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# A. R. Lauer's Signs on the Road: Psychology, Advertising, Hypnosis and the Politics of Visual Stimulation on the Interstate Highway

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Thank you for reading my manuscript in progress. This paper is a very early draft of the fourth chapter of my dissertation, tentatively titled "Expert Advice: Mediating Social Science's Public Aspirations, 1930-1965." The dissertation is concerned with how American social scientists encountered and used mass media to popularize particular disciplinary ideas and perspectives at midcentury, with a focus on didactic and prescriptive media. In other chapters I use media objects like educational films and television, public service announcements, advice writing, newspaper personality quizzes, amusement park rides, and other evidence of the quotidian and ephemeral presence of the social sciences in American life. Among other ideas and themes, I am concerned with how the process of popularization effects the line between description and prescription in the social sciences. Chapters are in various states of completion; this is the first chapter for which I am attempting a complete draft.

This chapter is something of an outlier. Rather than focusing on the presentation of social scientific concepts in media (for example, the depiction of anthropology in educational television), it focuses instead upon research conducted regarding a particular media object (billboards) by a particular research scientist (A. R. Lauer). It is also explicitly concerned with the material/built environment (and federal policy) in way that other chapters largely are not, as the arc of the chapter parallels the intensification of auto-mobility in the United States in this period. Some of this will come across in this draft, though I have more work to do.

This summer I will conduct initial research at the Outdoor Advertising Association archives at Duke University, which promises to hold additional material related efforts to study signage as a potential roadside danger as well as other efforts at public relations, not to mention more information on the central experiment discussed in the second half of this chapter.

Any and all feedback, questions, or additional reading suggestions are very kindly appreciated.

Alvhh Ray Lauer[1] was no stranger to travel. In a manner of speaking, he was an expert. But on March 27, 1957 – the day of his United States Senate testimony – he lay bedridden in his Washington D.C. hotel room, perhaps sick from a bug acquired on the trek from Iowa State College, where he was Professor of Psychology and Head of the Driving Research Laboratory.[2]

Lauer had spent three decades making a name for himself in the emerging field of traffic and driving safety research. He completed doctoral work on the subject at The Ohio State University under the behaviorist psychologist Albert Paul Weiss, culminating in the National Research Council-sponsored monograph *Psychological Principles in Automotive Driving* (1930).[3] With this initial NRC funding, Lauer moved to Iowa where he established a laboratory, embarked on an ambitious research agenda, and published prolifically. By midcentury, Lauer had become a nationally cited expert, the center of an active and dynamic research lab, and had overseen at least a dozen graduate student theses.[4] Just two weeks before his scheduled Senate testimony, Lauer had given comments at the Traffic Symposium of the Nebraska Psychiatric Institute, where he argued for the need to expand psychological and psychiatric screening of prospective drivers during the licensing process.[5]

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[1] At times Lauer's given name is rendered both as "Alvhh" and "Alvah," with no explanatory note. For example, his 1930 monograph renders his name as "Alvhh" yet his papers at the Iowa State University are the "Alvah R. Lauer" papers. By mid-career he almost always published under the initialization "A. R. Lauer."

[2] "Control of Advertising on Interstate Highways: Hearings Before a Subcommittee of the Committee on Public Works. On S. 963, a Bill to Provide for the Control of Certain Advertising on Federally Owned or Controlled Lands Adjacent to the National System of Interstate and Defense Highways, and to Encourage Such Control on Other Lands Adjacent to Such National System" (Washington, D.C.: United States Senate, April 18, 1957).

[3] Albert P. Weiss and Alvhh R. Lauer, *Psychological Principles in Automotive Driving*, Graduate School Series: Contributions in Psychology 11 (Columbus, OH: Ohio State University, 1930).

[4] By 1955, Lauer's program at Iowa had awarded at least a dozen master's of science degrees. Alvhh R. Lauer, "[Dossier of Activities of the Driving Research Laboratory for Allstate Insurance Company]" (Iowa State University, March 15, 1955), Alvah R. Lauer papers, 1947-1967. Department of Psychology records, RS 13/22/51, Special Collections and University Archives.

[5] At the end of his career, Lauer's major policy prescription for driving reform was to increase the rigor of the licensing process, including outsourcing aspects of the exam (such as vision tests) to private appointments (such as optometrists), requiring licensees to pass a barrage of physical and psychological tests before petitioning the DMV. Alvhh R. Lauer, "Our Comments on the Improvement of the Driver's Licensing Program Made at the Traffic Symposium of the Nebraska Psychiatric Institute" (Iowa State University, March 11, 1957), Alvah R. Lauer papers, 1947-1967. Department of Psychology records, RS 13/22/51, Special Collections and University Archives.

But Lauer was called before the United States Senate to testify on another matter entirely: the perceived risks of visual stimulation along the road. Lauer, as an expert witness, was to answer one question: when a driver encountered a billboard, did they encounter it as helpful stimulation or harmful distraction? Too ill to testify, his comments were instead read by the sponsor of his research, Frank Blake, Director of Public Policy for the Outdoor Advertising Association of America.[6]

Lauer, Blake, and dozens of others had been called before a United States Senate subcommittee convened to discuss the "Control of Advertising on Interstate Highways." The hearings were focused on a bill (S. 963) introduced by Senator Richard Neubuerger (D-OR) which would have banned the construction and display of billboard advertisements alongside the newly established interstate highway system, except as "necessary for highway directional information and official notices," signs marking plots of land for sale or lease, and lands already designated as "commercial areas" where the signage advertised an on-premises business.[7] The ill-fated Neuberger bill was one of the final ripostes in the years-long tumultuous fight over the shape and funding of the Interstate Highway System.

The subcommittee hearings for S. 963 occurred over seven days in March and April, 1957. Individuals ranging from representatives of garden clubs, business owners, hoteliers, architects, and city planners testified. Lauer's written statements, however, did not take the interested tone of the conservationists and aestheticians of natural beauty, nor that of the

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[6] "Control of Advertising on Interstate Highways: Hearings Before a Subcommittee of the Committee on Public Works. On S. 963, a Bill to Provide for the Control of Certain Advertising on Federally Owned or Controlled Lands Adjacent to the National System of Interstate and Defense Highways, and to Encourage Such Control on Other Lands Adjacent to Such National System," 348.

