Power without Responsibility:
Audience Measurement from 1920

An Essay Presented

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[L]et us speak of the laws about music . . . in order that we may trace the growth of the excess of freedom from the beginning. Now music was early divided among us into certain kinds and manners. … All these and others were duly distinguished, nor were the performers allowed to confuse one style of music with another.

And the authority which determined and gave judgment, and punished the disobedient, was not expressed in a hiss, nor in the most unmusical shouts of the multitude, as in our days, nor in applause and clapping of hands. But the directors of public instruction insisted that the spectators should listen in silence to the end; and boys and their tutors, and the multitude in general, were kept quiet by a hint from a stick. Such was the good order which the multitude were willing to observe; they would never have dared to give judgment by noisy cries.

And then, as time went on, the poets themselves introduced the reign of vulgar and lawless innovation. They were men of genius, but they had no perception of what is just and lawful in music; raging like Bacchanals and possessed with inordinate delights-mingling lamentations with hymns, and paeans with dithyrambs; imitating the sounds of the flute on the lyre, and making one general confusion; ignorantly affirming that music has no truth, and, whether good or bad, can only be judged of rightly by the pleasure of the hearer.

And by composing such licentious works, and adding to them words as licentious, they have inspired the multitude with lawlessness and boldness, and made them fancy that they can judge for themselves about melody and song. And in this way the theatres from being mute have become vocal, as though they had understanding of good and bad in music and poetry; and instead of an aristocracy, an evil sort of theatrocracy has grown up.

For if the democracy which judged had only consisted of educated persons, no fatal harm would have been done; but in music there first arose the universal conceit of omniscience and general lawlessness; freedom came following afterwards, and men, fancying that they knew what they did not know, had no longer any fear, and the absence of fear begets shamelessness.

For what is this shamelessness, which is so evil a thing, but the insolent refusal to regard the opinion of the better by reason of an over-daring sort of liberty?

— Plato, Laws

Table of Contents

INTRODUCTION

At the advent of radio broadcasting in the 1920s, the audience was unseen and its preferences were unknown. This absence of empirical knowledge created the space for personal judgement and an ideology of civic responsibility in broadcasting. While the interests and consumption patterns of the mass audience remained unknown, the media could operate as a leader of public opinion and a proponent of the public interest (as determined by the social consensus of elites).

The oligopoly status of the broadcasting networks from 1930 until the early 1980s created an environment that fomented intense, but limited competition. The rivalry between NBC, CBS and ABC for audience share and advertising dollars was fierce. However, the constrained number of actors — which granted them a quasi-monopoly over distribution — allowed some norms around what was acceptable to be upheld by the networks and enforced by the government amidst the competition for viewership.

Over the same time period, audience measurement improved dramatically from haphazard surveys to specialized electronic measuring devices. Statistical modeling replaced intuition and, in the words of advertising executive David Ogilvy, network programmers began to deploy these techniques in the way "a drunk man uses a lamppost — for support rather than illumination" (quoted in Seldin 1965, 254). Later, in the early 1980s, the introduction of cable undermined the dominance of the broadcast networks. Suddenly, the programming alternatives

available on television exploded by several orders of magnitude — presaging in miniature the dynamics which would play out globally two decades later on the internet. Ratings, already important during the prime time era, became the only tool potential advertisers could use to navigate the abundance of new shows.

There is continuity between the incentives of the earliest broadcasters and the imperatives of modern algorithmically-mediated distribution platforms, such as Facebook and YouTube. As competition for attention grew fiercer, media outlets lost their ability to lead public opinion. A peculiar inversion had taken place. The mass media, which once had been guided by elite sensibilities, gradually fulfilled its promise to serve as the mouthpiece of the mass public. The commercial imperative to attract a mass audience constructed the ideology, best summarized by CBS president Frank Stanton, that "a program in which a large part of the audience is interested is by that very fact a program in the public interest" (Stanton 1960, 5). The market, in its role as an instrument for revealing consumer preference, would be the final arbiter. The culture industry, as emblematized in broadcast media, has been reconfigured since its description by Horkheimer and Adorno (1944). Yet the invisible hand of the algorithm is more insidious than the visible one of the network executive as it is far more effective at achieving their shared goal, which is delivering to audiences precisely what they want: endless and captivating entertainment.

Methodology

I set out to understand the culture industry as it understood itself. To this end, the most valuable sources were the direct accounts and reminiscences of key figures. I looked to these primary sources — Frank Stanton's testimony before the Federal Communication Commission, Bill Paley's autobiography, *As it Happened* (Paley 1979), Fred Friendly's autobiography, *Circumstances Beyond Our Control* (Friendly 1967), the 'Wires and Lights in a Box' speech that Edward Murrow delivered in 1958 (Murrow 1958), several journal articles written by A. C. Nielsen (especially Nielsen 1942; Nielsen 1964) and David Oglivy's autobiography, *Confessions of an Advertising Man* (Ogilvy 1963) — to uncover this perspective. These primary sources illuminate the work that the participants understood themselves to be carrying out. Each of these individuals shaped the mass media industry; the structure we inherit bears their fingerprints. Hearing their voices personalizes the abstract pressures and incentives of the overall system. Through their writing, I aim to reconstruct a sense of what it was like to make editorial decisions that affected millions of viewers across the nation, or receive a Nielsen ratings report card, or produce an advertising campaign.

In terms of secondary source material, I found both older and recent scholarship to be quite helpful. Erik Barnouw's three volume series on broadcasting history was invaluable (Barnouw 1966; Barnouw 1968; Barnouw 1970) as well as his later work on broadcast advertising (Barnouw 1978). Broadcasting is a recent enough phenomenon that many of its canonical histories

were written by academics who directly experienced the era that they theorize. In many cases, these secondary, academic accounts now stand in as quasi-primary sources. Critics and practitioners such as Leo Bogart and Malcolm Beville, an NBC audience research executive turned academic, offer gestalt insight that can only be derived from direct experience. In their writing (especially Bogart 1995; Beville 1988), they adopt the parlance of industry rather than academic terminology.

I am indebted to the work of several contemporary scholars. In *Desperately Seeking the Audience*, Ien Ang (1991) proposes the idea of the 'disciplined audience' which informed my own thinking around the concept. She also introduced me to the case study of the British Broadcasting Corporation, which I expand upon in Chapter Two. The language of audience ratings can be quite opaque. Karen Buzzard's work (Buzzard 1990; Buzzard 1992; Buzzard 2012; Buzzard 2015) clarified many of the essential concepts and gave an overview of how "media buying" — that is, purchasing advertising time — actually works. In "Internet Audience Measurement," Fernando Bermejo (2007) discusses the modern application of audience measurement techniques to the online audience. Patrick R. Parsons (2008) did for cable television what Barnouw did for broadcasting, providing a comprehensive overview of the historical development of the medium.

Chapter 1: Corporate Panopticonism and Market Surveillance

In this chapter, I extend Michel Foucault to introduce a theory of 'corporate panopticonism' and apply it to the operation of the culture industry. I suggest that market surveillance — the measurement of consumer preference — has a different effect from panoptic surveillance used by the state. The sovereign panopticon aims to intervene in society and alter the behavior of a population. The corporate equivalent is more passive; it aims to match.

The Frankfurt School analysis of the culture industry sees a form of hierarchical power at work in its operation, with corporate executives imposing 'content' upon a submissive audience. I argue that this view of domination discounts the degree to which genuine audience preference shaped the culture industry's output.

Chapter 2: The Unseen Audience

Chapter two sketches out the early history of radio broadcasting beginning in 1920, with a focus on developments in audience measurement and industrial organization. The chapter details the rise of the Columbia Broadcast Service (CBS) and the National Broadcasting Corporation (NBC). It notes the skepticism of radio advertising and the restraint that broadcasters exhibited in deciding which sponsored segments they would allow on the air.

As the potential of radio as an advertising medium became apparent, both sponsors and broadcasters sought a way to measure the audience that their messages reached. Early audience measurement adopted the same methodologies used to poll public opinion — sampling and telephone surveys. In the late 1930s, the A. C. Nielsen Company produced the first automated form of radio audience ratings, using the Audimeter, a physical device installed in sample homes, which passively recorded viewing habits. Other innovations of the era include the Lazarsfeld-Stanton program analyzer, which was used to measure a sample audience's qualitative reaction to a radio program or advertisement before it was run on the air.

There is also a brief discussion of the influence of audience ratings on the decisions that network executives make as they began to incorporate audience measurement into the programming and scheduling process.

The chapter concludes by comparing the American system of commercial mass media with the British Broadcast Corporation (BBC) — a state-owned monopoly which explicitly operated in the public interest. The differences between the two systems illustrate how the commercial imperative to attract the largest audiences gave ratings far more importance to executives in the United States than in Britain.

Chapter 3: A Heap of Broken Images

Broadcast television became commercially viable in 1950. Chapter 3 explores the development of the new medium through the lens of the CBS network. The tension between serving the public interest and delivering content that interests the public is illustrated through the personal animosity between broadcast journalist Edward Murrow and audience research executive, Frank Stanton. Each is an avatar for a different understanding of what the responsibility of broadcasters is to the mass audience.

The chapter also touches on the increasing sophistication of the audience measurement system carried out by the A. C. Nielsen Company. The computer revolution meant that audience ratings could be produced more quickly and accurately. At the same time, Nielsen also began to record more granular demographic metrics. The advancements in audience measurement coupled with changes to the industry's arrangement for selling advertising time gave the ratings points even more prominence.

In light of the increasing importance of achieving and maintaining high ratings, the chapter discusses how programming decisions were made during the prime time era. The reader is presented with an account from Bill Paley, the founder of CBS and a man notorious for his programming intuition.

Chapter Three concludes with the emergence of cable television, which by the 1980s had become a viable competitor to broadcast networks. Cable

undermined the network's oligopoly, offering viewers more choice and catering to more niche audiences. The addition of new channels delivered by cable or satellite hinted at the consequences that the internet would have on traditional mass media: more specialized programming, a more fragmented audience, and ever more intense competition for attention.

Chapter 4: The Transparent Medium

Chapter Four opens with a brief discussion of the nature of the internet medium and how it differs from broadcasting. Frank Stanton recognized that television, like radio broadcast before it, was inherently a mass medium. The internet is more flexible; it offered consumers access to an abundance of content — orders of magnitude greater than what network television, or even cable, had delivered — and at the same time expanded the number of producers of content, by dropping the marginal cost of production and distribution virtually to zero. Unbounded by the constraints of broadcast, the three pillars of commercial media — audience measurement, advertising and content distribution — were reconfigured.

The chapter chronicles the development of online audience measurement; at first aping the preceding panel methodology before tapping into the unprecedented surveillance capabilities of the internet. As internet audience measurement, in the form of tracking cookies, server logs and client-side analytics, became granular enough to track individual web users, the

unprecedented specificity of the data gave rise to an innovative new form of advertising. Targeted advertising algorithmically serves sponsored messages to consumers who fit a narrow demographic profile. Every time a web page is requested, it could be 'personalized' with a targeted advertisement.

The chapter concludes by looking at Facebook and at the origins of the News Feed. The algorithmic feed, which applied the logic of algorithmic advertising to the distribution of content, can be understood as the culmination of a century of audience measurement and market surveillance. Sampling gave way to the census as the mass audience was decomposed into individual users. Every action of every user is instrumented and measured; it is as if the Nielsen Company had an Audimeter in two billion homes. Implicit signals like 'time spent' and clicks are augmented with qualitative feedback, using the iconic “Like” button. In effect, the News Feed combines the Nielsen Audimeter with the Lazarsfeld-Stanton program analyzer.

The logic of audience preference animates the whole process; two billion people use the service and not a single feed is identical. When operating at such a scale, any strong sense of editorial judgement is impossible. Thus, Facebook's commercial imperative is to become a transparent medium — a conduit that exerts no paternalistic control over the content that flows through it. The fewer constraints Facebook imposes, the more easily the feed can approximate any individual user’s set of interests.

CHAPTER 1

Corporate Panopticonism & Market Surveillance

In this introductory chapter, I develop a theory of 'corporate panopticonism,' drawing heavily from Foucault's seminal work on surveillance (Foucault 1975) and apply it to the operation of the culture industry. I will show that when surveillance serves corporate executives, instead of state bureaucrats, rather than enabling active state intervention, it takes on a different, more subtle function: generating information that allows companies to passively match consumer demand. Furthermore, I suggest that market surveillance is unique because, in contrast to state surveillance, it erodes (rather than strengthens) the autonomy of those who rely upon it. Thus, corporate panopticonism produces a mode of surveillance that acts upon the surveiller rather than the surveilled.

I show that Frankfurt School analysis of the culture industry (Horkheimer and Adorno 1944). The Frankfurt School underestimates the degree to which the measurement of consumer preference — market surveillance — determines the content of mass culture, in the process, endowing network executives with more autonomy than they actually possessed. The traditional understanding of the culture industry is that it coercively enforces conformity and manufactures false demand. I reject this as an outdated view which over weights a brief, anomalous period, where mass media was not subject to normal market incentives. I suggest that the culture industry, far from manipulating audience preferences, is in fact

fixated on continually satisfying them. Against Adorno and Horkheimer's supposition, I argue that the conformity they observed in the 1940s was, in fact, an artifact of broadcasting technology and an inefficiency of the culture industry rather than a quality inherent to it.

