business theorist James Bray Griffith acknowledged that the "advertising manager collects a vast amount of information for future use." To take advantage of this information, "the advertising man must have a system of records which will show at all times what he is doing, what results he is getting, exactly where he stands."[33] Businesses used various physical and intellectual devices to manage paperwork and the relationships and activities those documents represented or facilitated.[34] This included storage equipment and filing and indexing schemes for keeping track of all sorts of resources that an advertising manager needed to consult or retrieve. Direct-mail advertisers were particularly interested in office technologies that helped them quickly produce and dispatch customized print materials. Cards containing updatable information about customers, machines for addressing envelopes, and a low-wage, feminized clerical workforce were pillars of the direct-mail business in the early twentieth century.[35] That business helped build and host some of "the largest repositories of personal data in existence" at the time.[36] Advertisers and agencies also employed staff to verify that publishers distributed ads in accordance with contracted orders and to reconcile any apparent discrepancies—jobs that persisted throughout broadcasting and into the ostensibly automated environment of programmatic advertising.[37]

A prime motivation for assembling this information, as Griffith saw it, was to support "intelligent" decision making and to calculate return on investment: "A necessity to the advertising department is an efficient system of checking and recording returns from advertising. Without a system on which he can depend, the advertising manager is spending his employer's money blindly—he does not know what he is *getting* for it."[38] Adherents to this advice arranged their procedures to impose documentary order—to make decisions by the books. In time, more and more businesses used punch cards to record data and machines to sort and tabulate them.

Some of Griffith's contemporaries said it was not enough for advertising management to be systematic, as even wasteful activities could be systematized. Business writer Herbert N. Casson advocated a scientific approach to efficiency. In 1911 he suggested that Taylorism's scientific management of workers and work processes should be applied to the sphere of circulation: "One by one, almost every activity of man is being analyzed and organized and uplifted into a science. . . . And now the next great step, in the general swing from metaphysics to science, is to apply the principles of Efficiency to the selling and advertising of goods. What has worked so well in the acquisition of knowledge and in the production of commodities may work just as well in the distribution of those commodities."[39] In defending his proposals from critics who might argue that advertising was misfit for scientific management, that its effects were inaccessible to observers and forecasters, Casson took inventory of businesses with evident capacities for knowing and analyzing consumer populations:

> To say that the public is an uncertain quantity and cannot be measured is absurd. The insurance actuary measures the public. . . . And his knowledge is so accurate that hundreds of millions of dollars are staked upon his calculations. . . . The experts of the telephone companies measure the public. . . . Railway and steamship companies measure the public. . . . Newspapers measure the public best of all, perhaps. . . . The magazines, too, measure the public. Their very life depends upon these measurements. . . . Immense businesses are based upon the fact that the activities of the nation as a whole can be foreseen. Just as there are to-day

> actuaries who predict public health, so there may be actuaries who will predict public opinion in its relation to the sale of goods.[40]

We might gather from Casson's defensive tone that not everyone believed advertising could be formalized in these ways. A study of *Printers' Ink* concludes that in the two decades after its founding in 1888, most writers "agreed that advertising was not and could not become a science, that, in fact, it was too much a matter of chance even to make it worthwhile to test statistically the results of a particular advertisement."[41] But that same study observes a reversal in expert opinion around 1910, as "the language and methods of applied science became the order of the day." Advertisers were especially keen to discover "the precise reactions to advertising, the actual preferences of the public, the measurable habits of customers."[42] As historian Pamela Walker Laird puts it, advertising specialists in the early twentieth century claimed to lean less on their own intuitions and more on an empirical "sensitivity" to what the buying public wanted, thereby "increasing the probabilities of appealing to consumers."[43]

This desire to know more about consumers and advertising effects was evident in agency practice. Leading firms were opening feedback channels and building organizational capacities to account for advertising's influence on sales. By 1900, the Lord & Thomas agency had instituted a "Record of Results" department that reported weekly to clients on the performance of their campaigns, as measured by replies to mail-order advertisements and correlations with retail sales.[44] With a staff of eight people "tabulating and filing returns" related to more than six hundred clients and four thousand magazines and newspapers in 1906, the department provided "a steady flow of hard data with which to pick media and impress clients."[45] Maintaining this information flow as a regular routine, the agency presented its media buying services as systematic, efficient, and oriented to the advertiser's return on investment. As Stephen Fox explains, "Ad placement, traditionally dependent on a medium's reputation and a sixth sense of the agent's, thus acquired a more rigorous procedure."[46]