[7] "Control of Advertising on Interstate Highways: Hearings Before a Subcommittee of the Committee on Public Works. On S. 963, a Bill to Provide for the Control of Certain Advertising on Federally Owned or Controlled Lands Adjacent to the National System of Interstate and Defense Highways, and to Encourage Such Control on Other Lands Adjacent to Such National System," 1–2.

concerned business-owners fearing the loss of their livelihood from America's increasingly auto-mobile families. For Lauer, the issue was objective and data-driven. Billboard advertising served no public safety hazard; in fact, he would argue, billboards might even be a force for good.

Contextualized within the complex tale of federal interstate highway policy, Neuberger's bill effected no bang. Placed within the longer history of the opposition to the commercialization of public space, it was barely a whimper. Historian Catherine Gudis, in her definitive history of billboard advertising, writes that this "short-lived amendment" from the "ardent conservationist" and first-year Senator was almost immediately "squelched by bipartisan opposition." Gudis addresses the bill only briefly, chalking up its defeat to the overwhelming lobbying power held by the billboard advertising industry by midcentury.[8] The amendment failed, and its champion, Sen. Neuberger, passed away just a few years later in 1960. Interstate billboards remained essentially unregulated until 1965, when "highway beautification" efforts spearheaded by President Lyndon Johnson, apparently on behalf of his wife "Lady Bird," succeeded in exercising some highly compromised control, characterized by Gudis an essentially a giveaway to the advertising industry. Diverting most power on the matter to the states, Johnson's beautification efforts showed that few would stand against the seemingly omnipotent roadside advertising industry.

This chapter is less concerned with the intricacies of federal highway legislation, notions of natural beauty, or the real-life (de)merits of billboard advertising. Instead, I begin with a more fundamental question. How did it come to be that, in 1957, a respected psychologist found himself summoned before the highest legislative body in the United States to discuss something as seemingly quotidian as road signage? Further, how and why did Lauer, who began his career

[8] Catherine Gudis, *Buyways: Billboards, Automobiles, and the American Landscape* (New York: Routledge, 2004), 219–20.

in the auspices of the NRC, find himself at the end of his career a surrogate for the outdoor advertising industry? To answer these questions, we are required to take stock of a surprising array of material relating to the development of the science of visual perception and driving safety, the relationship between private industry and public advocacy, and the history of the psychologization of the highway. Lauer eclectically straddled the sometimes firm boundaries among the psychological sciences. Across his career, he drew from ideas of personality structures, studied sensorimotor responses, and aided in the development of psychometrics by producing novel driving simulators. He allied with other interest groups keen to assert their authority upon (and reap profits from) America's emerging obsession with auto-mobility, notably optometrists and insurance agencies. Along the way he enjoyed forays into wider world outside the lab, touring his simulators around the country, receiving regular coverage in magazines and newspapers, and even co-writing a series of educational films (notably, for Coronet Instructional Films, the subject of chapter 2).

In what follows, I focus on the career of one social scientist, not because he was particularly important – he is obscure now and likely not uniquely influential in life – but because, as I hope to show, Lauer's work across various mediums indexes the variety of roles the social expert could play at midcentury, particularly when they were *empowered by media*. By emphasizing the enabling role of social scientific expertise as public advocacy, midcentury auto-mobility and its infrastructural consequences take on a different shape. Putting to the side (for now) Lauer's activities on behalf of the advertising industry (a pattern repeated through his career), looking more closely at his research opens a window into an under-examined realm of midcentury technocratic governance and policy. Lauer's job, in and outside of the lab, was to connect invisible psychologically-relevant phenomenon for operating a motor vehicle (in this

case, attention, distraction, exhaustion, and "hypnosis") to environmental and infrastructural variables. In what became the billboard study, Lauer made this connection in two ways: through an experiment featuring a complex psychometric driving simulator and a rudimentary roadside diorama, on the one hand, and through a statistical analysis of a preexisting highway survey on the other. The question of *cui bono* in this case is both instructive and limiting, for Lauer (not to mention the United States Senate) seems to have taken the work quite seriously.

I argue that Lauer, a behaviorist psychologist and scientist of human vision, simultaneously studied behavior and perception as psychometric-sensorimotor phenomenon and articulated an approach to vision and seeing that was itself managerial.[9] By the time he was called before the Senate, Lauer's decades of work as a driving safety expert allowed him to credibly establish himself as *the* expert who could distinguish between two *seemingly* oppositional forms of roadside "visual stimuli": the deleterious "distraction" and the beneficial "stimulation." At the same time, the construction of new superhighways, epitomized by the Interstate Highway System, created a novel fear of "highway hypnosis," a state entered into during extended periods without visual stimulation. Popular discourse and scientific fact-finding blended in the face of an unprecedented federal investment in road infrastructure which required gathering and distilling a tremendous quantity of research data. I tell this story in several parts across major venues where Lauer left his mark: the psychometric driving simulator, educational media, and the billboards along the highway itself.

**Interwar Driving Simulation, Driving Research[10]**

[9] n.b: I am not wedded to the term "managerial" – what I am trying to express here is that Lauer, through his career, promulgated an expert discourse of accident causation that was hostile to non-expert explanations

[10] This section is incomplete, but the overall goal is to do the following:
1. Describe Lauer's early career and the early shape of driving safety research more generally (interwar period). Highlight struggles to find institutional backers – epitomized by his departure from the NRC in 1934. Vinsel, who I cite, makes this case, unclear how much I need to expand on his work on this area given this chapter is largely focused on the postwar period.