Through the practice of market surveillance, which matured over the course of the 20th century, producers of advertising and programming became increasingly sophisticated at matching consumer preferences, constantly reducing the degree of ideological imposition on the audience. As a result, the frightening specter today is not the iron cage of ideological conformity, but instead the absence of any normative authority whatsoever. When the locus of judgment is placed in the measurement apparatus, thought becomes mechanistic. The higher the number, the better the choice, and vice versa. Decision making cannot help but become a formulaic appeal to the numbers, which bear the triple imprimatur of democratic assent, quantitative objectivity and financial profitability. The framework of corporate panopticonism that I introduce helps to reconcile the behavior and perception of the operators of the culture industry with the observable outcomes predicted by Adorno and Horkheimer.

The Panoptic Schema

The panopticon, as explained by Michel Foucault, is a prison in which order is enforced through the specter of constant surveillance. Its physical structure is divided into two parts. The outer ring houses the prisoners, each in a

cell segmented off from one another, completely isolated and unable to communicate. In the center stands a tower, from which the warden may look into any of the cells. This gaze feels omniscient to the prisoner because it is asymmetric: the warden observes but is not seen. Thus, the captives of the panopticon, constantly aware of the possibility that they are being watched, impose upon themselves the discipline that is expected of them. Through the architecture of the space, a solitary watchman can oversee a multitude of inmates.

For Foucault, this is the quality that raises the prison to the level of philosophical interest. The operation of the facility can be seen as a generalized and disambiguated 'technology of power.' The physical structure of the prison is what enables compliance. It facilitates no intrinsic purpose of its own; the panopticon operates indiscriminately, as technique, to further the ends of those in control of its machinery. Panoptic surveillance, of the type Foucault describes, is an instrument for sculpting populations. The subjects under observation are meant to internalize the feeling of being watched. The constant presence is intended to alter the subjects' behavior and bring it in line with the expectations of those in control. The sovereign disciplinary apparatus enabled the state to *intervene* in social behavior.

Corporate Panopticon

The corporate equivalent shares many similarities with its state counterpart. Both involve surveillance technologies; both are asymmetric in

nature. Both permit the few to monitor the many. The differences, however, are profound. The corporate panopticon seeks only to *match* society; disciplinary measurement was undertaken in order to determine existing demand, to discover consumer preference so that it could be supplied more efficiently. Market research was intended to render the dynamics of the market legible to corporations, just as public opinion polling reveals the preferences of constituents to politicians.

While quixotic efforts can be undertaken to alter public opinion or generate demand, more often than not these tools moderate and guide executive judgement into conformity with prevailing conditions. The politician, in theory, becomes a democratic avatar for her constituents' opinions, just as the corporation endeavors to satisfy consumer preference. Neither can afford to *lead* the public by straying too far ahead of what the public will accept. If the politician is not a good proxy, she will be replaced by another who models voter preferences more accurately. If a corporation fails to produce a product that customers want, it will quickly go out of business.

The mirroring and matching function of discipline is under-theorized in Foucault, who understands discipline as merely 'technique' which must be given purposes by those who use it. It is the means of "amplifying" a conscious judgment that precedes it; but is not generative of ends on its own. The panoptic state can use its disciplinary apparatus to raise an army, to tax its population, to contain a plague or to quell a rebellion. But the measurements alone — population censuses, cadastral surveys, and bureaucratic registers — contain nothing

suggestive; the locus of agency remains outside the measurement apparatus. Yet when disciplinary regimes are used to reproduce and optimize the extant — to mirror what already exists with increasing speed and fidelity — the feedback loop is closed. Television ratings measure audience preference, which dictates the type of programs that network executives *must* produce. Issue polls measure public opinion, which in turn informs politicians on the position that they *ought* to take in order to represent their constituents. In this mindset, the results of the measurement become obligating to its interpreter. The corporate panopticon delivers a binding judgement that must be acted on.

Thus, the measurements cease to merely be informative. They are no longer just the inputs of a normative decision-making process external to the operation of the surveillance assemblage. The shift alters their interpretation. Measurements produced by the corporate panopticon now obligate a certain response. A television show's rating dictates how management must respond.

Differences Between the Two Types of Panopticonism

Market surveillance seeks to understand consumers in order to better satisfy their demands. This is distinct from the Benthamite panopticon, where sovereign authority is exercised in order to alter behavior. Unlike the function of the sovereign panopticon, the corporate panopticon imposes nothing on consumers. The purpose of the apparatus is not to intervene or modify the behavior of its subjects. It functions far more passively — it seeks merely to know

and to measure; to make consumer preference legible so that it can be met. Foucault and Bentham both understood the panopticon as a "privileged place for experiments on men" (Foucault 1975, 204). Observation would be conducted with a specific purpose in mind, whether to "experiment with medicines and monitor their effects" or "to teach different techniques simultaneously to workers, to decide which is best "(Foucault 1975, 203).

Market research seeks only 'impartial' knowledge. It is not designed to change behavior but merely to depict it accurately. The meter is a disinterested observer. And the interpreters of the ratings — network executives, advertising agents, sponsors — are not trying to act upon the underlying audience. The network executive cares about the ratings not because they seek to change the constitution of the audience, but because they want to conform to its preexisting inclinations with greater acuity.

Enlightenment and The Culture Industry

This new idea of corporate panopticonism that acts upon the surveiller, rather than the surveilled in mind, challenges the position taken by philosophers of the Frankfurt School, specifically Theodor Adorno's and Max Horkheimer's works on mass culture. These early theorists of the culture industry suggest that the content of mass culture is imposed hierarchically upon consumers. Their analysis envisions that those in control of the mass media apparatus, the captains of industry and corporate executives, make one-sided choices which are

coercively forced upon the national audience. While this perspective is superficially seductive, it does not hold up to empirical scrutiny. Corporate panopticonism is a better model for understanding how the culture industry developed. The focus should not be on an imperative for the audience to obey — which was always a quirk of the technology of broadcast, rather than a feature of the system — but on the desire of the broadcaster to render consumer preference legible, so the culture industry could better meet those preferences.

The chapter on the culture industry in *Dialectic of Enlightenment* is one of the most significant and influential works in the history of media, film and cultural studies (Rebentisch and Trautmann 2018, 1). It is a founding document written concurrently with the technological developments of the mass media industry. On the whole, Horkheimer and Adorno's account of the culture industry is prescient. To have seen so far from their vantage point a mere decade after the birth of the mass media industry is remarkable, and also signals their close connection with other mass media pioneers both in industry and academia. Adorno had an intimate understanding of the radio broadcasting industry, through his connection to Paul Lazarsfeld.

However, Adorno and Horkheimer both discount the role of bottom-up consumer preference as a motivating feature of the culture industry, suggesting that appeals to spontaneous demands are just 'hot air' or expressions of ideology. Indeed, the culture industry was given its name in an effort to disambiguate it from other expressions such as "mass culture" (Adorno 1975, 1). In *Culture*

Industry, Reconsidered, Adorno recounts that he and Horkheimer choose the term explicitly in order to exclude the interpretation that they considered the culture industry to be "something like a culture that arises spontaneously from the masses themselves" (Adorno 1975, 1). He takes great pains to differentiate this "agreeable interpretation" from the phenomenon they sought to theorize which understands the output of the culture industry as determined "from above," due to the economic and administrative centralization (Adorno 1975, 1; Horkheimer and Adorno 1944, 96). This is a key contention of the Frankfurt School perspective: the masses, while they may give the name and supply the ideology, are not the source of mass culture. Popular art, television and cinema are not genuine reflections of the popular demand but manufactured according to a plan "which to a great extent determine the nature of that consumption" (Adorno 1975, 1). Thus, "the customer is not king, as the culture industry would like to have us believe, not its subject but its object" (Adorno 1975, 1). While central to the ideology of the culture industry, the masses, by Adorno's account, are merely "an object of calculation; an appendage of the machinery" rather than its engine (Adorno 1975, 1).

Horkheimer and Adorno recognized that mass media — particularly early radio broadcasting — was not subject to the normal forces of the market. However, they extrapolated that this state of affairs would continue and intensify, when in fact it was an historical aberration. The respite from the market mechanism, due to the unknowns surrounding the audience and the early

formation of an oligopoly, enabled a more normative and paternalistic form of broadcast, epitomized by the British Broadcasting Corporation and Edward Murrow's philosophy of public interest broadcasting. However, as the market for attention was constructed, through market research and surveillance by companies like A. C. Nielsen, "simple obedience" was replaced by consumer demand — the inverse of the Frankfurt School's dire prediction that such demand itself was being controlled in a "cycle of manipulation and retroactive need" (Horkheimer and Adorno 1944, 95, 108).

Writing after Friedrich Pollock introduced the theory of 'state capitalism,' the unstated context of *The Dialectic of Enlightenment* is that the liberal boundaries between the political and economic spheres are being broken down (Dubiel 2001). The leaders of corporations are incorporated into the governing apparatus as the interests of industry and those of the state intermingle. Thus, state capitalism sees contemporary society as "a conglomerate of organized groups under the leadership of bureaucratic or quasi-bureaucratic elite" (Horkheimer and Adorno 1944, 235).

The assumption that the framework of state capitalism accurately characterizes the state of affairs can be seen throughout the work. Horkheimer and Adorno believed that the "free market [was] coming to an end" and that "those who control the system [were] entrenching themselves in it" (Horkheimer and Adorno 1944, 131). They lay blame at the feet of "the obscure subjective intentions of board chairmen" and assert that it "it is no longer the objective laws

of the market which govern the actions of industrialists," but rather "the conscious decisions of the company chairmen" (Horkheimer and Adorno 1944, 96, 30). However, history reveals that the process played out in reverse. As I will show in chapter two, the effect of oligopoly was most pronounced in the first decades of mass media when, due to the novelty of the technology, the preferences of the audience were shrouded in obscurity. Without much direct competition or any quantified sense of what the audience wanted, executives were empowered to make decisions on the basis of intuition and principle. There was no other form of authority that could be appealed to. Thus, those in control could agree "to produce or let pass nothing which does not conform to their tables, to their concept of the consumer, or, above all, to themselves" (Horkheimer and Adorno 1944, 96).

Adorno and Horkheimer theorize a system where the public is deceived and manipulated into accepting the 'threadbare' output of the culture industry: "The more strongly the culture industry entrenches itself, the more it can do as it chooses with the needs of consumers — producing, controlling, disciplining them" (Horkheimer and Adorno 1944, 115). The evolution of mass communications, however, suggests that the relationship between producer and consumer runs in the opposite direction. The culture industry was never truly in control of its audience. The appearance of overt dominance masks the precarious authority of those who operate the machinery. Horkheimer and Adorno saw "the immanent tendency of radio" as totalitarian in nature: the human word is posited as absolute, and "recommendation becomes command" (Horkheimer and Adorno

1944, 129). Their vision of the mass audience was one of submission, consumers "unresistingly succumb[ing] to whatever is proffered to them" (Horkheimer and Adorno 1975, 106). In reality, the audience was at the center of the whole apparatus — not directly in control, but indirectly expressing its preferences.

Horkheimer and Adorno acknowledge the effort of research organizations to analyze the public: "On the charts of research organizations … consumers are divided up as statistical material." (Horkheimer and Adorno 1944, 97). However, they discount these efforts as "indistinguishable … from political propaganda" where the messaging is decreed from a position of power (Horkheimer and Adorno 1944, 97). The two assert that the measurements and categories produced by research are imposed from above rather than an approximation of some underlying reality. They suggest that consumers are *forced* to "behave spontaneously according to a 'level' determined by indices" rather than the measurements modeling genuine consumer preference (Horkheimer and Adorno 1944, 97).

Market Research as Market Surveillance

Corporate panopticonism presents a framework for understanding the operation of the culture industry. I argue that the measurements and reports generated by market surveillance chipped away at the autonomy first of broadcasting executives and board chairmen and more recently of their cable and internet successors. The turn toward neoliberal reason stripped this power elite of

whatever control they may have once possessed over the content of mass media. The pulse of audience ratings replaced individual judgement as the driving force behind the machinery of the culture industry. However, rather than facilitating the relative empowerment of the consumer, the disempowerment of the producer precipitated an even more anonymous, abstract mode of domination. The surveillance of consumer preference now provides continuous justification for executive decisions. The numbers — a quantified reflection of the public preference — releases corporate executives from the burden of imposing any normative ideals or principles of their own. The burden of choice is off loaded to the market; the appropriate ideology of the moment is determined through analysis of consumer preference rather than any genuine conviction.

Enlightenment knowledge, in order to be considered legitimate and well-reasoned, must justify itself on the basis of calculation and utility. Judgements must conform to "the standard of calculability" (Horkheimer and Adorno 1944, 3). Audience ratings, like all enlightened measurements, bore the irrefutability of quantitative, mechanistic procedure. In abstracting a mess of individual choices into a single number, the measurement rearranges nature “in such a way that it can be mastered" (Horkheimer and Adorno 1944, 31). Horkheimer and Adorno introduce the notion of the "idea-tool" which "separates the world, as something chaotic, multiple, and disparate, from that which is known, single, and identical" (Horkheimer and Adorno 1944, 31). Measurement is such an 'idea-tool' — it allows incomprehensible multitudes to be grasped and

reasoned about. Complicated reality must be simplified so that the mind can take hold.