To gauge the reach and impact of their print advertisements, advertisers and their agents used schemes to solicit feedback from readers, such as issuing coupons that could be redeemed at stores or mailed back to manufacturers. Advertisers tried to attribute results to specific placements by marking coupons with a "key" that identified the publication and issue. These returns not only supplied evidence of advertising exposure but also allowed some calculation of the cost of acquiring customers and obtaining sales.[47] Historian Stefan Schwarzkopf describes keyed advertising as the birth of "measuring return on investment (ROI) through market research."[48] Sometimes print ads also asked respondents to submit information about themselves or people they knew, which could be used for additional advertising or sold to data brokers.[49] At least a few agencies used direct mail to target people who responded to clients' ads, a form of follow-up advertising that works on the same logic as digital retargeting, where people who have signaled something about their interests or needs are singled out as prospects worthy of further investment.[50]

These designs were far from perfect, but they showcase advertisers' and agencies' desire to increase their stores of knowledge, to scaffold strategic decision making, and to evaluate the efficiency of their efforts. Information assembled from dedicated and seemingly systematic feedback systems was becoming the foundation of credible judgments about consumers and audiences—who they were, what they wanted, and how to reach and persuade them. Advertising professionals were only selectively rigorous, of course, and they continued to draw on their own intuitions and assumptions. But at least outwardly, advertising managers and intermediaries projected a commitment to knowing and managing consumers scientifically. Consumers would exist not only in the musings of cultural diviners who created art and copy but also on paper, in the accounts and statistical records maintained by advertisers, agencies, and other companies or bureaus. Recourse to these datafied consumers and the means of making sense of them became a calling card of advertising specialists.

MARKET RESEARCH INSTITUTIONALIZED

American business committed even more energy to knowing consumers in the 1910s, as market research matured into its own service sector. Dedicated research divisions became permanent fixtures at many agencies, publishers, and advertisers, and independent vendors of information or research services emerged.[51] According to a prominent operations researcher, this market research, and the marketing science that descended from it, was motivated by the desire "to reduce uncertainty in the marketing process."[52] The "fundamental intent" of early efforts to "categorize individuals by means of demographic-type variables," he notes, "was to define and identify *potential* customers in the population. As advertising became a force in the marketing process, the problem of matching media to marketing prospects gave great impetus to these efforts."[53]

The Curtis Publishing Company, best known for the *Saturday Evening Post* and *Ladies' Home Journal*, was especially prolific when it came to making American consumers a matter of record. The company established in 1911 what marketing consultant Wroe Alderson calls the "first full-fledged market research organization in the United States."[54] The department thrived under the direction of Charles Coolidge Parlin, "one of the earliest pioneers in the infant science of marketing."[55] Starting in 1913, Parlin mapped consumption patterns in an *Encyclopedia of Cities*. Curtis Publishing went on to produce many volumes, reportedly used by hundreds of businesses, that rated states and counties across the United States according to their sales potential. In the 1920s it even divided large cities into areas of distinctive "residential character," such as those with "many fine homes" or "mostly Jews, Negros and Foreigners"—classifications that indexed racial and ethnic redlining.[56] Much of this early market research involved surveys, interviews, and scavenging from the databases amassed by government agencies. The Commercial Research Division at Curtis sometimes scavenged public collections quite literally, analyzing trash discarded by a sample of Philadelphia residents from each income quartile. The company also audited household pantries to examine the buying behaviors of consumers across sixteen states.[57] Parlin's work for Curtis introduced new techniques for measuring the distribution of goods, the purchasing power and habits of different classes of consumers, and the circulation of magazines.