Attempts to create a laboratory apparatus to measure aptitude in driving began in the mid-1920s within the industrial efficiency movement. Psychologists, efficiency experts, and industrial reformers on both sides of the Atlantic participated in the development of these early "simulator" devices. The initial goal of these tests was to aid in the selection of an emerging class of professional drivers: bus, taxi, and truck drivers as well as chauffeurs. In Lauer's recollection, these machines were little more than a "complicated system of lights placed on a board" where "manipulation of keys would turn on or off certain lights or combinations of lights" which were meant to represent certain situations one might encounter in driving. Rather than simulate driving, they measured the capacity of the test subject to follow instructions and their response time, which was understood to be correlated with driving ability. Some of these early devices placed the light-board at greater distances from the individual being tested, in an effort to measure individual sight defects via viewing distance and to account for "distractions" – lights designed to cause glare, or lights presented as false signals. Errors were first recorded by laboratory technicians and later by the apparatus itself.[11]

2. I want to establish the basic operation and research premises of the simulator apparatuses that Lauer's lab used up until the 1960s. How were they understood as valid, what measurements did they take, etc.
3. Discuss early press coverage of the research… Lauer toured country in 1936 with mobile lab and was covered extensively
4. I want to move the ball forward chronologically without getting bogged down in describing everything that happened in industrial psychology/driving research in the 30s and 40s.

[11] Weiss and Lauer, *Psychological Principles in Automotive Driving*, 13.

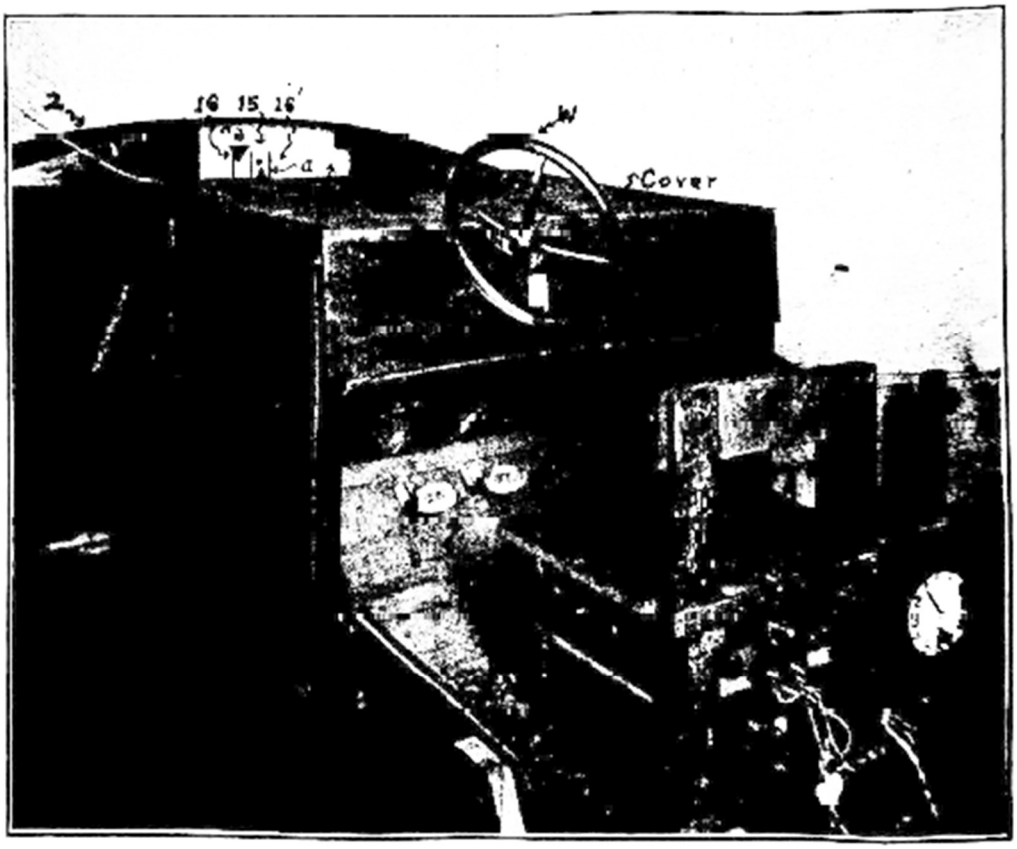


FIG. 4.—Subject sits on seat (5), both feet ready to depress pedals (6), hands on wheel ($w$), and with eyes on the pointers ($a$) and ($a'$). Upper pointer moves freely back and forth. Lower pointer moves in same way but can be held practically stationary by proper manipulation of the steering wheel.

*Figure 1* First version of Lauer-Weiss Autotrainer, approximately 1928. Weiss and Lauer *Psychological Principles in Automotive Driving*, 1930, 42.

Lauer, and doctoral advisor, Weiss, entered the field with a grant from the National Research Council in the amount of $2000.[12] [removed summary of research design published in *Psychological Principles in Automotive Driving*, 1930. In short, the Autotrainer derives from the "pursuitmeter," a research apparatus that measured hand-eye coordination in use in the 1920s]

Lauer's major early innovation was producing, with aid from a technician and fabricator at OSU, a version of the apparatus that resembled an automobile in form and function. He

[12] Weiss and Lauer, vi.

dubbed this the "Autotrainer," and in later writing would emphasize the apparatus's "face validity," meaning that its resemblance to a vehicle (to test subjects) apparently aided in the validation of the data the device collected.[13] Notably, the Autotrainer offered a steering wheel and pedals, and later an external chassis. The Autotrainer allowed Weiss and Lauer a novel way to "[measure] eye, hand, and foot coordination" in the testing of subjects, though early in his career was careful to note that "while simulating automotive manipulation, the apparatus is not aimed to measure driving efficiency as such" but rather the influence of factors such as "fatigue… drugs, eye defects, and other conditions."[14] Even as Lauer proclaimed these initial tests could not measure driving skill per se, he regularly generalized findings to draw certain conclusions about particular indicators of driving aptitude, and as his career went on he came to focus especially on the role of vision in driving.