However, while corporations might adopt the panoptic schema, industry cannot exert the same direct power over consumers that the sovereign is capable of applying towards its subjects. The commercial entity is constrained to operate with a much lighter touch. Where sovereign power can physically rearrange and shape its population, the corporation can only reconfigure itself to more dutifully fulfill consumer demand. Thus, panoptic surveillance, which operated as an active, intervening force in the early modern state, is subtilized by the constraints of market society. Since it can no longer directly sculpt the subjects of observation, the information that market surveillance generates must instead be fed back into the corporation. State imposition — characterized by Foucault as the discipline of the barracks, asylum, school and prison — is replaced with corporate pandering and optimization on the basis of this 'market research.'

Panoptic surveillance of the consumer forced the rationalization of corporate management, which now had to justify itself on the basis of empirical data. As final authority slipped from the hands of founders and executives into 'the forest of outstretched arms,' the dream of 'power without responsibility' was ironically fulfilled. The diktat of the sovereign, the embodiment of supreme control, was replaced with the democracy of the market where the executive's only mandate is to adequately supply demand.

Much of the original Frankfurt School analysis holds up from the introduction of radio, to the launch of television and cable all the way through to the modern online ecosystem. Horkheimer and Adorno envisioned the contours of the system to come — the "rigidly repeated, threadbare" content of mass culture, the insidious effect of market forces on normative and artistic endeavors, and the machine-like operation of the system as a whole (Horkheimer and Adorno 1944, 108). They provide an enduringly accurate description of the outcomes, yet fail to articulate a compelling *causal* explanation. Corporate panopticonism and market surveillance illuminate how the culture industry functioned from the perspective of those enmeshed within it. Audience measurement is the specific form of market surveillance which will be scrutinized in this thesis. Taken together, the objectivity of the measurement, its alignment with corporate profits and the appeal to democratic sensibilities elevated ratings to the level of gospel.

As the following chapters demonstrate, the motivating force behind the culture industry is not the shadowy intentions of corporate boards or a power elite, but the pressure of the market mechanism responding to the new legibility of consumer preference, as revealed through progressive improvements to audience measurement. However, the matching behavior, itself a product of quantified measurement, does not undermine the essential thrust of *Dialectic of Enlightenment*, which is the reification of thought at the hands of instrumental reason. Indeed, this thesis attempts to illuminate the abstract theorizing of Adorno and Horkheimer by making it visible in history.

CHAPTER 2

The Unseen Audience

It was late afternoon on August 28, 1922 when, for a 10-minute period, the New York radio waves were filled with the first sponsored broadcast. The Queensbourgh corporation paid $50 to advertise its Jackson Heights apartments to an unseen, unquantified audience and, in doing so, ushered in the era of commercial mass media (Beville 1985, 2).

The purpose of this chapter is to outline the history of radio broadcasting, starting in 1922 and ending with the transition to network television in around 1947. Advertising will be the backbone of my necessarily selective retelling; it is the orchestral music that directs the dance of corporations, advertising agencies, market researchers and broadcasters. This chapter will serve primarily to introduce the unfamiliar reader to the early days of mass media in the mid-20th century world of business and media. But in some ways, what is most strange is how much this story still resonates today. Little feels different. The technologies discussed are not obsolete by any means, although perhaps they no longer inspire the same awe that they engendered at their inception. Most of the corporations discussed still exist. The individuals who figure into this narrative, titans of industry in their time, are only now beginning to fade from living memory, yet their names remain emblazoned on buildings; their fortunes endow universities and museums. However, while the terrain may at first appear familiar, this passing sense of recognition is deceptive and will, at times, lead one astray. The

words and names may be the same, yet the modern understandings and arrangements are not yet worked out in their entirety, and the industries not yet mature.

The chapter begins in 1922 with the launch of radio advertising and the development of rules defining what broadcasters could and could not include in an advertisement. The combination of technological innovation, regulatory constraints and market competition led to the formation in 1937 of the National Broadcasting Company (NBC) — combining several large radio stations to become the nation's first broadcast network. There is a brief discussion on NBC's policy around affiliates and advertising in contrast with those of Columbia Broadcasting Service (CBS). As NBC and CBS jockey for primacy among sponsors and audiences, audience size and composition became increasingly important differentiators for competitive advantage and a new competitive market for measurement emerged. Whoever could offer the greater, more attractive audience could attract the most advertisers and charge the highest advertising fees. This paper discusses the origins and development of audience measurement in broadcast, from Archibald Crossley to C. E. Hooper, to the intellectually productive partnership between Paul Lazarsfeld and Frank Stanton at CBS on a technology called the Program Analyzer, and concludes with the innovations introduced by A. C. Nielsen. Finally, I draw upon the history of the BBC to illustrate the counterfactual: to show what broadcasting could look like absent the incentives of advertising.

Early Radio Advertising on WEAF, New York

On November 2, 1920, Pittsburgh station KDKA originated America's first commercial broadcast. The station chose election day to demonstrate the power of radio, and the decision was validated when people could "hear the results of the Harding-Cox presidential race before they read about it in the newspaper" (Barnouw 4). Other stations soon emerged and, by 1922, the trickle turned into torrent, with more than five hundred stations broadcasting live on the air. 1922 was also the first year in which the Radio Broadcasting Corporation (RCA) sold radio sets, with sales approaching $11 million and beating internal forecasts (Barnouw 1966, 79). RCA's sales more than doubled in 1923 and quintupled by 1924 (Barnouw 1966, 79). The "Radio Music Box" as it was originally called was a hit.

Behind the dramatic rise of broadcast radio was an industrial partnership between several of America's largest corporations. The radio trust was built on an uneasy alliance between the Radio Corporation of America (RCA), American Telephone & Telegraph (AT&T), General Electric (GE) and Western Electric. The terrain of the new industry had been parceled out in an agreement dating back to 1917, with each corporation agreeing to stick to a certain vertical. RCA produced the transducers that powered every home radio receiver. GE and Western Electric manufactured and distributed these receivers, paying a licensing

fee to RCA on each device sold. In exchange, AT&T was offered exclusive control over 'radio telephony.'

WEAF New York, the first station to run sponsored advertising, was born out of this partitioning. WEAF was AT&T's foray into the world of radio broadcasting. The project was conceptualized in the language of telephony. In the public announcement launching the station on February 11th, 1922, AT&T promised that it would “provide the channels through which anyone with whom it makes a contract can send out their own programs” (Barnouw 1966, 107). AT&T would not produce any programs of its own. Rather, it would allow the public to purchase time on the air just as they would insert nickels into a phone booth to make a long-distance call. AT&T called this “toll broadcasting” (Barnouw 1966, 106). AT&T planned WEAF to be the first in a network of thirty-eight “radiotelephone” stations, all linked by the telecommunication company's long-distance wires.

The earliest radio broadcasters were highly sensitive to accusations of polluting the airwaves with “ether advertising.” At first, advertisers struggled to figure out how to take advantage of the new radio medium. While advertisers who bought time on toll-broadcasting stations like WEAF in New York and WEEI in Boston had direct access to a large audience, strict rules limited what could be said on-air. Prices could not be mentioned, nor could store locations. Even describing features of the merchandise being sold was out-of-bounds.

Advertisers struggled to figure out how to take advantage of the new radio medium. Unable to explicitly sell the listener on a product, sponsors were forced to be creative. Gillette, for instance, introduced audiences to the changing of fashion in facial hair, starting in the Middle Ages and concluding with the invention of the safety razor blade. The Haynes Company, an automobile manufacturer, delivered the origin story of the company, narrated by Mr. Haynes himself. Many early sponsored segments followed this format and had the flavor of a history lesson (Barnouw 1966, 157).

Determining a consistent editorial policy proved difficult. Certain products, such as cigarettes, were “heavily censored” (Quoted in Barnouw 1966, 157). Even seemingly anodyne topics, such as a talk on oral hygiene sponsored by a toothbrush company produced much consternation and debate among broadcast executives (Barnouw 1966, 157). The executives responsible for these restrictions were still very much motivated by profit, but felt that the long-term risk to the respectability of the medium of broadcast radio broadcasting outweighed the short-term benefit of revenue from such overt advertising.

This was no idle concern. As early as 1922, the broadcasters were put on notice that excessive advertising on the air was contrary to the public interest. "It is inconceivable that we should allow so great a possibility for service to be drowned in advertising chatter," said Secretary of Commerce Herbert Hoover (Quoted in Barnouw 1966, 96). Implicit in this statement was the threat of government regulation. Sometimes the language was more explicit. If the industry

could not control its impulses towards overt commercialization, then the state would step in to maintain a high standard.

One of WEAF's major innovations was to decouple editorial control over broadcast content from the financial sponsorship of broadcast segments or programs. In effect, this meant that potential advertisers no longer needed to identify topics or talks that obliquely promoted their wares; this had resulted in an ongoing conflict between sales and editorial teams at the stations. With the new innovative decoupling, advertisers could simply attach their name to an existing performance or show. The germ of this concept was not entirely new. At the time, prominent department stores, such as Wanamaker, often hosted concerts and other musical performances on their premises to bring in new customers. WEAF adopted this model for broadcast with the creation of the "Browning King Orchestra." The company agreed not to offer a talk but simply to sponsor the live performance of an orchestra, with the theory that the good-will inspired by this association would be enough to drive new customers to the store. This new form of sponsorship caught on quickly and soon WEAF aired a fair number of similar segments, such as the 'Cliquot Club Eskimos,' the 'Gold Dust Twins (Goldy and Dusty),' the 'Lucky Strike Orchestra,' the 'Ipana Troubadours,' the 'A&P Gypsies,' the 'Goodrich Silvertown Orchestra' and its 'Silver Masked Tenor' (Barnouw 1966, 158).

Innovations like these accelerated the flow of advertising money into radio broadcasting. The Eveready Hour premiered in 1923 and became the first show to

bear the name of its corporate sponsor. It was a lavish and highly produced affair. Unlike most programs at the time, the Eveready Hour was produced by an advertising agency. This led to increased production value — the show was scripted and rehearsed — and significantly greater advertising revenue for the broadcaster. One performer received $1,000 for a single performance, which was an unprecedented amount considering that the payment for the average show hovered around $10 (Barnouw 1966, 159).

Early radio advertising was extraordinarily restrained by modern standards, with sponsors focused on generating good-will rather than closing sales. Still, advertisers wanted some indication that their money wasn't just vanishing into the ether along with the broadcast. To this end, sponsors were not shy about soliciting feedback from listeners however they could get it. When it came to asking listeners to write in about the show, all restraint evaporated. There was a “constant effort to win audience expressions of gratitude” (Barnouw 1966, 159). A sack of grateful letters offered tangible proof of the good-will purchased though program sponsorship — and verified that anyone listened at all.

The fan mail sent into these sponsored programs provided a first approximation of the size of the radio audience. It constitutes a rudimentary form of audience measurement. Many performers received letters by the hundreds or even thousands (Barnouw 1966, 164).

Still, by 1925, the question of how to finance broadcasting was looming large in the mind of industry leaders. Broadcasting public events over telephone

wires was proving more technically challenging and costly than anticipated. Furthermore, the promise of greater fame and publicity no longer enticed performers as it once had. Artists who initially had been willing to perform for free began demanding payment for their services (Barnouw 1966, 154).

Seeing Like an Advertiser

After explosive growth in the early 1920's, the subsequent decade was marked by slow but steady adoption of the radio medium by corporations and advertisers. The National Broadcasting Corporation (NBC) was formed in November 1926, followed by Columbia Broadcast Service (CBS) in 1928. And although it remained uncertain exactly how many people tuned in to listen, scores of advertisers clamored to promote their brands to the emerging national audience. The number of advertisers contracting with NBC doubled in 1929 to 200 from the previous year, and by 1930 the network's gross sales figures had reached $22 million (Beville 1985, 1985, 3). Despite the dramatic growth among "early adopters," many potential advertisers recoiled from the lack of hard numbers or metrics: there was no way advertisers could determine the size of the audience delivered by the radio networks or the return on their advertising investment.

Audience measurement and commercial media are symbiotic. For as nearly as long as publications have run advertisements, some form of quantifiable performance metrics have been offered to advertisers. In 1869, George P. Rowell published the first newspaper directory which listed circulation numbers; this was

followed, in 1887, by the establishment of the American Newspaper Publishers Association (Schudson 1978, 94). The formalization of these statistics and methodologies culminated in the formation of the Audit Bureau of Circulations (ABC) in 1914. Circulation numbers presented advertisers with hard numbers about the distribution that media could offer (Schudson 1978, 94). The advertising rates a publication could charge directly corresponded to its circulation numbers. In comparison with print media, where the circulation numbers vetted by the ABC made buying placement a conventional transaction, until 1930, the purchase of radio time had to "be made on faith" (Beville 1985, 4).

Now, in an increasingly scientific age, appeals to faith were insufficient. In March 1930, Archibald Crossley introduced a system for measuring the listening audiences of national radio networks. With the support of the Association of National Advertisers (ANA), Crossley began a 12-month study of 50 major cities across the country which produced the first systematic reports of the radio audience and its listening habits (Beville 1985, 4). Inspired by George Gallup's methodology for polling public opinion, Crossley used statistical sampling techniques to approximate the number of listeners who tuned in during a time slot. He and his team would call randomized telephone numbers and ask questions about viewership. Then, after aggregating the survey data, he would produce what became known as the Crossley ratings, an index of the shows in a given time slot ordered by the projected size of their audience.