As advertising agencies touted commitments to evidence-based decision making, their appetites for information continued to grow. But even as information poured in, the people preparing advertisements and planning campaigns did not always let new facts displace their existing presumptions about who consumers were, what they wanted, and how best to influence them.[58] Still, demands for more data made for good business and good theater. In 1914 E. G. Platt of JWT composed a litany in *Printers' Ink*, urging publishers to furnish agencies with detailed information about circulation, market conditions, and readers—how they lived and what they bought. Among several pages of requests, he asked for "facts regarding the influence of your publication to produce sales."[59] JWT, one of oldest and most influential agencies, was already taking matters into its own hands. By 1912, it was mining US census data for statistics that might benefit clients. Within a few years, the agency positioned scientific commitments and competencies as a cornerstone of its own public image and of the advertising profession.

JWT established a Statistical and Investigation Department in 1915 and incorporated new mechanisms for collecting and analyzing data into routine work flows. The next year the firm was bought by a group that included Stanley Resor, the first university graduate to lead an agency. Resor was an apostle for research and fact-based judgment. He saw science as a means of improving efficiency in marketing and securing professional status for ad agencies. He also believed that discernible "laws" governed human behavior. As early as 1919 he embraced the role that behavioral economists have come to call "choice architect," asserting, as Peggy Kreshel reports, that "the work of advertising was 'to control and guide the conditions that lead people to make decisions.'"[60] In 1921 he hired John B. Watson, a former president of the American Psychological Association whose program of behaviorism treated psychology as a disciplined science of prediction and control. Watson became a spokesman for JWT and Resor's vision of advertising, addressing audiences of business leaders and trade associations and "spread[ing] the doctrine of science with an almost evangelical fervor."[61]

These convictions resonated with a business climate enrapt by efficiency, science, and control and confronting challenges in distribution and marketing. Resor recognized that compelling demonstrations of advertising's power to manage consumption—akin to industrial engineers' management of production—would confer unique authority onto agencies. By the mid-1920s, he had assembled a staff that included 105 college graduates, five with PhDs.[62] Among them was Paul Cherington, a disciple of scientific management who left Harvard Business School to become JWT's director of research. There he conducted countless consumer surveys, tabulated data, and, as Fox puts it, "came up with astringently quantified answers to the imponderables of advertising."[63] Cherington boasted in 1924, "There is scarcely an advertising campaign, or a selling plan of first magnitude now operating, which has not back of it at some stage a study of the market to determine not only the number of actual or potential customers, but to get as good an idea as is possible of who they are, what their economic status is, what their buying habits and practices are, and what control their purchases of the goods to be sold." Attention to data had elevated advertising beyond "mere 'puffing,'" he said, and excised "many wasteful elements of chance" from marketing processes.[64]

For decades, Resor and company evangelized advertising as a profession administered by technically skilled experts, a powerful lever for managing consumption, and an indispensable institution in American business. Circulating through academic journals, trade associations, and other spaces of knowledge making and community formation, this discourse was ornamented with the trappings of scientific rigor and professional credibility. Advertising specialists became hailed as consumption "engineers," fine-tuning the machinery of industrialism.[65] The marketing discipline benefited further from the New Deal's legitimation of quantitative social science, statistical records, and calculated intervention in economic matters. Blaming the economic depression on marketing problems (which had marketing solutions), the discipline aligned its special expertise with the pursuit of national prosperity.[66] Even as many advertising leaders actively opposed the welfare state, they seized on chances to promote themselves as indispensable to the workings of markets and capitalist democracy. In a mission statement circulated to JWT staff in 1955, the world's leading agency called advertising "an essential function in a modern, dynamic, industrial society," necessary to the maintenance and spread of "economic well-being." Advertising, the statement said, was thus an "engineering job."[67] Whether the practice of science or the public performance of scientism registered more forcefully, JWT helped construct an agenda and a professional culture that have remained with advertising. Resor and others solidified the collection of market and consumer data as "a professional characteristic of the advertising industry."[68]

The information management systems used throughout American business provided a material complement to this inclination toward prediction and control. During the first half of the twentieth century, many marketers renovated their knowledge infrastructures in ways that afforded a fuller accounting of commercial realities. A 1932 textbook describes some of the promising advantages of "electric sales records," particularly for analyzing consumer habits: "The most highly developed technique for measuring buying behavior is that made possible by the electric sorting and tabulating machines. These ingenious devices have made it feasible to record and classify the behavior of the buying public as well as the behavior of those who serve that public, on a scale heretofore impracticable." These technologies not only supported expansive record keeping but also enabled businesses to deduce facts and patterns that were otherwise inaccessible. The textbook, which has a foreword by John B. Watson, states that the application of these techniques “exemplifies the behavioristic psychological method in almost its ideal form. It is the quantitative study and analysis of human behavior in the *nth* degree.”[69]