Across its decades of use, Lauer paired the Autotrainer with a barrage of other measuring devices, including laboratory equipment and traditional paper tests. In one 40-page bulletin, published through Iowa College's Agricultural Extension Program, Lauer identified three groups of traits "suggested for rating drivers": sensory traits ("accuracy of the sense organs") including vision and hearing, "central or so-called mental reactions" including perception and interpretation and estimations of events and distances, alertness, self-perception and attitudes (measured by written tests), and "[a]bility to respond to situations" as measured by laboratory equipment, including strength, reaction time, coordination, and "neutral stability."[15] In one typical experiment in the late 1950s, intended to measure driving exhaustion, blood pressure was

[13] Alvhh R. Lauer, *The Psychology of Driving: Factors of Traffic Enforcement* (Springfield, IL: Charles C Thomas, 1960), 185–86.
[14] Weiss and Lauer, *Psychological Principles in Automotive Driving*, 46.
[15] Alvhh R. Lauer, "Methods of Measuring the Ability to Drive an Automobile: With Suggestions for Use as a Background for Research, Safety Training, and for Educational Purposes," *Iowa State College Engineering Extension Services* 115 (1936): 22–23.

recorded by the "Tycos Self-recording sphygmomanometer," hand grip strength by "the Smedly hand dynamometer," as well as two forms of polygraph, the "Weiss-Renshaw" model as well as the "the Stoelting deceptograph" to measure the subject's "basic resistance to an electric current."[16] In many experiments—perhaps unsurprisingly given insurance industry interest—Lauer and other driving safety researchers also accounted for sex and age.[17] Hence, for Lauer, driving was a deeply embodied experience, and attempts to measure a prospective individual's ability to drive needed to account for biological and physical traits.

In the late 1920s and early 1930s, Lauer's work, and the work of others in this emerging field, gradually came to center on the subject of the "the accident-prone driver," which science studies scholar Lee Vinsel has described as a "novel object of science" and an inchoate form of subjectivity crafted by experts to account for the dangers of auto-mobile living.[18] In brief, the theory went that the vast majority of accidents were caused by a small minority of drivers: approximately 5% or less. Hence, in this early and decisive period of automobile regulation, Vinsel argues, discourses around automobile safety were shifted from industrial and infrastructural solutions towards individuated solutions: the drivers themselves needed to be properly screened, tested, educated, and improved, or else barred from driving entirely. While the idea of the "the accident-prone driver" fell out of favor in the NRC after the mid-30s, Lauer, who helped to produce the idea, also never fully abandoned it.[19] To paraphrase Vinsel, if

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[16] Lauer, *The Psychology of Driving: Factors of Traffic Enforcement*, 149.

[17] On the influence of the insurance industry in statistical and social scientific renderings of populations as risks, see Dan Bouk, *How Our Days Became Numbered: Risk and the Rise of the Statistical Individual* (University of Chicago Press, 2015). Popular interest in demographic "risk" and gendered conceptions of driving ability appears, perhaps unsurprisingly, in the popular press throughout the period under consideration. Typically these reports were framed as "new studies" that "finally show" men/women/youth/elderly drivers are better/worse than their assumed binary opposite.

[18] Lee Vinsel, "'Safe Driving Depends on the Man at the Wheel': Psychologists and the Subject of Auto Safety, 1920-55," *Osiris* 33 (2018): 201–2.

[19] Lauer continued to insist on some form of "accident-proneness" until the end of his career, and believed that more reliably reported accident data would one day validate his beliefs. As he wrote in his final monograph, "persons who

engineers in this period were standardizing automobile objects, industrial psychologists were interested in standardizing auto-*mobile* subjects.

After 1934, Lauer fell out of favor in the NRC, seemingly out of a creeping sense that he had become too close to various interest groups, for whom in the remaining decades he would increasingly rely upon for research funding and dissemination.[20] In the following decades, Lauer worked regularly with the American Optometric Association, various insurance agencies, AAA and later, the Outdoor Advertising Association of America (and its regional affiliates). As Kurt Danziger's has explained, tensions between "basic" and "applied" psychology characterizes the field in these early decades. Whereas one side of the debate "aim[s] at the advancement of the discipline" the other seeks "the kind of knowledge that appears to be practically useful to certain potential consumers of the knowledge."[21] Outside collaboration helped Lauer to produce, in other words, a useful psychology with distinct impacts upon policy and regulation.

## Didactic Visuality: Perception Science and Driver's Ed Films

have accidents must have certain characteristics related to safe driving which have been assumed to be poor eyesight, poor reaction time, carelessness, poor attitudes, tendency to perseverate or stay at one mode of reaction over quite a length of time, etc… [as] accident proneness does depend upon deficiencies in these traits, then the necessity for devising a test of such trait becomes reasonable." Lauer, *The Psychology of Driving: Factors of Traffic Enforcement*, 187–88.

[20] Vinsel, "'Safe Driving Depends on the Man at the Wheel': Psychologists and the Subject of Auto Safety, 1920-55," 204.

[21] Kurt Danziger, *Constructing the Subject: Historical Origins of Psychological Research* (Cambridge University Press, 1990), 121–24.

[In the interest of space, I have excerpted a section of the paper that is still in very initial stages of preparation. This section will consider the growing role of "vision" within Lauer's thinking in the late 1930s through the late 1940s. It does so in a number of ways. Lauer found strong allies (and research funding) in the optometric science and medicine: an emerging lobbying group with stakes in driving safety/licensing. Lauer's focus on appearances/looks – the "face validity" of the simulator – its national tours (including at the Ford Pavilion during the 1940s World's Fair), and the psychology of vision/perception more generally. I will also delve into Lauer's relationship with educational media: he found films to be useful and included them in his driver's ed textbooks very early, he worked on films for Coronet (writing drivers ed films, and films about the fundamentals of behaviorist conceptions of emotions/personality), and used references to film/television at times when describing the sense of sight/stimulation.]