Crossley's team sample the radio audience by selecting numbers at random from telephone directories. Their listening habits were determined by a polling technique known as 'telephone recall,' where Crossley's researchers called each number in the sample and asked, "when sets were used, who listened, what programs and stations were heard, and what programs preferred" (Beville 1985, 4). Each telephone call cost about 37 cents (Beville 1985, 4). By repeating the procedure regularly, Crossley was able to provide advertisers with a standardized measure of the radio audience for given time segments and programs across different geographies.

Interim reports, which measured the listening habits of a sample of 17,000 radio families, were released every four months and provided a rating for radio programs. Programs began with a rating of about five but depending on their success could approach 20 or 25 within six months. The highest rated program, "Amos 'n' Andy," reached a Crossley rating of 38 (Beville 1985, 7). The survey estimated that for a single evening network program, an advertiser could reach between 3 million and 8 million listeners (Beville 1985, 7). As a result of these reports, the previously invisible radio audience became visible to advertisers and the market for radio advertising was invigorated.

Crossley's ratings proved enormously influential, for advertisers — his intended market — as well as among broadcasters. While the ratings could only estimate the number of telephone subscribers listening to any given show — which skewed the demographic sampling by undercounting certain populations —

both advertisers and broadcasters agreed upon the essential validity of the metric. Crossley brought audience measurement to broadcasting, inaugurating the modern audience-rating convention. He is credited as the ‘father of broadcast ratings’ (Balnaves 22). His lasting innovation was centering ‘exposure’ as the relevant metric for audience measurement — a choice which has been reaffirmed again and again across dramatically different media of mass distribution.

Despite Crossley's early success, he faced stiff competition as other firms introduced alternative methodologies they claimed were more accurate or detailed. Crossley's radio audience were 'self-reported.' The telephone survey was only as accurate as the memory of its respondents. Indeed, attempting to close this loop between self-reporting and actual behavior became the subject of competition and innovation.

In 1938, a new contender emerged. Claude E. Hooper developed a competing service that made several notable methodological tweaks, including the introduction of the telephone coincident survey technique. The ‘Crossleys’ were replaced by ‘Hooperatings' as the accepted radio ratings provider in the 1940s on the basis of this methodological innovation. With the ‘telephone coincidental’ method households were called while the program was on the air. The phone would ring, and the listener would be greeted abruptly with "What are you listening to on the radio right now?" The innovation to coincident sampling from telephone recall reduced the interval between the act of listening to a radio program and the measurement survey which yielded more accurate ratings. But

Hooper, like Crossley, was ultimately still reliant on self-reporting and its attendant difficulties.

The Nielsen Ratings and Technologies of Measurement

Arthur C. Nielsen, a market researcher and electrical engineer, introduced another innovation — automation — to the measurement of audience exposure. Crossley and Hooper used telephone calls to collect their data. While this approach had advantages, by the mid-1930s, the drawbacks of self-reporting were also becoming increasingly apparent. Nielsen — an engineer by training — trusted machines more than the self-reported survey results. Unlike other early market researchers who came to prominence by commercializing the statistical surveying techniques invented for public opinion polling, Nielsen approached the question of measurement with an engineer's eye for detail and a reflexive distrust of self-reported qualitative data. He was known to say, echoing Lord Kelvin, that, "if you can put a number on it, then you know something" (Wu 104). Nielsen's philosophy was that audience measurement should be tied to empirically measurable behavior, rather than answers to open-ended questions "where human elements could influence the results" (Beville 1985, 24).

In 1938, Nielsen began work on the Audimeter, an electronic measuring device that could be attached to the back of a radio receiver, and record when the radio was on and what channel it was tuned to. The Audimeter removed the human from the process of measurement: it was a 'black box' that could be attached to radio receivers and record when the device was active and which

frequency it was tuned in to. The Audimeter took a decade and two million dollars to develop from its initial prototype, which Nielsen purchased from its inventors Robert Elder and Louis F. Woodruff in 1936 (Beville 1985, 20, 22). When the Nielsen Radio Index (NRI) launched in 1946, the company had contracted to install 1,300 Audimeters in 1,100 homes (Beville 1985, 22).

The device introduced a degree of consistency and objectivity that had eluded the industry and constrained its growth. Relying on ongoing meters instead of sporadic surveys, Nielsen built a reliable "continuous meter service that operated around the clock, 48 weeks a year" (Beville 1985, 21). Nielsen recognized his advantage in a field characterized by a "somewhat jerry rigged combination of coincidental and diaries" and marketed his ratings on the basis of its scientific precision (Beville 1985, 21). In the six years following the launch of the NRI, Nielsen overtook Crossley and Hooper to establish his metered rating system as the *de facto* standard for broadcast ratings. Moreover, he subsequently parlayed this dominance in the radio market to cement the Nielsen ratings as the standard for audience measurement in the emerging medium of television. Though this became a source of great frustration and controversy in the future, at the time there was little resistance from advertisers or broadcasters. For years, audience researchers had called for a single metric to end the tedious parsing of multiple reports and comparisons between irreconcilable numbers produced by different, incompatible methodologies (Beville 1985, 23). Nielsen satisfied this

wish. The A. C. Nielsen Company dominated the ratings market during the golden years of prime time network television.

Thanks to the Nielsen ratings, the promise of continuous measurement had been achieved and audience preferences were suddenly denuded of their mystery and revealed to programmers and advertisers. While this transparency was undoubtedly beneficial for advertisers, the eradication of unknowns in viewership posed real threats to editorial discretion and programming decisions. It fundamentally altered the trajectory of the broadcast industry. When a rating point could be worth tens of millions of dollars of annual advertising revenue, network executives became compelled to follow the numbers (Bogart 1995, 138).

Nielsen's Audimeter and its progeny ushered in the age of mechanical measurement. As an engineer, his interest was motivated by concrete facts and figures: how many people were listening. For Nielsen, qualitative data simply mattered less. His methodology was indifferent to the reasons *why* someone tuned into a specific station or program; he merely sought to answer the empirical question of *how many* people had listened to the broadcast.

The Lazarsfeld-Stanton Program Analyzer

In New Jersey, Paul Lazarsfeld and Frank Stanton were also developing machines to measure audiences as part of the Princeton Radio Project. But the difference between the Audimeter and what became known as the Lazarsfeld-Stanton Program Analyzer are stark. Nielsen passively measured the receiver, conceptualizing it as a proxy for a listener's attention. On the other hand,

Lazarsfeld actively measured the listener's reaction. His machine had two buttons, one that should be held down when the viewer liked or approved of the content being presented and the other that was pressed to indicate disapproval or dissatisfaction opposite. Stanton, who was destined to become the president of CBS, would bring this research with him — both the machine itself as well as a statistical sensibility when it came to measuring what audiences wanted to tune into.

The first prototype of the program analyzer was built in either late 1937 or early 1938 (Levy 1982, 32). It was a bulky apparatus, nearly two feet across by one foot high. It contained a mechanical motor that rotated at a constant rate, pulling with it a six-inch-wide roll of white paper on which audience reactions were recorded (Levy 1982, 32). Each member of the panel audience, ten in total, registered their reaction to the program by means of a simple 'on-off' control. Subjects were told to push the button whenever they “liked” the content of the program they were listening to.

A row of 10 “Inko-graph” pens was mounted inside the machine (Levy 1982, 32). These pens left traces on the paper until the subject registered a reaction. One additional pen marked the number of seconds elapsed. When the button was depressed, an electrical signal activated an electromagnet in the machine, lifting the pen a quarter-inch off of the recording paper. The pen was held in the air until the button was pushed again.

Once the music or program had finished playing, a researcher examined the recording paper and tabulated the audience's reactions. The raw data consisted of 10 intermittently dashed lines. The researcher would total all the "like" responses in each three second interval and graph this data against a timeline, revealing trends in the audience's response. Finally, the researcher would interview the subjects, using this data in conjunction with a transcript of the program, to ask questions about the portion of the program that were especially well liked (Levy 1982, 32). Subsequent models of the program analyzer added another control: a green button held by the right hand to register approval and a red button for the left to indicate dislike. Furthermore, the on-off controls of the original — which required one press to engage and a second to disengage — were replaced by 'non-locking' controls, that required the subject to apply constant pressure to trigger the recording pen (Levy 1982, 33).

The advertising agency McCann-Erickson paid for "exclusive" rights to the machine. During the 1940s, the firm went on to conduct more than fifty tests in order to learn how to prevent "listeners from tuning out during commercials, how to revive the sagging career of a well-known radio crooner, and how to improve the ratings of [a] radio soap opera" (Levy 1982, 35).

Stanton, who was hired by CBS in 1935 to lead the firm's research department, would become the first broadcast executive to incorporate audience research into programming decision making. In conjunction with Bill Paley, he

established ratings as the primary criterion for whether a program would remain on the network.

Frank Stanton and Audience Research at CBS

Frank Stanton's tenure at CBS is worth examining in detail. There are few individuals who did more to enshrine audience ratings as the primary criterion of quality. Radio advertising fascinated Stanton from an early age. He wrote letters to both CBS and NBC seeking employment after graduation. NBC responded quickly, albeit perfunctorily, with a brief, discouraging missive. He did not hear back from CBS for several months, but in this case, the reply was entirely worth the wait. Stanton received what was clearly a personally typed response from CBS's head of audience research, Paul Kesten. Kesten was enthusiastic about Stanton's research and revealed to him that CBS had been trying to work out how to answer the same questions (Smith 2002).

Out of necessity, CBS was at the forefront of audience research. Having been founded two years later than NBC and lacking any corporate pedigree, CBS historically played second fiddle to NBC, which boasted higher ratings, more sponsors and a larger network of affiliates. As the David to NBC's Goliath, CBS needed to find any edge it could exploit and was far more willing to innovate and experiment.

Audience research was one area where NBC had been complacent. The prevailing methodology had been established nearly a decade prior and the company had made few changes in the intervening years. Its entire sales pitch was

modeled on the approach that had been used by newspapers and magazines since the 1840s. NBC's research division estimated their audience — which they referred to as their circulation — by simply summing the populations of the cities in which their affiliates operated. The industry had matured in the meantime.

Stanton joined CBS in 1935 as the second member of its research department. Three years later, he was research director in charge of a hundred-person team (Smith 2002). Stanton's talent lay in making the numbers speak. He didn't force tedious reports upon his superiors, just the key tactical insight that his analysis revealed. As a result of this talent, Stanton's authority quickly extended from decisions about which shows should be green-lit to when they should be aired, to specific changes that needed to be made to the plot or style. The ratings, through Stanton, began to impact the type of programming that could be found on the air. For better or worse, audience measurement had "democratized" programming decisions.

The 'National Church' and the Attention Market

> But broadcasting is of all industries the most clearly marked out for monopoly. It is a choice between monopoly and confusion.
>
> — The Manchester Guardian, August 1922

The history of the British Broadcast Corporation (BBC) in the United Kingdom and the evolution of its programming decisions presents a contrast to the history of commercial radio network programming in America. From its earliest days, the BBC had at its core a conception of public service to the British

citizenry and the nation. As a taxpayer funded organization, the BBC took a different approach towards audience measurement. It embodied an elitist sensibility that was foreign to the programmers in America, who were far more sensitive to audience (and advertiser) preference.

Unencumbered by the commercial orientation and the related financial imperatives facing by early American broadcasters, the BBC viewed itself as a pulpit from which the British public could be edified. Sir John Reith, the BBC's first managing director, served from 1922 until 1938. He embodied the paternalist vision of public service in broadcasting (Briggs 1985, 145). The BBC was to be, in Reith's own words, Britain's 'national church' (Ang 109). Radio broadcasts were intended to edify the public, not to cater to their preferences. He carefully stewarded the medium, steering it away from a focus on entertainment value, with "an active faith that the supply of good things will create a demand for them, not waiting for the demand to express itself" (Barnouw 1966, 248). The BBC eschewed the gaudy and formulaic Americanisms such as "continuity, regularity and slickness of presentation as well as audience participation devices such as musical request programs, quizzes and amateur performances" (Ang 112). In the summer of 1930, the president of CBS, Henry Bellows, visited John Reith of the BBC to discuss the possibility of sharing studios and other facilities. One of the few fragments preserved from the meeting highlights the difference in culture between the two organizations. "What I'd like to know is how you Americans can

successfully worship God and Mammon at the same time," Reith wondered aloud to his visitors (Barnouw 1966, 248).

Broadcast programming in Britain was not subject to the whims of the market. First, the BBC was and continues to be funded by the British public through a licensing fee tacked on to the price of each radio receiver (Briggs 1985, 323). As a government funded public service, it has been free of the audience maximizing imperatives that shaped the advertiser-supported American broadcast industry. But perhaps more importantly, the BBC faced no direct, domestic competition for audiences' attention in its early years. Other than turning to foreign stations like Radio Normandie in the 1930s and Radio Luxembourg in the 1940s and 1950s, the British public had no alternative to BBC programming (Madge1989, 87). It was alone among the airwaves.