Extracting novel insights from larger records, companies made consumers, markets, employees, and business operations legible in new ways. Department stores, for example, created punch cards representing each purchase, which were then sorted and tabulated using machines. This allowed an understanding of consumers grounded in “what the ‘behavior register’ actually records,” enhancing businesses’ capacities to cope with “the uncertainties of [customers’] future behaviors.”[70] These were the big-data systems of the age, providing the straw that quantitative researchers tried to spin into gold. When JWT wanted statistical experts to discern correlations between personality types and customer loyalty, the agency offered up eight million IBM punch cards representing a full year (1956–1957) of grocery purchases by some three thousand households.[71] Keeping track of consumption had become an industrial habit.

MAKING AN IMPRESSION: PRODUCING EVIDENCE OF ATTENTION

Data collection not only let firms refine their operations or market new services to clients; it also supported durable relationships among trading partners. Brands and retailers had enlisted mass media to promote their businesses and to instruct the public about consumption habits. This model of commercial sponsorship generated demand for information about how people encountered advertisers’ messages and how exposure to those messages correlated with shopping or other relevant activities. It also called for research institutions to maintain trust in the face of conflicting interests. For example, advertisers, agencies, and publishers created the Audit Bureau of Circulations (ABC) in 1914 to provide authoritative information about newspaper readership. This “represented a great milestone,” as one observer later put it, since ABC replaced the “nebulous” and competing claims of rivals with a tangible criterion of circulation.[72] Recourse to a reliable and shared set of facts helped buyers feel confident that they got what they paid for. Certifying a form of “truth” for multiple parties to act on, the companies that measured media audiences built accounting (and, by omission, discounting) infrastructures. They ordered reality to support routine transactions and rational management.

Research on audiences, and how advertisements influenced their attitudes and behaviors, proliferated in the 1930s and 1940s. The production of scientific claims about public opinions and habits was a growth industry powered by prominent researchers such as Frank Stanton, Paul Felix Lazarsfeld, George Gallup, and Herta Herzog, as well as new methods of population sampling and statistical analysis. As historian Sarah Igo explains, some of the leading social-science surveyors, who were central to constructing the idea of an American mass public, "were first and foremost market researchers, devoted to the science of improving corporate profitability through carefully crafted advertising campaigns and public relations stratagems."[73] According to Todd Gitlin, the mainstream of mass communication research emerged from a "marketing orientation" and the commercial need for audience measurement.[74]

The need to know about advertising exposure prompted bursts of ingenuity. Starting in the 1930s, national magazines invested in what one researcher later called "an avalanche of audience studies."[75] Distrust in self-reports from surveys and interviews fueled interest in obtaining more direct behavioral measures. For example, researchers at *Time* magazine tried to observe "page traffic," the reader's movement from page to page, by collecting used copies and analyzing the fingerprints left on them.[76] This held the additional promise of being a personal index, unique to each reader, but overall, this method had minimal significance.[77] A textbook by professors at New York University and Northwestern University, both of whom were consultants to top advertising agencies, was more impressed with a method used by the *Saturday Evening Post* and *Look* in the late 1950s. In experiments arranged by Alfred Politz Research, the magazines applied a tiny amount of glue between pages, collected a sample of the issues in circulation, and then counted the glue seals that had been broken. Strategic placement of the glue allowed inferences to be made about whether the reader likely looked at whole pages and ads—a precursor to online viewability metrics.[78]

Politz's company also used photography to generate evidence of attention for the National Association of Transportation Advertising in Philadelphia (figure 2.1). Two cameras, controlled by timers that triggered photo bursts at scheduled intervals, were installed in the window of a city bus, where they captured images covering a 120-degree range. "Only persons clearly photographed and with both eyes visible from the bus were counted—on the assumption that they were most likely to see the advertisement."[79] This