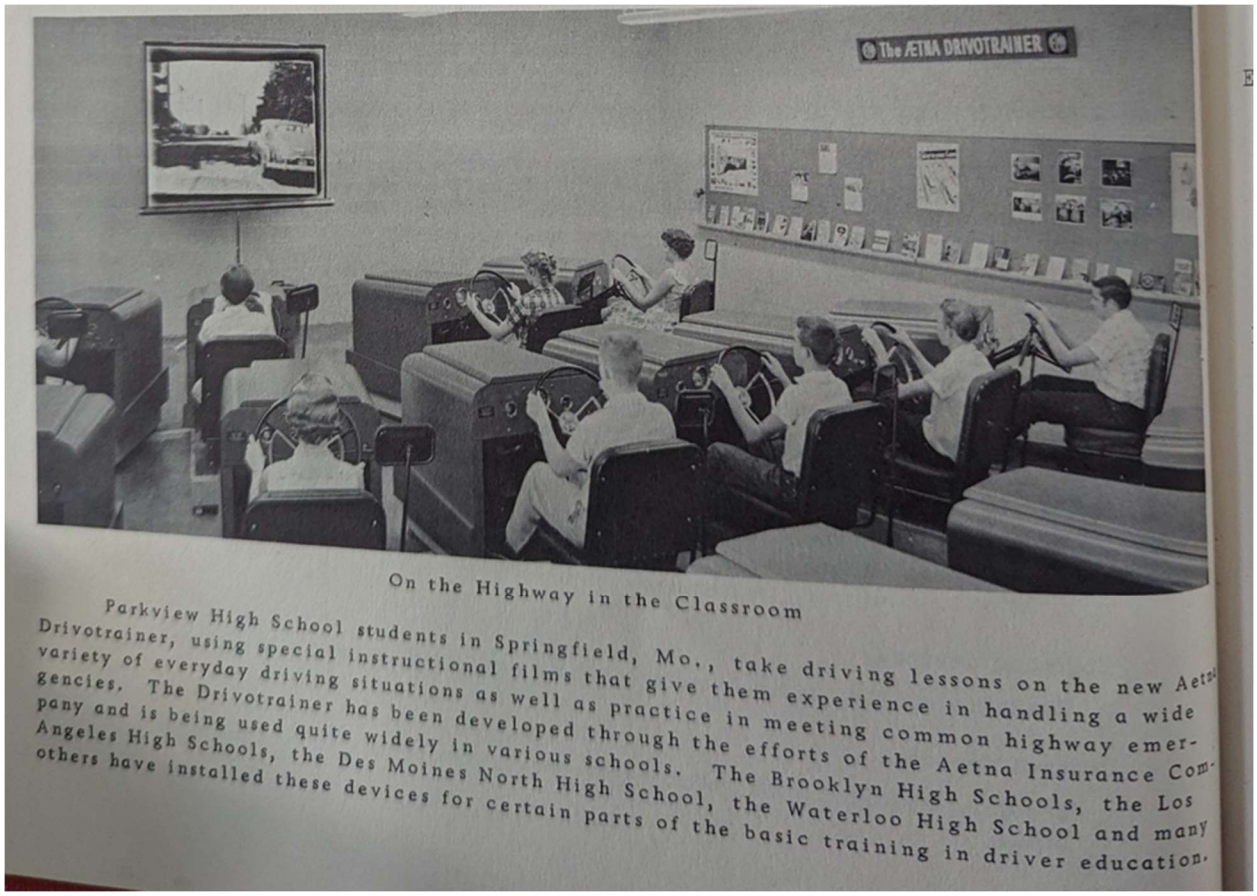


*Figure 2 Aetna Drivotrainer promotional image* from Lauer, *Learning to Drive Safely*, 1960 edition.

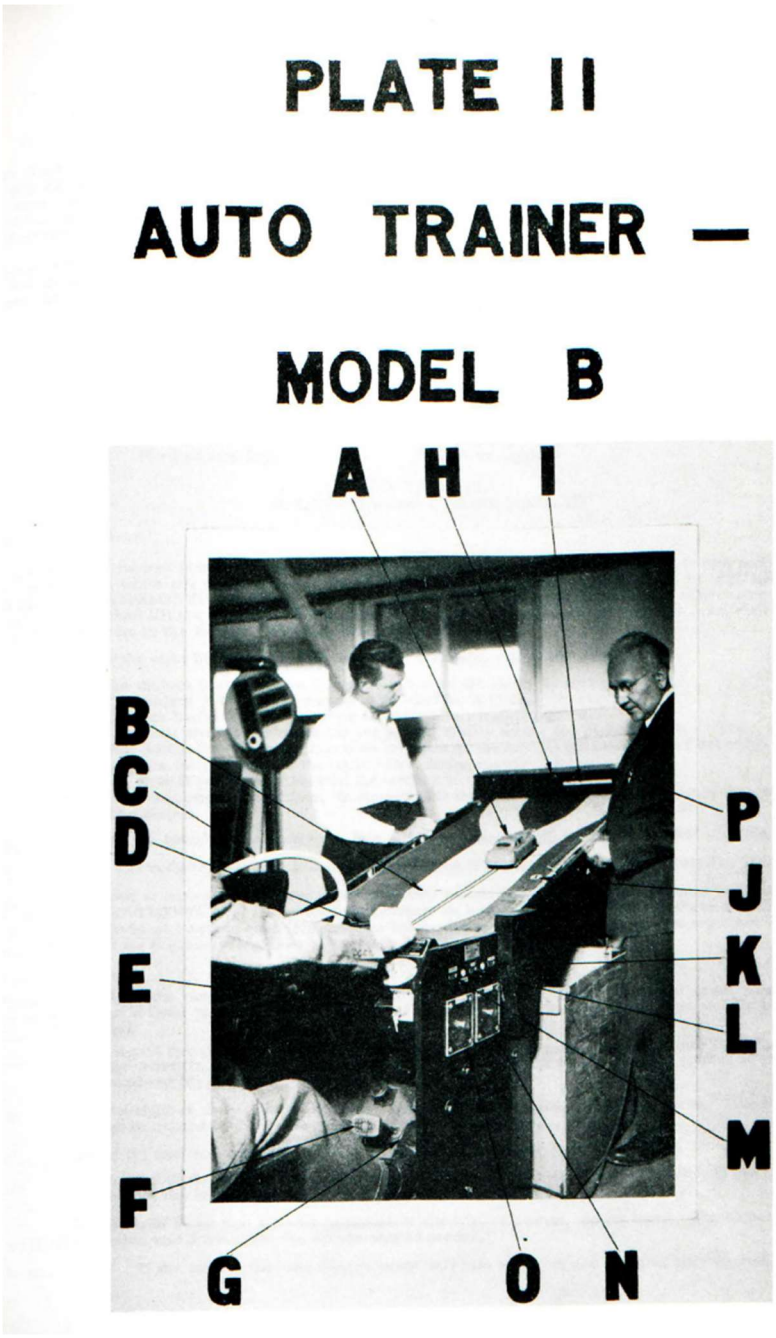


*Figure 3* *An iteration of the autotrainer/drivotrainer/drivometer, manufactured by AAA. Alvah R. Lauer papers, 1947-1967, RS 13/22/51, Box: 1. Iowa State University*