With this competitive "moat," The BBC resisted the natural impulse to measure its audience. This rejection was possible partially due to the authority derived from its government granted monopoly. At the same time, it also reflected paternalist disregard for what was popular among the public out of deference to what the editorial staff perceived to be the public interest. The highly educated personnel considered it their duty to look beyond momentary trends and interests. Most roundly rejected the ratings philosophy ascendant in the United States, despite some internal proponents. A 1930 memorandum vocalized some of the discontent:

> I cannot help but feeling more and more strongly that we are fundamentally ignorant as to how our various programs are received and what is their relative popularity. It must be a source of considerable

> disquiet many people besides myself that it is possible that a great deal of our money and time and effort may be expended broadcasting into the void (Quoted in Ang 1991, 110).

Only in 1939, shortly after Reith's departure, did the BBC create the Broadcasting Research Department, tasked with conducting limited audience research. Furthermore, unlike its many counterparts across the Atlantic, the BBC measured "reactions to programs rather than audience size" (Madge 1989, 89).

As long as the BBC maintained its government backed monopoly over radio (and later television) broadcast, the disconnect between the elite producers of content, predominantly a coterie of Cambridge and Oxford educated intellectuals, and the mass audience could be ignored. In the absence of competition, the BBC's audience could be carefully cultivated and deliberately educated. The BBC's 'ideal audience' was offered a distinctive editorial voice, rather than the simple pandering which described their view of the American broadcast market. The growth of the radio audience was unaffected by this principled restraint. Monopoly afforded the freedom to act against the market imperatives. By 1935, 98% of the British population owned a wireless receiver and could tune into BBC programing (Briggs 1985, 110).

But even in Britain, ratings could not be ignored forever. The dam finally broke when the British Parliament passed the Television Act of 1954 instating the Independent Television Authority (ITA), a second, commercial television channel and competitor to the BBC (Brigs 1985, 311). The BBC's decades long cultural monopoly had been broken and the self-conception that the organization inherited

from Reith's tenure was no longer sustainable. The BBC immediately responded by reorganizing its programming schedule in an effort to make it more competitive, including setting floors for the average ratings it would be willing to accept across its shows (Ang 1991, 115). By the 1960s, “most people within the BBC had been made aware that whatever else it did, it had to deliver programs which were entertaining” (Ang 1991, 115). Meanwhile ITA’s estimated advertising revenue grew sixfold in six years, swelling from £10,000,000 in 1954 and to £60,000,000 in 1960 (Briggs 1985, 301).

The End of the Beginning

In less than a generation, radio broadcasting had leapt from scientific workbenches and military installations into the lives of the American mass public. While the era of prime time television may persist in the cultural imagination as the golden age of broadcast, the stage was set 20 years before Walter Cronkite greeted the nation. The business model of mass communication was born with radio. The 1930s saw the emergence of a shared consensus between advertisers and broadcasters in the United States that audience ratings were to be the trusted, scientific marker of shows that were considered “successful.” The industrial organization that was to shape the television consumption of the American public — the network — preceded television as well, dating back as far as 1926 when the first cross-country hook-ups were established over AT&T's long-distance wires.

However, as I will show, measurements which originally were carried out in the name of ‘market research’ eventually became synonymous with the market itself. As the fascinations of the mass audience became increasingly legible to the commercial media and advertisers through the ratings, the production of content was reduced to a formulaic appeal to the numbers. The ratings displaced editorial discretion in determining the selection and scheduling of new shows.

Broadcasters gradually were limited in their ability to produce content guided by a normative message. Ultimately, through competition for attention, incentivized by advertising dollars, the commercial media become mute: unable to say anything at all that lacked a substantial ‘natural’ audience.

CHAPTER 3

A Heap of Broken Images

> This instrument can teach, it can illuminate; yes, and even it can inspire. But it can do so only to the extent that humans are determined to use it to those ends. Otherwise, it's nothing but wires and lights in a box.
>
> — Edward Murrow, 1958

This chapter examines the structures and the organization of the companies that became part of the broadcast ecosystem, first with radio broadcasting and then following the invention of television. Key trends that this section will highlight are (1) the industry's increasing reliance on ratings as a central discriminator of what content the networks should be producing and its formalizing this reliance with new products and services, (2) the closing of the ratings feedback loop, with technical innovations like the 'instant' or overnight ratings service introduced by Nielsen and (3) the development of a philosophy of the ratings, succinctly articulated by Frank Stanton, that "that a program in which a large part of the audience is interested is by that very fact a program in the public interest" (Stanton 1960, 5). The chapter concludes with a brief commentary on the rise of cable television, which undermined the dominance of the broadcast networks.

This hypostatization of audience ratings can be traced to a number of structural changes. Due to the increased production cost of television, sponsors lost direct control over content and scheduling. The subsequent introduction of the "spot buying" system rationalized the advertising market. Furthermore, new

linkages between executive compensation and corporate stock prices incentivized an increasing commercial outlook among senior managements at the broadcast networks.

CBS is an illustrative case for these dynamics. Its leading personalities — Robert Murrow, Frank Stanton, and Bill Paley — give tangible form to the abstract, animating forces which this chapter explores. Murrow is the embodiment of broadcasting in the public interest. Stanton was an empirically-minded, audience-researcher- turned-executive whose decision-making process began and ended with numbers. And Paley, with his intuitive grasp of programming, coupled with his unrelenting fixation on the bottom line, showed himself to be in possession of the "rare ability to conform punctiliously to the obligations of the idiom" (Adorno & Horkheimer 1944, 102). Although this chapter focuses primarily on CBS, with the substitution of a few proper nouns, the story is roughly the same across the three major networks. The management at NBC had its own Stantons and the newsroom its own Murrows.

If Stanton served as CBS's cold and calculating brain, then Edward Murrow was its face (and perhaps its heart). Murrow, like Stanton, joined the company in 1935. He was brought on as the Director of Talks and Education, but became famous as a news radio broadcaster. Murrow was tremendously popular in the wake of WWII. His live reporting from the frontlines of the “Battle of Britain” on the CBS program "Hear It Now" had transformed him into a celebrity. Throughout the war, he served as an important conduit between Europe and

America — his eloquent baritone a constant presence in homes across the nation; his signature sign-off, "Good night and good luck," the country's reassuring lullaby in those troubled times.

Murrow's understanding of his role at CBS is reminiscent of the early days of Reith's BBC (discussed in Chapter 2). Indeed, he embodied the public broadcasting ethos to such a degree that, in 1943, Winston Churchill offered to make him joint-director general of the BBC responsible for programming. Murrow was an ideologically driven man with deep moral convictions. Unlike Paley and Stanton, the business of media did not particularly interest him. Instead, Murrow's focus was on the civic duties of the broadcaster. Throughout his career he argued that it was the obligation of the networks to inform the citizens of the nation, rather than entertain them. Murrow's vision for broadcasting demanded more active involvement by the networks. Broadcasters, in his view, could not discharge their responsibility to the public by devoting themselves entirely to the business of advertising; they must also contribute to the "preservation of the republic" (Murrow 1958). Murrow is credited with articulating many of the features of the modern journalistic ethos.

When Murrow returned to the United States after the war, Paley insisted he enter the ranks of management as the Vice President of CBS News. At CBS, especially during his tenure as an executive, Murrow was a lone voice calling for the network to produce more programming in the public interest. In one of

history's painful ironies, Murrow's own show would be an early casualty of the ratings culture he agitated against.

Big Money on the Tube

The $64,000 Question, first aired on CBS at 10:00 p.m. on June 5th, 1955 (Paper 1987, 196). The show would ultimately upend the industry, but at its start it seemed quite unremarkable. Two contestants would compete to answer trivia questions for increasingly large sums of money. The questions would become more and more difficult and the size of the potential jackpot would double with each correct answer.

Bill Paley himself suggested that the contestants have the opportunity to walk away before the final jackpot: "It would be a much better program if you put in platforms — one at $16,000, for example, and one at $32,000 — where the contestants would stand in or step aside. That way you have suspense. … Will the person step aside or stay on." (Bedell 2002, 377). The familiarity of this format is a testament to its enduring popularity.

In an ironic twist of fate, *The $64,000 Question* was scheduled in the time slot right before the show, hosted by Murrow, called *See It Now.* Fred Friendly, the show's producer, recounts how after witnessing the quiz show air for the first time, Murrow was both "riveted and horrified by what he saw" (Friendly 1967, 77). Murrow understood the implications and asked his colleagues, "Any bets on how long we'll keep this time period now?" (Friendly 1967, 77).

The $64,000 Question became an overnight sensation, knocking "I Love Lucy" from its prized position as television's top-rated program. It was the first of the "big-money" television shows. Riding this success CBS's advertising revenue surged, and quiz show mania took hold. A year later, CBS offered viewers seven knock-off versions of the show, including "The $64,000 Challenge" and "Dotto," other networks offered a slew of competitors as well, such as "The Big Surprise," "High Finance," "Treasure Hunt," "Giant Step," "Twenty-One" and many more (Bedell 2002, 378). Quiz shows were a "bonanza" for everyone involved. No one — not network executives, sponsors, or viewers — cared to question the spectacle. At the peak of the boom, at least two dozen quiz shows were on the air, each pulling large audiences and producing large returns for sponsors. Revlon, the sponsor of *The $64,000 Question*, saw the sales of its cosmetics spike more than 50% (Paley 1979, 244).

Murrow's instincts proved correct. The immediate success of *The $64,000 Question* directly contributed to the demise of *See It Now*. Its huge ratings bump spilled over into the adjacent time slots. *See It Now*'s 10:30 p.m. period, which was preceded by *The $64,000 Question*, became significantly more valuable due to the large lead-in audience (Friendly 1967, 77). Taking Murrow's show out of prime time became a straightforward business calculation. *See It Now* was rescheduled to appear as a monthly special and later cancelled. The dramatic ratings success of quiz shows effectively priced out content that was less profitable. In a kind of Gresham's Law for television programming,

mass-audience entertainment, with its high ratings and sponsor-dollars, forced out editorial and news programs, regardless of the social value the latter provided to the public.

On October 15th, 1958, a mere three months after *See It Now* was taken off the air, Murrow delivered his famous "wires and lights in a box" speech to the Radio-Television News Directors Association condemning the broadcasting industry's failure to uphold its obligation to the public (Friendly 1967, 99). Rather than delivering programs that edify, educate and inform, Murrow complained that networks were seeking only "to reach the largest possible audience for everything" (Murrow 1958). The crux of the problem, as he saw it, was that the radio and television industry were built upon a fundamentally "incompatible combination of show business, advertising and news … when you get all three under one roof, the dust never settles" (Murrow 1958).

Murrow's prophecy would be realized more quickly than anyone imagined. Beneath the profitable veneer of the quiz shows, not all was as it seemed. Behind the scenes, many of the shows were entirely scripted in an effort to increase the entertainment value. This started innocuously enough, with directors casting ordinary people who had some noteworthy hobby or talent. Spurred by the chase for rating points, however, producers soon turned to more deceptive practices. Their emphasis became creating suspense, favoring popular contestants, and crafting tense story arcs that could play out over multiple nights. Ultimately, audience favorites were simply fed answers to ensure their success.

The audience, unaware of the deception, was enthralled. It was all great entertainment.

However, when a jilted contestant on the CBS quiz program "Dotto" alleged that her competitor had been given the answers, the illusion crumbled. Other contestants came forward confirming the claims. The public outcry was immense. Public opinion polling conducted by Frank Stanton suggested that 94% of American's were following the scandal. CBS moved quickly, conducting its own internal investigation, which was followed by one performed by New York's district attorney (Paley 1979, 245).

The quiz show scandal shook the fledgling television industry. Under unprecedented scrutiny, the networks used the crisis as an opportunity to take greater responsibility for their programming. Stanton issued a public apology and the vice president of programming was forced to resign. CBS cut hours of weekly programming, removing all the "big money shows" from its schedule.

Servant to the Public

The deception set off an extensive and public examination into industry practices. In response to mounting criticism, on January 26th, 1960, Stanton was brought before the FCC to testify (Stanton 1960, 1). He presented his views on the role and nature of television in the United States and the responsibilities and obligations of the network broadcaster to the public. In his remarks, Stanton provides a thoughtful and reflective account of the pressures and demands of the American system of broadcasting. The testimony is in some ways closer to an

analysis of industrial sociology than a defense of corporate performance. Close examination of Stanton's testimony reveals it to be a cogent enunciation of the emerging ideology of the ratings.

It is important to remember that in 1960 commercial television had existed for only 12 years. The nature of the television medium, both its promise and its constraints, was still somewhat undetermined. True to form, Stanton began his speech with a litany of statistics — the number of American households with a television, the percentage of Americans who watch television each day — but then suggested that in order to fully understand television, one must reckon with the nature of the medium. According to Stanton, this could be summed up in a single sentence: American television was "a medium of mass communication" operating "under a system of free enterprise" that was "supported exclusively by advertising revenues" (Stanton 1960, 4).