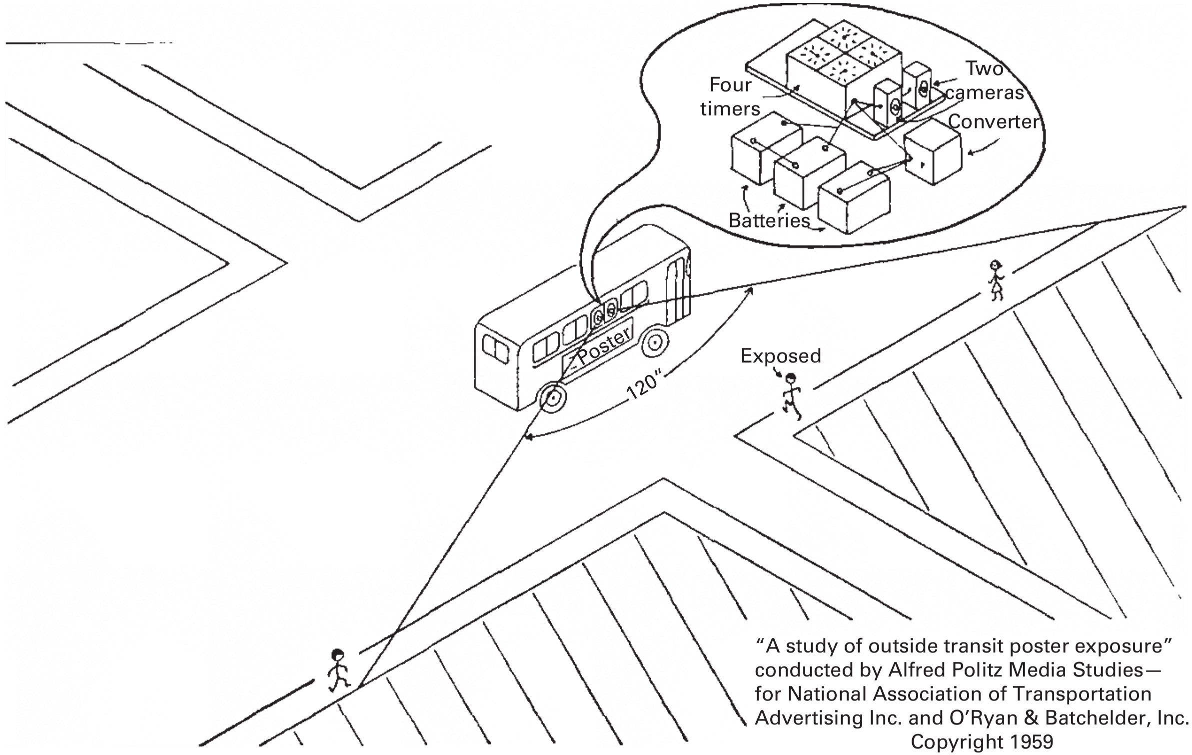

FIGURE 2.1

Researchers produced visual evidence of outdoor advertising exposure by placing automated cameras on a bus displaying poster ads. This is a colorful demonstration that an advertising impression is less about the impact of a message on a consumer and more about the impression a consumer makes on a measurement instrument. In this case, the light bouncing off pedestrians' bodies was captured by a lens and recorded on film. (*Source:* Darrell Blaine Lucas and Steuart Henderson Britt, *Measuring Advertising Effectiveness* [New York: McGraw-Hill, 1963], 281) literally set the frame for what was taken into account, in terms of both territory and the definition of attention (two eyes visible).

Fingerprinting, glue seals, and mounted cameras are all methods of rendering attention in some evident, tangible form—what we might think of as making an impression. The term "impression" is usually presumed to imply an effect on a consumer; perhaps more aptly, the selling of attention requires the opposite—that the consumer makes an impression on a measurement instrument.