**Highway Hypnosis and the Billboard**

An empowered federal government entered the space of the highway in the postwar years, most explicitly through the Interstate Highway Act. It is through this re-invigorated federal search for knowledge about highway infrastructure and the experience of driving that Lauer, near retirement, would enter the records of Congress.

Safety remained a major concern of public discourse around driving at midcentury. Automobile accident fatalities in the late 1940s through the 1950s ranged between a low of 30,246 (in 1949) and a high of 37,965 (in 1956), approximately 6 to 7 fatalities per one-hundred million vehicle miles traveled according to the Department of Transportation.[22] It was common to find sensational statistical renderings of roadside death in the popular press. As one such feature in *This Week* magazine entitled "Will You Be Mr. Million?" revealed, the National Safety Council (NSC) had already plotted the impending millionth automobile-related fatality in the United States. Written as a gruesome pre/post-mortem and evoking a dramatized execution sentencing, the feature tells us that Mr. Million "has been sentenced to a particular violent death" with "[n]o pardon, no appeal, no suspended sentence." The NSC predicted, as if filling in the boilerplate of a death certificate, when the death would occur ("Time: December, 1951"), the likely victim (a young male), cause ("Crime: Carelessness"), means ("Method: blow to the skull sufficient for fracture; mangling, to be selected later, of limbs and internal organs"), and responsible parties (Executioner: Not yet chosen. Mr. Million himself will probably help."). The

[22] According to data from the Department of Transportation published in 2023. We might have some concern over the general reliability of the data on this chart, particularly for the earliest available years estimating Vehicle Miles Traveled in the 1920s. But the general historical trend has been a decline in fatalities per vehicle mile traveled. In the 1930s through the years of World War II, that number tended to hover between 10 and 15. By the mid-1970s it was lower than 3.5. Today it hovers just over 1. This is likely due to a confluence of factors beyond the scope of this paper, most critically, regulations enforcing ever stricter vehicle safety standards, but also infrastructural and educational improvements. "Motor Vehicle Traffic Fatalities and Fatality Rates, 1899-2021," Traffic Safety Facts Annual Report, 2023 (Department of Transportation, August 2023), https://cdan.dot.gov/tsftables/Fatalities%20and%20Fatality%20Rates.pdf.

article went on to relate the statistics of roadside deaths with fatalities in the Korean War, then at its peak, printing in bold that "Even since the beginning of the Korean war, Traffic deaths in the U.S. have outrun combat deaths in Korea at three-to-one ratio." In fact, the article noted, that American losses in all wars combined had just, in recent weeks, reached one million, a number the home-front warzone of the highway would quickly surpass.[23]

For newspapers and magazines, sensationalizing risk of automobile-related death was a common strategy. Catchy neologisms (such as the dubiously honorific "Mr. Million") could aid in this effort. Just a few months later, the *Los Angeles Times* would publish a three-page spread offering its readers advice on "How to Stay Alive on Superhighways." [24] The pessimistic tone of earlier coverage is evident in the sub-head, which informed readers that "Our New 'Dream Roads' Are Turning into Death Traps." The writers for the *L.A. Times* identified speed as the major cause of accidents on new highways, which unburdened the driver of the limiting factors of "traffic lights, cross roads, sharp curves or steep grades." The *L.A. Times* identified a second factor after speed that was itself a novel term in driving discourse: "high-speed hypnosis." Used interchangeably elsewhere in the article with the now-more familiar "highway hypnosis," the *L.A. Times* defined the term as "a trance-like state induced by mile after mile of effortless driving" which "[i]n its acute stage… may become actual dozing" but was more common experienced in its "insidious form [as a] temporary loss of alertness." Such "dream roads," it seemed, could cause drivers to actually fall asleep behind the wheel. According to the *L.A. Times*, "nobody knows for sure" what causes hypnosis on the road, "[t]he way the AAA experts

[23] James Boylan, "Will You Be Mr. Million?: A Grim Fate Awaits One American. He's Innocent of Any Crime, but He's Sentenced to Die This December.," *This Week*, October 14, 1951.
[24] As far as I have been able to determine, this article represents the earliest coinage of the term "high-speed hypnosis" and "highway hypnosis" (used interchangeably in the text). The article appears to have been syndicated, as versions appeared not only in the *Los Angeles Times*, but also Baltimore's *The Sun* and *New York Herald Tribune*. The initial version may have appeared in *This Week* magazine. Norman Carlisle and Paris Leonard, "How to Stay Alive on Superhighways," *The Los Angeles Times*, June 1, 1952.

figure it, the study hum of the tires, the unbroken purr of the engine, and effortless driving somehow create a spell that turns the driver into a robot without conscious control of his car." The relative lack of friction encountered in contemporary driving seemed to produce the conditions that rendered the operator as an automaton or a victim of some subtle magic. "Loss of alertness" was tantamount to becoming a "robot": a metaphorical transformation that explains how a human driver might continually operate a vehicle while failing to register new sensory phenomena and make the proper adjustments or decisions.[25]

For expert opinion on the matter, *Los Angeles Times* turned to Lauer. "Dr A. R. Lauer," they reported, "points out that almost all hypnotic techniques involve concentration on some specific object for a period of time, with as few distractions as possible. These conditions are met on the highway by driving steadily behind another vehicle for mile after mile, without distractions." In connecting laboratory, psychotherapeutic, and stage-magic displays of hypnosis (certainly familiar to readers in 1952) to the conditions encountered on long stretches of dull highway, Lauer and the writers at the *L.A. Times* hoped to forge an association between suggestibility (and the loss of volition) evident in the pop-culture depictions of a hypnotized subject with the wayward roadster. Cars operated by hypnotized drivers were said to move "[a]s if drawn by an invisible tow-line" into the rear of other vehicles or even off the edge of the road entirely. Highway hypnosis, then, threatened the driver not only with death but loss of the masculine self-command associated with the act of driving itself.[26]

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[26] Carlisle and Leonard.