These three characteristics — mass communication, free enterprise and advertiser-support — define the nature of the television medium. They also define constraints that Stanton offered as rebuttals to television's critics, "who act as if none of these characteristics was present" (Stanton 1960, 5). Why is the quality of programming so low-brow? Because it is an "obvious, inescapable, irrefutable fact" that television is not an elite medium (Stanton 4). It would be untenable for CBS to "turn its back on the tens of millions of people and [exclusively] address ... the tens of thousands" (Stanton 1960, 4). This, on his account, would offend democratic sensibility. If television is by nature a mass medium, the basic

obligation of the broadcaster is “to try to appeal to most of the people most of the time” (Stanton 1960, 4). Stanton views this requirement as identical to “the whole of the democratic process” (Stanton 1960, 5). Optimizing broadcast programming for high ratings is no different from politicians attending to the preferences of their constituents. Audience ratings are presented as analogous to the vote:

> In television the vote is informal and is continuous. It takes place every minute of every broadcasting hour of every day of every year. Like an elected official, however, the broadcaster who ceases to have the consent of his public, and to be a satisfactory servant to that public, would lose his support and disappear from the scene. We must regard the public as the touchstone of our success, because unless we please and serve this whole public we are out of office (Stanton 1960, 5).

Programming & Scheduling at CBS

Programming is the art and science of selecting the shows which will capture the attention of the mass audience. According to Paley, it is the "heart and bloodstream of network broadcasting” (Paley 1979, 257). But who determines what appears on television? Clearly someone is responsible for making choices about the shows that are produced. However, the nature of incentives meant that everyone — or no one — could be held responsible. For example, the advertising buyer sought to reach the maximum audience for the lowest cost. The producer sought to create a compelling show with mass appeal. The network programmer justified the decision based on ratings and audience preference (Paley 1979, 258). All these actors were ultimately servants of the ratings. Ratings were ascendant because they allowed broadcasters to understand what the public wanted and to justify their decisions if challenged — it also didn't hurt that the tight linkage

between ratings, advertising revenue, and stock price aligned the incentives of every decision maker.

For the 1978-79 season, CBS fielded upwards of eighteen hundred proposals for new series, ordered several hundred scripts and produced around 40 pilots (Paley 1979, 260-1). The CBS program development group was tasked with selecting the most promising candidates; perhaps six or seven were picked up by the network to fill open time slots. This selection process took the better part of a year and included network representatives from both coasts.

The final programming meetings took place in mid-March. By this point, each show had been subjected to a battery of tests by the Research and Analysis Department, "which pre-tests [the programs] in front of a carefully selected group representing a cross-section of the national viewing audience" (Paley 1979, 262). The pilots were also screened by top CBS executives. Several rough outlines of the schedule were drawn up, based on which shows worked best in specific time periods and against competing programming. A wide range of tricks were deployed in order to maximize the viewing audience, from slotting new programs between successful shows to give them a ratings bump (called “hammocking”) to crafting certain shows specifically to exploit a demographic weakness in a competitor’s schedule (“counterprogramming”) (Beville 1988, 190).

At the end of the process, the final line-up was decided by fourteen men sitting "in a conference room of the programming department on the thirty-fourth floor of [CBS's] New York headquarters" (Paley 1979, 262). Across the three

networks, these scheduling decisions accounted for nearly 80 percent of all U.S. television viewing between the hours of 8 and 11 p.m. (Beville 1988, 190). In his autobiography, Paley reflects on the stressful process of selecting and scheduling new programs, emphasizing the high stakes involved:

> Outside the room, there were hundreds of producers, directors, actors, and others, whose careers, livelihood, and well-being depended on our decisions. Above all, the well-being of CBS Television and CBS as a whole rested upon the decisions made in that room. People may scoff at the importance of program ratings; but our network advertising revenues, our financial resources, our plans for future projects, all depend on how well we do the next season (Paley 1979, 263).

According to ratings practitioner and historian Beville, the conventional wisdom in 1983 was that each single prime time ratings point was worth an additional $50 million of annual revenue and that each daytime point contributed an additional $35 million on an annualized basis (Beville 1988, 187). Executives could not afford to ignore the ratings. A New York Times article profiling Robert A. Daly, the president of CBS Entertainment, gives a sense of how pervasive their presence was:

> The ratings dominate Mr. Daly's life.They are the first thing he thinks about in the morning, he says, And one of the last things he thinks about at night." (Quoted in Beville 1988, 187).

Audience Ratings from 1950s Onward

As the broadcasting networks began their tentative forays from radio into the new television medium, audience rating services followed. The measurement techniques that had been developed for radio could be adapted relatively easily for television. However, the first television ratings provider, Trendex, was not one of

the established firms. Trendex was started by ex-Hooper employees and began conducting a regular coincidental service in 1950 (Beville 1988, 64). It rapidly expanded its coverage to include 27 markets, following encouragement from CBS and NBC. Trendex provided overnight numbers to all three networks and was successful because it "was fast, flexible, and relatively inexpensive" (Beville 1988, 64). There were limitations to the coincidental technique, but the Trendex service prospered while Nielsen and others built out the infrastructure to support a metered system.

Throughout the prime time era, Nielsen was the premier television ratings service in America. It launched the National Television Index (NTI) in 1950, following its acquisition of Hooper. By 1960, network programing could be viewed by 90 percent of all television households (Beville 1988, 72). By the summer of 1960, the installed sample size was 1,150 households, which gradually increased to 1,250 by 1982 (Beville 1988, 72).

Until the late 1980s, television ratings services worked primarily to refine and digitize measurement techniques that had been pioneered for measuring radio audiences. The early days of radio measurement had spawned significant innovations, from the telephone coincidental to mechanized devices like Nielsen's Audimeter. However, by the time commercial television replaced radio as the dominant broadcasting medium, two decades of experience had accumulated to solidify the existing ratings measurement consensus.

Ratings services processed enormous quantities of data in order to generate their reports. Up until the late 1950s, all of the research facts and statistics had to be tabulated manually. Early Audimeters had an analog output — scrolls of paper tape 3-inches wide and one hundred feet in length along which usage patterns were recorded (Nielsen 1942, 219). Every two weeks, Nielsen field operatives would physically collect and replace these tape records from each sample household (Beville 1988, 118). This was an expensive and time-consuming procedure which limited the frequency of the ratings reports.

A. C. Nielsen foresaw the potential of computing machines to radically improve the efficiency of analyzing market research data and producing actionable research. Following WWII, military innovations were being repurposed for commercial use and computing was ripe for commercial deployment after significant government investment during the war. The first digital computer — the Electronic Numerical Integrator and Computer (ENIAC) — was produced for wartime use. In April 1948, Nielsen, along with three government agencies and an insurance company, placed the first contract for a UNIVAC I, the ENIAC's successor which had been designed explicitly for business and administrative tasks (Stern 1982, 580).

By 1960, the Nielsen Company ingested more than 1,640,000,000 research facts each year. According to the company, the "IBM cards on which these facts are recorded would make a pile 100 times the height of the 88-story Empire State Building in New York" (Nielsen 1960, 19).

The technological efficiency of the ratings continued to improve. Several technical innovations, including continuous sweeps, faster reports, computerized data collection and electronic transfer over telephone wires, shifted how the ratings were used by network executives and advertisers alike. The key breakthrough came in 1973, with the introduction of the Storage Instantaneous Audimeter (SIA), which recorded all television set usage electronically (Beville 1988, 72). In order to communicate with the device, every sample household was linked up to Nielsen's central computer in Dunedin, Florida by a specially leased telephone line. Each meter's data was retrieved every morning between 2:00 AM and 6:00 a.m. Once all of the meters had been polled, the mainframe could process the raw audience metrics and furnish client subscribers with the previous day's report by 9:00 a.m., delivered directly to their own terminal (Beville 1988, 72). Network ratings, which operated on a national level, took another day to deliver in order to verify the affiliate station lineups. Starting in 1977, Nielsen began automating this as well. By 1984, all network program episodes included a digitally encoded marker in the vertical blanking interval of the broadcast transmission. Nielsen's Audimeters had become sophisticated enough to "know automatically and instantly what stations carried each network program sent out" (Beville 1988, 72). Other improvements included rating programs with greater time resolution, allowing the audience share of programs to be measured to the nearest minute (rather than the nearest 5 minutes).

The NTI ratings, both more granular and all-encompassing than ever before, were now available 52 weeks a year due to the efficiency gains from digitizing data collection and processing. As the fidelity and frequency of the Nielsen reports increased, the importance and power of ratings continued to grow. Nielsen rating reports became the central feedback system for a multi-billion dollar industry that touched the lives of hundreds of millions of American each day.

Spot Buying

The market for television advertising rationalized as the medium matured. Long gone were the days of programs like the Lucky Strike Orchestra and the Eveready Hour, that were sponsored by a single corporate patron. In a change first introduced by NBC in 1941, programs would no longer be identified with a single sponsor. Instead, for each hour of content, the networks would sell six 1-minute long advertising spots for around $70,000 a piece (Barnouw 1978, 58). For greater flexibility, the unit of advertising was decomposed even further from 1-minute long spots to a mere 30 seconds. Programs went from having a single sponsor who was directly involved with the production of content and whose brand was intimately associated with the show to having as many as twelve corporate patrons, each of whom picked their placements based on audience composition and market research.

This inaugurated a system that was more similar to the advertising model of magazines and newspapers than that of radio. Sponsors would "buy only inserts

in programs produced by the networks, or by independent producers for the networks, under network control" (Barnouw 1978, 47).

The switch to 'spot buying' can be explained by two factors. The first was financial. In the shift from radio, the cost of producing a show for broadcast had increased dramatically, nearly doubling since the 1950s. By 1970, the sponsor of an hour-long prime time television show might pay as much as $200,000 for the production and a similar amount for the time (Barnouw 1978, 58). The upfront investment of at least $400,000 was beyond the budget of most advertisers.

The second factor was the networks' response to the public scrutiny and criticism following the quiz show scandal. In the wake of the controversy and loss of trust, networks asserted greater control over programming and production.

The 1970s marked a critical period in the history of broadcasting; by this point, network-sponsor transactions were almost entirely centered around the buying and selling of 30- second and 60-second spots (Barnouw 1978, 68). The switch to spot buying may seem like a small, innocuous change, but it introduced a fundamentally new dynamic into the economic relations between networks and advertisers.

Under the prior system of advertiser-sponsored and agency-produced programming, the sponsor made a simple transaction: it bought time on the air. It remained the responsibility of the sponsor (and the sponsor’s advertising agency) to produce a show that drew in a large enough audience for them to recoup their

investment. If the original system constituted a market for airtime, the new one established a market for audience attention.

Another key change resulting from the creation of the spot buying market was that the sale of a placement designated a spot on a specific program, not just in a time slot. One consequence of this policy was that fixed prices for advertising time disappeared. Depending on a program's Nielsen or Arbitron rating on any given day, the price of an advertising slot could fluctuate wildly. The networks' rate cards were made virtually obsolete as advertisers bargained on the basis of the size and demographics of the audience. The price was determined by the market. This was the moment when sponsors — suddenly dissociated from the programming where their message appeared — became advertisers.

Spot buying coupled with audience ratings rationalized the market. Spot buying introduced more liquidity by lowering the costs of advertising and decreasing the costs and responsibilities individual advertisers needed to shoulder.

The Rise of Cable

If the rudimentary audience measurement of Archibald Crossley in the 1930s represented the first small step towards a personalized, algorithmic media ecosystem, cable television developed the philosophy that underpins it. Up until the late 1970s and early 1980s, broadcast — whether as radio or television — was ascendant. As a result of its resounding commercial success, the incentive structure of the system itself was taken for granted. The goal was simple: produce content that would attract the largest possible audience of people who were

demographically desirable to advertisers. Of course, there were critics, notably Leo Bogart and Jerry Mander among others, who decried the banality of the content. Yet, as shown earlier, the imperatives for those engaged with the system all pointed in the same direction — to reject their logic seemed untenable, for the all reasons Frank Stanton identified in his 1960 FCC testimony. Television broadcasting, by its very nature, required programming that drew a mass audience. The promise of cable was different. By increasing the number of channels available to viewers, this new medium could cater to more specialized audiences. Since networks were in the business of broadcasting, cable channels would compete by 'narrowcasting' — that is, producing niche content for specific interest groups and communities. The 'holy grail' of cable technology was to allow 'video on demand,' the ultimate form of narrowcasting where the target audience was a single person.

Some form of cable television has existed in the United States since the 1950s, although its earliest incarnations would be barely recognizable to the modern viewer. Far from the glossy productions that paid services like HBO and AMC are known for today, the cable industry started off as a scavenger, surviving on the scraps left by the three major broadcast networks. Cable's primary business was retransmission, taking a signal that originated out of range, capturing it and then sending it out again. The earliest cable entrepreneurs simply wired up rural communities that broadcast transmissions couldn't reach (Parsons 2008, 197). These operators relied completely on broadcast networks for content. The service

they offered only made sense in communities where ABC, NBC and CBS did not transmit. It was not an especially lucrative business and had a decidedly local focus. In this phase, cable television was known as Community Antenna Television (CATV). The use of satellites to rebroadcast programming also allowed more people to access similar to the service.

Building a cable network was vastly more capital intensive than establishing a broadcasting network. In order to build up an audience, a cable operator had to physically wire the connections and pay for the infrastructure. Despite these challenges, cable networks sprung up across the United States.