Pressure to create evidence of audience attention deepened with the advent of broadcasting. Reception of radiated frequencies was a fugitive phenomenon that was even harder to estimate than the circulation of print media. The audience measurement business cycled through a variety of methods to apprehend listening or viewing behavior, including telephone surveys, paper diaries, and meters that passively recorded the tuning of radio or TV receivers. Television's production costs and engineered economics of scarcity amplified the demand for data to justify advertisers' enormous expenditures and the rents extracted by networks and stations. The competition to supply that data sometimes tended toward science fiction spectacles. To dramatize its trial of a real-time audience measurement service in 1957, the American Research Bureau installed at its headquarters a giant electronic display board that visualized live network ratings at ninety-second intervals, "a kind of cross between a pinball machine and a Univac." *Billboard* reported that these blinking lights put creative workers' powers of fascination under a microscope, since a sponsor could see if viewers abandoned its show during a lousy comedy act or a dull commercial message. "Now we'll be able to watch ourselves lose clients," an agency research director joked.[80] Reflecting on the state of audience measurement in general, one advertising executive said, "Television produced an explosion of information which has required a whole new breed of media men. It generated new universes of research, and each medium produced a blizzard of research to counter the deadly thrust."[81]

This blizzard was bewildering. Different research methods produced findings that were hard to reconcile, and stakeholders could gravitate to evidence that supported their interests. Even as advertisers wanted to know about marketplace realities, they wanted to stabilize those realities for routine decisions and actions. Irresolvable knowledge claims were not conducive to that. Most ad-supported media settled around a monopolist provider of audience measurements, owing in part to the convenience and economy of operating from one official representation of reality. As many analyses of media ratings have demonstrated, audience measurement companies, acting as arbiters of truth, have provided a powerful infrastructural service for supporting the commodification and exchange of a product (i.e., attention) that exists, as an institutional fact, through the instruments, compromises, and transactions that materialize it in specific ways.[82]

From the outset, then, audience manufacture and efforts to manage consumption have generated strategies and instruments for documenting, analyzing, predicting, and potentially influencing the behaviors of individuals and groups. Referring to an emergent information industry that grew concurrently with the commercialization of broadcasting, historian Karen Buzzard writes, "The single largest category of data provided by the information industry was research on the marketing of products, including the use of the various advertising media to accelerate sales."[83] That firms such as CBS, Curtis Publishing, and Nielsen attempted to audit households' pantries so that advertisers could infer how their expenditures contributed to sales indicates the extent to which market researchers were penetrating the domestic sphere in the first half of the twentieth century. Failure to maintain and replicate these services at a viable cost also indicates the difficulty of taming such complex phenomena.

INFERENCES OF INTENTION

One last venture into complexity is worth noting here. Motivation research (MR) was a cultural phenomenon in the 1950s. It was also something of a scandal, following Vance Packard's sensational indictment of it in *The Hidden Persuaders*.[84] MR developed from social-science approaches to analyzing marketplace choices and was attached most famously to Ernest Dichter.[85] It claimed to discern the motivations behind consumer behaviors and attitudes. In contrast to Watson's behaviorism, which dismissed people's explanations of their conduct and focused instead on observed actions, MR's methodological centerpiece, the depth interview, was designed to put consumers' choices, loyalties, habits, and tendencies into words. MR thereby brought consciousness, and even *sub*consciousness, into view. Researchers exercised discretion about whether and how much to trust what subjects said, and they made choices about which details to register and emphasize. As such, MR was an idiosyncratic science. Interviewers and interpreters were crucial parts of the instrumentation both for producing data and for analyzing it.

By investigating consumer behavior in depth, MR expanded the frame of reality, even if the answers it produced could be slyly reductive. Its insights often pointed toward themes typical of advertising's creative revolution, and agencies used MR to guide creative strategies. But this mode of knowing was not easily accommodated to routine processes, especially when high-speed decision making buckled under so much individual texture. A 1961 textbook points out that MR's mode of information gathering made it "both costly and also difficult to reduce to quantitative tabulations."[86] MR might help interpret consumer behavior, but a retailer's ability to act on its insights was limited by the merchant's access to individuals' hidden inclinations. As one marketing consultant explains, "The dealer has no way of discovering the personality traits of an individual consumer, let alone the consumer's deep-seated psychic motivations. For this reason, although knowing that the person now entering the store had latent tendencies toward homosexuality would be really quite useful for marketing purposes, this information is hardly ever available."[87] This is, in some sense, precisely the problem online tracking and profiling try to solve: they make consumers' propensities apparent and actionable to marketers.