As communications scholar Jeremy Packer notes, following the publication of Albert Whitney's wildly successful driver's education manual *Man and the Motor Car* (1936), the emerging field of drivers ed took a decisive turn away from teaching mechanical knowledge and operational mastery (skills) and towards "civic engagement." Packer argues this created a rhetorical shift where the automobile was reckoned as an extension of liberal citizenship, which necessitated investment in concepts such as "courtesy, sportsmanship, reliability, and responsibility."[27] Just a few years following the coinage of "highway hypnosis," in 1954 the Eisenhower administration launched the "Crusade for Traffic Safety," a federally orchestrated media/public relations initiative to center safe driving (and dramatic reports of accidents) in local and national press, in what Packer calls an effort to "[reorganize] public opinion" to produce "a new popular truth" via "problematization": identifying a social problem and prescribing and expert-sanctioned solution. While Eisenhower's "Crusade" coordinated media coverage and emphasized the individual's role in motor vehicle traffic safety more generally, it certainly was not the beginning of popular press concern over the dangers of driving nor was it the beginning of associations between practices of good citizenship and good driving. For Packer, the Crusade inaugurated the "neoliberal" approach to traffic safety, which we live with today, emphasizing individual responsibility on the road.[28]

Any clean "neoliberal" turn seems overly simplistic when considering the decline of the idea of the "accident prone" driver after the 1940s, and especially against the introduction of industry and federally mandated standards and regulations in the second half of the twentieth century. By contrast, Vinsel argues that automobile safety has been shaped by a complex

[27] More to the point for Packer is the emergence of a "neoliberal" logic of driving safety, whereby safety becomes the onus of the individual rather than the responsibility of automobile manufacturers and city/state road planners. Jeremy Packer, *Mobility Without Mayhem: Safety, Cars, and Citizenship* (Duke University Press, 2008), 4.
[28] Packer, 28–32.

interplay between regulation and technological change, mediated by experts within industry (insurance agencies, manufacturers) as well as citizens groups and federal oversight. Vinsel's point is that regulation has tended to invest authority in expertise, while simultaneously catalyzing the search for new forms of knowledge.[29]

As I hope to show, the discursive, social scientific, and material factors that constitute driving safety (comprising drivers education, road infrastructure, and automotive regulation) have always existed in an uneven amalgam where risk shifts between individual responsibility and demands for regulation/standardization and infrastructural solutions. The case of billboard regulation and highway hypnosis demonstrates that the rhetoric of neoliberal responsibilization does not have to exist as a separate phenomenon from the very real and material regulatory intervention under the supervision of expertise. Put another way, following the discourse tells part of but not the whole story.

By foregrounding social science's interactions with roadside media (in the form of the billboard), and popularly accessible concepts of the psychological sciences (in hypnosis), we can see that social scientific expertise played a prominent role in both "popular discourse" and "regulation/infrastructure." "Highway hypnosis," then, serves as a bridge between the popular and the scientific, with billboard policy illustrating how emergent forms of discourse, regulation, responsibilization, and the built environment, are always in conversation.

As the *Times* 1952 framing of the hypnosis problem illustrates, a major contributing factor was, in Lauer's words, a lack of "distraction." This is a point worth emphasizing, as

[29] The idea of "accident proneness" perhaps best illustrates the problem with Packer's neoliberal discourse analysis approach. As discussed earlier in this chapter, "accident proneness" was the idea that a certain percentage of drivers (usually 3-5%) were inherently defective and caused an overwhelming number of accidents. As Vinsel relates, this explanatory framework fell out of favor by the 1940s, though some (including Lauer) never fulled abandoned it. Lee Vinsel, *Moving Violations : Automobiles, Experts, and Regulations in the United States* (Johns Hopkins University Press, 2019), 7.

distraction in the driving literature to this point was understood as a risk. For example, psychologist and researcher at Yale's Institute for Human Relations, Harry R. DeSilva's major and frequently cited work on automotive safety *Why We Have Automobile Accidents* (1942) listed "inattention" as a "temporary indisposition" (alongside intoxication, nervousness, and feelings of inadequacy) that increased the likelihood of accidents. For DeSilva, inattention was "no doubt one of the fundamental causes of many automobile accidents" and, contrary to opinion, did not neatly map onto signifiers of class such as education or social responsibility, as even "[c]ollege professors and executives… may drive in a dangerous manner because they take their minds off of the road in front of them while trying to solve mental problems." The inattentive driver might engage in a number of activities that increased their risk on the road: eating, interacting with passengers, lighting cigarettes, watching scenery, and "[r]eading billboards and newspapers."[30] In the science of driving where and how one was supposed to focus their attention, then, seemed to be something of an open question.

As DeSilva's brief remarks indicated, billboard advertisements were considered by some experts to be a major cause of distracted driving and hence accidents. While a detailed lineage of anti-billboard sentiment lays beyond the scope of this chapter, the general condemnation of billboard-as-dangerous falls within the remit of public advertising as social nuisance offered by various interest groups.[31]

It appears that Lauer became involved with the Outdoor Advertising Association of America, the trade organization which served as the "conduit for all national advertising," [32]

[30] Harry R. DeSilva, *Why We Have Automobile Accidents* (New York: John Wiley & Sons, Inc., 1942), 106.
[31] For a more complete account of both the Outdoor Advertising Association of America (and its predecessor groups) as well as anti-billboard organizations, see Gudis, *Buyways: Billboards, Automobiles, and the American Landscape*.
[32] Gudis, 106.