Even as cable networks built up larger audiences, advertisers remained wary. As with every new medium, potential advertisers were put off by the absence of hard data concerning viewership. Measuring cable audiences presented unique technical challenges. Unlike broadcast television, the cable industry originated at the grassroots level and developed in a haphazard fashion with little standardization. Franchises often had dramatically different channel capacity, some offering only 12 channels and others as many as 100 (Beville 1988, 167). Furthermore, while audience measurement of broadcast television was based on the 200 largest metropolitan areas, there were more than 8,000 cable franchises that needed to be measured. The profusion of channels and geographies required larger sample sizes than could be supported financially by the existing audience measurement paradigm. Remember that by 1982, the national set of Nielsen families numbered around 1,250 (Beville 1988, 72). This represented a

tremendous expense in terms of hardware and installation, but produced statistically significant results that were valuable to advertisers and programmers alike. However, scaling this system to support a greater number of channels and communities was prohibitively expensive. Each Audimeter cost approximately $1000, not including the wiring, installation and data collection costs (Beville 1988, 118). The total price of setting up a local meter service with a sample of 300 households in a major metropolitan area could easily exceed $1 million (Beville 1988, 118).

At the same time, cable networks were initially resistant to audience measurement. In the formative years of the industry, cable was viewed as a medium similar to magazines. Due to the technical innovation which increased the number of available channels, early leaders aspired to produce a specialized product that catered to niche audiences— which therefore should be evaluated by advertisers along different, more qualitative, metrics than broadcast's average minute ratings (Beville 1988, 162). They lost this battle.

Ultimately, however, in order to appease advertisers, the cable networks were forced to accept the common currency of audience measurement. The first Nielsen cable report was announced in December of 1978, by which point cable penetration was approaching 18% of U.S. television households. It was published the following year, using more thirty-three thousand household diaries to generate aggregate usage of the cable system at the national level (Beville 1988, 165). After WTBS, a leading cable network, subscribed to the Nielsen National

Television Index in 1980, other cable companies soon found that advertiser and agency demand for empirical data could only be satisfied by working with Nielsen (Beville 1988, 1988, 164).

The rise of cable as a viable medium for reaching a mass audience threatened the dominance of ABC, NBC and CBS. While each individual cable channel had significantly fewer viewers, taken all together, they began to pull viewers away from the broadcast networks. The golden age of prime time television was coming to an end. Throughout the 1980s, broadcast ratings dropped precipitously as prime time audiences turned to cable (Baldwin, Barrett & Bates 657). The combined prime time share for ABC, NBC and CBS fell from higher than 90 percent in 1977 to 74 percent in 1986 and 62 percent in 1990 (Parsons 2008, 488).

By the turn of the 21st century, it was clear that the era of broadcast television was coming to a close. The three networks, once assured reasonable audience share by dint of their oligopoly, became little more than another channel in the minds of television viewers.

Cable and the competition it introduced had managed to pull off what generations of critics and regulators had proven unable to accomplish. The network oligopoly, which could trace its roots back to the pioneers of broadcasting, had finally been broken. In less than twenty years, the number of channels a viewer could access skyrocketed from three to over 100. This explosion of narrowcasting led to the demise of the mass audience, fragmented

across dozens of new channels. The abundance of choice enabled specialized niche channels to emerge, such as ESPN and BET as well as CNN and Fox News. Cable television foreshadowed the rise of the internet, with its relative abundance and increased ability to cater to niche preferences rather than mass appeal.

CHAPTER 4

A Transparent Medium

> I think people are sort of waking up to it now, how probably the biggest change in Internet media isn't the immediacy of it, or the low costs, but the measurability.
>
> — Nick Denton, 2010

The internet is the modern evolution of mass communication. Media distribution over the internet differs from broadcast distribution in two essential respects: first, due to the abundance of content on the web and, second, because of even greater granularity of online audience measurement. Taken together, these two features give rise to a personalized experience where content and advertising are customized to each individual's preferences.

The abundance of web content is the direct result of lower production costs and fewer barriers to entry — and the related shift away from the "hit culture" of broadcast economics to the "long tail" economics of web content. The total cost of filming and producing a television show can reach upwards of a million dollars and requires specialized equipment as well as professional expertise — not to mention the fact that distribution is limited to a broadcast network or one of several dozen cable channels. Internet publishing, by comparison, was within reach of anyone who had access to a computer. The technological leap from broadcast to cable television increased the number of possible channels by from 3 to over 100. This respectable increase was dwarfed by the rapid growth of the internet. In 1991, when the World Wide Web was

launched, there was a single website. A decade later, there were nearly thirty million unique sites (Zakon). Today, there are billions. This tsunami of content swamped the assumptions of the broadcast era. If, Frank Stanton believed that television was inherently a mass medium, then the internet was its antithesis. The internet offered something for everyone. As Chris Anderson famously put it:

> Hit-driven economics is a creation of an age without enough room to carry everything for everybody. . . Not enough channels to broadcast all the TV programs, not enough radio waves to play all the music created, and not enough hours in the day to squeeze everything out through either of those sets of slots. This is the world of scarcity. Now, with online distribution and retail, we are entering a world of abundance. And the differences are profound (Anderson 2004).

Structural Changes on Internet

The competitive logic of internet distribution departs significantly from mass distribution, though it maintains the focus on the legibility of attention. Internet technologies permit market research to become even more fully realized than on any other previous medium. The segmentation of a target audience into ever narrower, more specific demographics is intensified until each exactingly precise category is populated by a lone individual. The radicalism of this achievement was impossible to realize while television was the dominant medium. Producers could never have contemplated chasing such small audiences. Given the technological constraints of mass broadcast, it made vastly more economic sense to appeal to the average. On the internet, this logic is inverted. Where the mass media produced entertainment for "addicts of mediocrity," individualized media delivers to each user precisely what fascinates them,

personally (Friendly 1967, 274). By arranging the infinite content of the internet according to individual interests, internet platforms obviate the commercial pressure to pursue *mass* appeal. Success is derived from serving the long tail more than the "head" or "torso" of the distribution of appeal.

Internet Audience Measurement

The internet also transformed audience measurement, by fostering technologies that permitted a highly granular understanding of consumer demographics, interests and preferences. Due to the digital infrastructure that the internet was built upon, measurement could be carried out with a census of all users rather than by sampling a select few. Furthermore, the measurements could be produced in real-time in order to build customized online experiences. However, this potential was not tapped right away.

At first, even measuring the online audience was a challenge. Early audience measurement on the internet followed two paths. The first was metered web panels, where the browsing habits of a sample of users was passively tracked by an installed software meter. The second was analysis of server logs, which recorded every time a URL was visited, producing a census of activity on the site.

Metered web panels simply attempted to replicate the existing methodology of audience measurement from broadcast media to the internet. Panels consisted of a sample of internet users who installed special tracking software, the digital equivalent of Nielsen's Audimeter. Metered web panels were

run by Media Metrix (then called PC Meter), Comscore and Nielsen NetRatings, with the first meters installed as early as 1995 (Coffey 2001). For example, the Media Metrix Meter recorded 5 dimensions of information, such as the machine's state, active applications, requested URLs, and other online resources. It also recorded demographic data by prompting a login when the computer was turned on or after it was inactive for half an hour (Coffey 2001).

The new medium, with its unprecedented variety of choice, could not be measured accurately with the techniques that had worked well to quantify the broadcast audience. In the broadcast era, ratings had always been determined by taking a sample of the audience and statistically projecting from this limited set of measurements onto the total population. It simply was not feasible, economically or otherwise, to call each household in America every fifteen minutes to ask what they were listening to on the radio. Even as audience measurement became more technically sophisticated with the introduction of automated meters, audience research firms continued to rely on statistical sampling. In 1978, at the height of the prime time era, the Nielsen sample consisted of just 1,200 families, whose television viewing habits were extrapolated onto the entire American population (Beville 1988, 73).

However, the internet audience was much more fragmented than the broadcast audience. Broad sampling techniques were not adequate when audiences could choose so many different places to find content. According to Gale Metzger, co-founder and former president of Statistical Research Institute

(SRI), the reason "we know less about the computer world than we knew about the slide rule world … is largely because of the size of things; it is easier to measure huge entities than microscopic elements" (Quoted in Balnaves 2011, 13). As the range of choices available to the internet public exploded, accurately sampling their behavior became an enormous statistical challenge. To illustrate this point, consider that the Nielsen/NetRatings' web audience measurement panel for Australia was composed of 4,000 people, each of whom has access to potentially billions of unique websites. The sampling is too coarse. If none of these 4,000 happen to visit a certain site, it receives a zero rating, despite the fact that it might be frequented by a significant number of other Australians (Napoli 2011, 296). The traditional panel-based measurement system could not effectively capture the 'long tail' of consumer preferences without dramatically (and expensively) expanding the size of the panels. However, even though the early internet media environment was relatively diverse and fragmented (especially in comparison to broadcast networks), much of the activity was still centered around early web portals, such as Prodigy, AOL Online, CompuServe and, later, Yahoo. Contemporary metered solutions could supposedly "measure audiences reliably down to approximately 50,000 unique visitors per month" — a claim that would surely be met with skepticism if made today (Coffey 2001).

The other approach to audience measurement was based on the analysis of server logs, a technique closer to a census than a sample. Log files record when the computer hosting a website was accessed over the internet. Examining log

files is an imperfect proxy for human attention, since it can only provide information about server activity, or when the server has been “pinged” by some interaction. When only looking at server logs, distinguishing between a human and a 'robot' or 'spider' presented difficulties. Undercounting traffic was also a possibility, particularly in the early days of the internet. Early internet speeds, obtained via dial-up connections, were comparatively slow, so content was often cached at the local, proxy, ISP, or regional level; as a result, a user-initiated request might never reach the host server and thus might never be included in the server log (Coffey 2001). Finally, none of the rich demographic information that advertisers demanded could be determined from a log file, where each request was differentiated only by its Internet Protocol (IP) address, a unique 32-bit integer value identifying the network location of the requesting machine. Steve Coffrey, an executive at the early internet research firm Media Metrix, noted that "at best ... machines are being tracked, not the people behind them" (Coffey 2001). However, despite all of these challenges, using server records to approximate the audience still offered dramatically greater insight into the behavior of individual internet users. So, while not a perfect measure, analysis of log files resembled a census of all the activity on the site.

As the internet ecosystem evolved, the measurement of internet audiences via panel fell out of favor as its structural incompatibilities with the web became apparent. The consensus among advertisers and publishers to accept this measurement system broke down. Under the previous paradigm, ratings

institutions had produced a standardized 'audience commodity,' which enabled the development of an efficient advertising market. Panel surveys generated ratings that were sufficiently accurate for both national advertisers and broadcast networks to agree on their essential legitimacy.

In the absence of any similar accord between online publications and advertisers, display advertising on the internet was of debatable worth. Although HotWired magazine ran the first online banner ad in 1994 — a 468x40 pixel image emblazoned with the prophetic question: "Have you clicked your mouse right here? You will" — the cloud of uncertainty that hovered over online audience metrics prevented "*cost per mille"* (CPM) pricing on the web from being considered a cost-effective promotional strategy. Contracts were negotiated on a case-by-case basis and adoption was slow (Edelman et al 2007, 245).

Ad Auctions and The Online Advertising Consensus

However, by the early 2000s a new advertising consensus had developed; the weaknesses of server log analysis were addressed with cookies, third-party tracking and analytics scripts that ran directly on the user's computer when he or she visited a website. Starting with keyword-based search ads and expanding to contextual and targeted advertising, technology firms introduced an unprecedented level of legibility and efficiency into the advertising market. With this legibility, advertisers had greater understanding of the size and demographics of the specific audience at the time it visited a website. The key innovation was ad

auctions, which were pioneered by Google for Ad Words, its sponsored search advertising product. In addition to the bid, Google's ad auction took into account an advertisement's relevance to a website visitor, based on its predicted click-through rate. Ad auctions operationalized algorithmic personalization and matching.

Sponsored search is unique to the web. Unlike display advertising, it has no pre-internet analog. The innovation around this new service, and the possibility of new advertising formats to monetize it, gave rise to ad auctions. In 1998, GoTo (later renamed Overture and purchased by Yahoo!) became the first search engine to sell keyword advertising via an auction (Battelle 2005, 111). Google AdWords followed in 2002, introducing the generalized second-price (GSP) auction which became the industry standard. Google's contribution incorporated an assessment of the popularity of an advertisement into its placement on the search results page. In a GSP advertising auction, a set of advertisers compete for limited numbers of ad placements each time a user searches for a specific keyword, such as "insurance" or "automobile." Each advertiser submits a bid with the price that they would be willing to pay per click; the winning advertisements pay the amount of the second highest bidder. They are placed on the search result page ordered by their bid multiplied by the predicted clickthrough rate (Varian 2010). Ad auctions incentivized advertisers to optimize their targeting and creative copy as the most prominent ads were not simply the ones that had placed the highest

bids. Advertisements with superior clickthrough rates could rank above those that merely had high bids.

Before the rise of sponsored search ads, traditional media buying was a manual process, conducted by account executives, marketing departments and ad agencies and filled with friction. All advertising was purchased by negotiated agreement. In some markets, the contract guaranteed a specific level of exposure to certain demographics, while in others it consisted only of the promise to include the advertisement along with regular distribution of content. The sales cycle was also relatively slow. On television and radio, an advertiser would submit an ‘avails’ request to the network's sales department, which listed when the ad should be aired, the target demographic, the desired reach and, finally, the budget (Buzzard 2012, 47). The network account executive would respond with a schedule of programs whose audiences matched the desired demographic, detailing their projected ratings and the pricing of each time slot — potentially also including a discount for frequent buyers or large orders. The advertiser would receive similar proposals from each network and compare them. Advertisers then could negotiate directly over the cost-per-rating point (CPP) or indirectly by haggling down the ratings estimate. Overseeing the transaction required specialized expertise and a large budget. Advertising spend was dominated by a small minority of national brands.