The consultant just quoted was Michael Halbert. He made these remarks in a research paper presented to the American Marketing Association in 1955. Apart from its cynicism, the paper was notable in that Halbert explicitly built a bridge between MR and the newest breakthrough scientific phenomenon: operations research. MR deviated in many ways from the quantitative thrust described in this chapter, presenting its unique sensitivities as a relative strength over the dehumanized statistics of other social sciences. Not surprisingly, that invited a strong response from advertising professionals who saw idiosyncrasies as impediments to scientific and systematic management. With operations research, the pendulum swung back harder than ever, like a wrecking ball, clearing space for even more imposing monuments to rationality.

CONCLUSION

Modern advertising developed as part of what James Beniger famously called the "control revolution," crises in industrial capitalism that precipitated movement toward an information society.[88] From the late nineteenth century through the first half of the twentieth century, advertising specialists promoted their scientific credentials and embraced the status of consumption engineers. Agencies and publishers accumulated information to differentiate their services from those of rivals, and leaders of the US advertising industry projected commitments to knowledge making and rationality as badges of professional legitimacy. Especially from the 1910s onward, advertising portrayed itself as a science-in-the-making, a progressive force for economic efficiency. The next two chapters zoom in on an important inflection point in this calculative evolution toward data-driven advertising.

John Bellamy Foster and Robert McChesney locate the emergence of surveillance capitalism in the mid-twentieth century via computerization, militarization, and financialization. The influence of operations research and management science (OR/MS) in advertising sits at the intersection of those axes. The 1950s and 1960s witnessed intensive efforts not only to rationalize executive decision making but also to remodel parts of advertising and marketing around a mathematical science of optimization, formatted for digital computers and adaptive, algorithmic control. Advertisers, agencies, and consultancies absorbed techniques and expertise from the military and the academy, drawing elites from physical and social sciences into corporate America's centers of planning and calculation. Where motivation research attempted to qualitatively probe the interiority of the individual, OR/MS attempted to quantitatively model the whole interlocking world of firms, consumers, markets, and marketing systems. It affected most of all the multilayered processes of media buying and advertisement distribution. These processes grew into power centers of the advertising industry. Through them, the transactions that support media and information systems came to resemble financial markets and automated, high-frequency trading.

The modern paradigm in digital advertising began to acquire institutional and imaginative force through the industry's mid-twentieth-century experiments with OR/MS. Applied to advertising's existing aspirations and challenges, these disciplines shaped and reflected the understanding of what information technology could do, the value of data, the design of markets, and the logistical and knowledge infrastructures supporting a business built around claims, documents, and flows. This little-known episode in the history of advertising paved the way for the forerunners of adtech and surveillance capitalism. It shows how space-age dreams of optimization—still dazzling today—took root in the discourses and mechanics of selling the American people.

The MIT Press would like to thank the anonymous peer reviewers who provided comments on drafts of this book. The generous work of academic experts is essential for establishing the authority and quality of our publications. We acknowledge with gratitude the contributions of these otherwise uncredited readers.

This book was set in Stone Serif and Stone Sans by Westchester Publishing Services.

Library of Congress Cataloging-in-Publication Data

Names: McGuigan, Lee, 1986– author.
Title: Selling the American people : advertising, optimization, and the origins of adtech / Lee McGuigan.
Description: Cambridge, Massachusetts : The MIT Press, [2023] | Series: Distribution matters | Includes bibliographical references and index.
Identifiers: LCCN 2022037239 (print) | LCCN 2022037240 (ebook) | ISBN 9780262545440 (paperback) | ISBN 9780262374231 (epub) | ISBN 9780262374248 (pdf)
Subjects: LCSH: Internet marketing—United States. | Internet advertising—United States. | Advertising—United States. | Digital media—United States. | Social media—United States.
Classification: LCC HF5415.1265 .M367 2023 (print) | LCC HF5415.1265 (ebook) | DDC 658.8/72—dc23/eng/20230103
LC record available at https://lccn.loc.gov/2022037239
LC ebook record available at https://lccn.loc.gov/2022037240