Google's pitch to advertisers interested in reaching audiences using the new media could not have been more different: "Have a credit card and 5

minutes? Get your ad on Google today" (Battelle 2005, 125). Google built an ad platform that was entirely automated, with a self-service model that made it trivial and inexpensive for anyone to post an advertisement. Building out a sales force just added unnecessary time, confusion, and cost. As one executive at Google stated bluntly, "We feel that if it *can* be automated, it *will* be automated" (Battelle 2005, 148, emphasis added). By removing the human element from advertising sales, Google could dramatically increase the size of its ad inventory, while simultaneously reducing advertising costs for smaller firms that lacked the large marketing departments and big budgets needed for broadcast or print. The automation strategy succeeded. By 2003, more than 100,000 advertisers used Google AdWords and the company reported annual revenue just shy of a billion dollars (Battelle 2005, 148). By introducing the use of algorithms to gauge relevance and predict click-through rates, automated auctions unlocked the promise of efficient advertising at scale. This set the stage for an even greater degree of personalization.

Targeted Advertising and Online Advertising Exchanges

At its core, an ad auction is a matching process. Whenever a user arrives at a web page, the advertising exchange has tens of milliseconds to decide which ad to deliver based on the set of demographic and other data associated with the user who made the request. The inventory of ads available to display are ranked based on potential relevance, weighing the probability that they will be clicked with the

bid offered. There are thousands, if not millions, of ads that could be delivered. The better the match, the greater the likelihood that the user will click on the ad, and therefore the greater likelihood that the exchange will make money (since it is paid per click).

Ad auctions radically changed the online advertising industry by rationalizing prices through a more efficient intermediation market between advertiser and publisher. Advertising contracts were no longer handshake agreements, but algorithmically mediated transactions completed in milliseconds. Due to the necessary speed, the number of permutations in ad inventory and the low prices, human judgement was neither sufficient nor cost-effective. While ad auctions began with search, the innovation quickly spread to other forms of online advertising. By automating pricing, ad auctions established the foundation for a new infrastructure built by other 'ad tech' companies and platforms.

By the end of the 2000s, advertisers relied on centralized ad networks like Google's DoubleClick, Yahoo's RightMedia or Microsoft's Advertising Exchange to place their ads across multiple websites. Alternatively, they simply purchased advertisements directly on sites such as Facebook or YouTube that aggregated large audiences and tied online profiles to offline identities.

Prior to targeted advertising, television and print media sold a prepackaged “aggregated” audience to advertisers. Advertisers and publishers alike ignored the individual tastes and preferences of each audience member. Such fine-grained measurements were impossible and, even if they could have

been determined, no distribution mechanism existed for targeting such advertising to individuals. The statistical averages were what mattered. Advertising was sold based on aggregate measurements: individual data points assembled and abstracted into demographics and market segments.

Dynamic advertising on the internet disaggregated the mass audience. Each page view became a unique advertising opportunity. Instead of buying placement on a specific *media* property, advertisers could pay for access to highly specific types of *people* — single women, 20-25, living in San Francisco, who recently purchased an automobile, for example — wherever they happened to be browsing on the web. This level of targeting had never before been possible, either for the distribution of advertising or content.

The Birth of the Feed

The online advertising market was built around the new ability to track individual users and match them with personalized ads in an automated fashion. But the application of these innovations was not limited to advertising. The algorithmic-mediated feed, popularized by sites like Facebook and YouTube, took the ideas pioneered by targeted advertising and applied them to the distribution of content. The algorithmic feed is an achievement nearly a century in the making. It fuses together the democratic sensibility of network executives who believed that, at the end of the day, the broadcaster's obligation is to give the audience what it

wants, with the 'narrowcasting' vision of the cable pioneers made possible by the technical instrumentation of audience preferences.

News Feed is the innovation that transformed Facebook from a college directory into a corporate behemoth that generates billions of dollars in profit per quarter and employs tens of thousands of software engineers. Initially called “The Facebook,” the service was launched at Harvard in 2004 as a digital replacement for the college's internal student directory. But while that initial site bore the same name, it was an entirely different product from the service used by more than two billion people around the world today.

Those who invent the future almost never appreciate what they are doing in the moment and Facebook is no exception. Facebook's engineers stumbled into the solution not only for the “small” problem that their users were facing — how to get updates about their friends without manually checking every profile — but to the distribution challenge that the media industry confronted since the earliest days of commercial broadcasting and mass communications: how to deliver programming that caters to the preferences of the audience. Up until 2006, Facebook bore little resemblance to a media company. The site itself was a bare-bones directory of college students. While it was popular with millions of people, the experience was static. In order to see new posts, users had to painstakingly click through to each of their friends' pages. "Everyone [was] spending so much time clicking around on those profiles," remembered an early engineer at the company. "This is how all social networks worked at the time, but

[it] felt very inefficient" (Levy 2020, 205) "We wanted to build a screen that showed everything," recounted Dustin Moskovitz, a Facebook co-founder (Kirkpatrick 2010, 180).

This was the problem News Feed set out to fix. In doing so, it uprooted the central premise underlying the last century of mass communication. The News Feed aimed to deliver the updates that mattered most to each user based on their personal experience and history using the platform. Zuckerberg summed up the main criterion for inclusion in a single word: "interesting-ness" (Levy 2020, 212). The News Feed promised to give every user a customized media experience tailored just for them.

Anyone with an account could go to Facebook's homepage but they would each see something different. The site would still aggregate attention, just as network broadcasters had tried to pull in the largest possible television viewing audience. However, unlike the era of prime time television, every user would be greeted with a customized list of all the content that was most interesting to them. “The idea of a front page that was linear, chronological, and customized per individual user had never really been done before,” recalled the engineer responsible for the design (Levy 2020, 216). The nature of the internet medium was different from that of radio and television and it gave rise to a new mechanism of distribution.

The product was the most ambitious in the history of the company. While the initial version of "The Facebook" was built by Mark Zuckerberg in a week, building and launching News Feed took Facebook's small engineering team several months (Levy 2020, 216). "It's not a new feature, it's a major product evolution," said Zuckerberg at the time (Kirkpatrick 2010, 182).

Unpopular Launch

The News Feed, which launched in 2006, was a radical change. Information that had been accessible, if one was willing to put up with some friction to find it, was suddenly being "pushed" out to all of a user's friends. Ironically, the redesign of the site, which aimed at giving users the content they wanted, resulted in a vocal outcry from its user-base against the new feature. Groups protesting the changes amassed hundreds of thousands of members. Nonetheless, Zuckerberg persisted and News Feed stayed.

Two years later, he would declare that "[o]nce every hundred years, media changes. The last hundred years have been defined by mass media" (Levy 2020, 306). Zuckerberg saw that the era where institutional media companies determined what received the public's attention was coming to a close. Indeed, he played an outsized role in bringing it about. Going forward, "information won't be just pushed out to people," he predicted (Levy 2020, 306). Instead, content would flow through the Facebook platform and appear in front of the people who would find it most relevant, as determined by the proprietary News Feed algorithm.

Towards a Transparent Medium

The development of algorithmically-mediated feeds transformed mass communication into personal communication at scale. The ability to distribute content directly to individuals enabled internet companies to disaggregate their audiences and customize distribution. Both content and advertising could be distributed in the same, hyper-targeted manner.

At the same time, the behavior of users became more legible. The internet enabled a more pervasive form of market surveillance than had ever been possible before. By recording a census of audience behavior rather than taking just a sample, technology firms had greater insight into the ways individuals responded to content and greater clarity around what they wanted. Implicit metrics, like those that had been supplied by Nielsen's Audimeters, were supplemented by qualitative feedback in the form of the 'Like' button, which mimics mechanics of the Lazarsfeld-Stanton program analyzer. The algorithmically mediated feed ingests all of these signals and leverages them to filter the sea of internet content, delivering only what it predicts will match the users' preferences. The operation of the system requires an extraordinary level of surveillance: every click is recorded and every second spent on site logged. The entire apparatus is dedicated to supplying the internet audience with precisely what it wants to see.

The improved efficiency of distribution, targeting and matching on the internet all served to reduce the role of corporate executives in actively making editorial choices. In order to operate at the scale of the internet, human judgement was deprioritized. The efficient and effective distribution of content required as little editorial interference as possible in order to assure that consumer preferences were satisfied. The fewer constraints that were imposed, the more readily the algorithm can match content to its ideal audience. The imperative of the internet medium is transparency: to deliver content without interposing any normative judgement between the audience and what it desires.

CONCLUSION

Power without Responsibility

"Thought is reified as an autonomous, automatic process, aping the machine it has itself produced, so that it can finally be replaced by the machine" (Horkheimer and Adorno 1944, 19). The line contains three movements, which roughly correspond to my three historical chapters. With radio and early audience measurement, thought produces a machine to serve human ends. The television era saw thought become formulaic as it confined itself to operating by the logic of the machine. Finally, with the internet medium, thought, now automatic and autonomous, no longer requires human thinking and therefore can be replaced by an algorithm, a set of procedures that encode 'petrified' thought.

Audience research, the culture industry's term for market surveillance, was produced in order to guide executive judgment, not replace it. A. C. Nielsen explicitly calls out executives who place "an unjustified degree of reliance on marketing research" and fail "to recognize that it is not intended as a substitute for executive judgment but rather as a means of revealing profit opportunities [and] avoiding costly errors" (Nielsen 1964, 59). Still, the very act of measurement, the mechanical conversion of audience preference to a quantified, legible form, produced a new source of authority, separate from the judgement of individual executives. As the scope of instrumental reason expanded, the arena of deliberative choice necessarily diminished

The metrics simultaneously take on both commercial and ‘democratic’ validity as they explicitly reflect what the public wants. Ratings are produced through quantitative aggregation of public preference. Through this sort of measurement, thought is reified. For the operators of the corporate panopticon, it becomes inappropriate to imagine acting contrary to the instruction embedded in the measurement. The audience's preferences are legible and immanent. They cannot be changed, only satisfied. Thinking degenerates into a mechanical and automatic process of matching consumer demand.

To reiterate, the reification of thought takes place through measurement as "[t]he mythical scientific respect of peoples for the given reality, which they themselves constantly create, finally becomes itself a positive fact, a fortress before which even the revolutionary imagination feels shamed as utopianism" (Horkheimer and Adorno 1944, 33). Market research is taken both as 'positive fact' — an indicator of audience demand — and as an end in itself, an imperative dictating what must be supplied. Thus, the corporate panopticon collapses the distinction between what is and what ought to be. Measurement that can only claim to be a reflection of reality is construed as obligating — due to overwhelming financial incentive and democratic assent.

Executive judgment increasingly leaned on market research, and in doing so, became ever more automatic and autonomous. However, this formulaic way of thinking was still carried out by individuals, rather than machines. A human remained in the loop, even if human judgement was not normally at play. For

instance, while the process of producing CBS's prime time programming lineup incorporated sophisticated audience research, the final decision was the result of fourteen men deliberating in a room (Paley 1979, 263). The logic of the ratings *could* be rejected and sometimes it was. A small amount of space still existed for personal judgement and intuition to creep in.

The scale of the internet — both in the volume of content, the number of decisions and the sophistication of audience analytics — eliminated the possibility of even this desiccated form of individual judgement. The massive expansion in the number of websites demanded a more scalable solution than annual executive meetings. Thus, in order to efficiently distribute content at the scale of the internet, editorial judgement had to be fully automated — not as thought, but as code. Signals about audience preference no longer trickled up to executives, but were instead fed into matching algorithms. Techniques like user tracking and preference matching, which were originally invented to support targeted advertising, were applied to the distribution of online content. Reified thought is finally replaced by the machine. Here, Adorno and Horkheimer echo Bill Paley, who as early as 1936, lamented that “too often the machine runs away with itself” (Quoted in Friendly 1967, 168).

The algorithmically-mediated feed justifies Murrow's early warning that commercial media sought “power without responsibility” (Murrow 1958). The feed is the logical culmination of a century of market surveillance of audience preference. It fulfills the dream of a "money-making machine" that credibly

becomes merely "a conduit through which to channel anything" that interests the user (Murrow 1958). Murrow castigated the mass media industry for having this wish: "The responsibility can be easily placed, in spite of all the mouthings about giving the public what it wants. It rests on big business, and on big television, and it rests on the top. Responsibility is not something that can be assigned or delegated" (Murrow 1958). However, this delegation of responsibility is precisely the effect of algorithmically-mediated distribution. The individual consumer is 'responsible' for what their feed recommends — it is a reflection, perhaps imperfect, of what they find most interesting based on their past behavior, demographic information and ten thousand other signals. No human judgment directly determines what appears in the algorithmic feed. There is the bare minimum of editorial filtering between the user and the content that interests them most. Nothing is imposed and there is something for everyone. "To be entertained means to be in agreement" (Horkheimer and Adorno 1944, 115).

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