sometime in the late 1940s or early 1950s. The OAAA, which regularly faced regulatory pressure on matters of aesthetics, environmental conservation, and anti-trust law was keenly aware of its need for good publicity, hence the association commissioned Lauer to perform a study on the safety of billboards.[33]

In fact, it may be that Lauer (perhaps unknowingly) helped to coin the term "highway hypnosis" as early as 1951. The September 1, 1951 edition of *Driving Laboratory News*, the occasional newsletter of the Iowa lab featured a brief report entitled "Technique for Hypnosis," is worth quoting in full:

> Practically all hypnotic techniques involve concentration of attention on a specific object for a period of time in which there is the minimum of distraction allowed. An uncritical attitude toward the concentration stimulus used is sought in order that the subject may become receptive to, and follow, the motions or suggestions of the hypnotist. No wonder the drivers on restricted highways are found to follow a vehicle over onto the shoulder, then running into it after stopping at night. The conditions for inducing artificial sleep are satisfactorily met by driving behind another vehicle without reasonable distractions laterally.
> Driving under ordinary conditions must be strenuous enough to keep the driver alert but not impose an undue strain on him.[34]

While the circulation of *Driving Laboratory News* was probably extremely limited (its direct audience was driving instructors and perhaps other industrial psychology labs), the appearance of "hypnosis" and its identical symptomatology to the later *Los Angeles Times* report is suggestive. More telling is that, on the same page as "Technique for Hypnosis," there appeared another feature, describing a "Study on Preoccupation in Relation to Driving and Reaction Time," which briefly glossed the OAAA-sponsored experiment and included a photo insert (figure 4).

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[33] This summer I will conduct initial research at the OAAA archives at Duke University, which promises to hold material related to OAAA efforts to study signage as a potential roadside danger as well as other efforts at public relations. I hope to find information about how, exactly, the OAAA and Lauer became connected.

[34] Iowa State College Driving Laboratory, "Technique for Hypnosis," *Driving Laboratory News*, September 1, 1951, Alvah R. Lauer papers, 1947-1967. Department of Psychology records, RS 13/22/51, Special Collections and University Archives.

Described as an effort to "measure the effects of distraction on certain psychological and psycho-physiological functions," the feature otherwise offered only that "preliminary results… [indicated] a percentage of cases in which performance [was better] with distraction tan without." Highway hypnosis, then, may have been a twin birth alongside the billboard study.

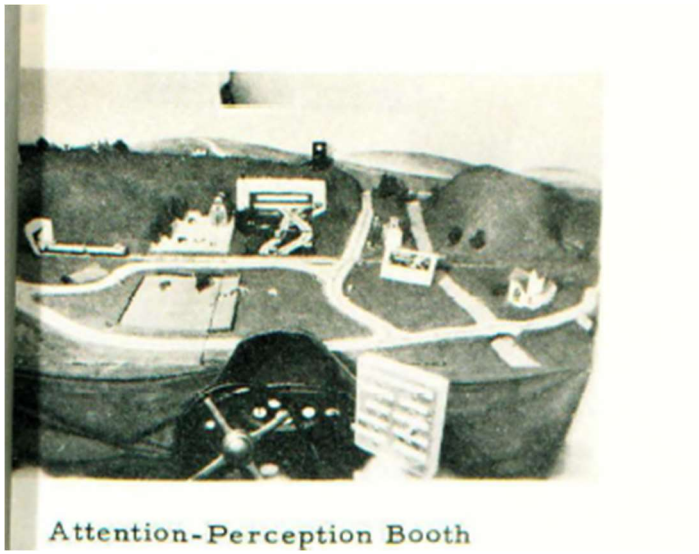



*Figure 4 Image of the "Attention-Perception Booth," the experimental apparatus designed for the Iowa-OAAA billboard research.* Driving Laboratory News*, September 1, 1951, Alvah R. Lauer papers, 1947-1967. Department of Psychology records, RS 13/22/51, Special Collections and University Archives.*

Lauer conducted the OAAA-sponsored experiment in 1950, with findings alluded to in various publications (including *Driving Laboratory News*) in the following years. The study itself was not officially published until five years later in *Traffic Quarterly*, the journal of the Eno Foundation of Connecticut.[35] Actually comprised of two studies (and hence co-authored by J. Carl McMonagle of Michigan Highway Department), "Do Road Signs Affect Accidents?" contained both a laboratory experiment led by Lauer and epidemiological study of a stretch of highway in Michigan conducted by McMonagle. It may be that Lauer only felt confident enough

[35] A publication of the Eno Foundation for Transportation (known today as the Eno Center for Transportation), an independent traffic advocacy think-tank, published at the time by Columbia University.

to publish once he learned of and interpreted the Michigan data, or perhaps the publication may have been timed out of anticipation for advertising regulation.

The earliest reference to Lauer's billboard research that reached a mass audience occurred in the 1952 *Los Angeles Times* article, wherein the Iowa laboratory was said to be studying the phenomena of highway hypnosis but "final results" were too early to determine. Just over one year later, in 1953, the *Driving Laboratory News* again featured a brief report drawn from the Iowa-OAAA research and under the heading "Roadside Business, Advertising And Other Signs Increase Highway Safety." It announced that "growing evidence [for] roadside business and signs are safety devices" apparently "[c]ontrary to the opinion of certain persons." The feature did not cite any particular experiment, nor did it make clear that it was alluding to findings of an experiment conducted at Iowa. Top among the numerated list of reasons signage worked as "safety devices" was the assertion that "They combat highway hypnosis."[36] The first page of this October 1953 issue of *Driving Laboratory News* actually featured another photo insert of the "Attention-Perception Booth" (a re-purposed drivometer) which, though it was presented without any identifying information and was not connected to the billboard feature several pages later.

[36] *Driving Laboratory News* generally featured short entries providing updates on the activities of the laboratory, ongoing research or activities of its members, and national news that fell within the remit of driving safety. It also featured aphorisms and shorter public-interest features. Iowa State College Driving Laboratory, "Roadside Business, Advertising And Other Signs Increase Highway Safety," *Driving Laboratory News*, October 14, 1953, Department of Industrial Education and Technology records, RS 10/6, Special Collections and University Archives.

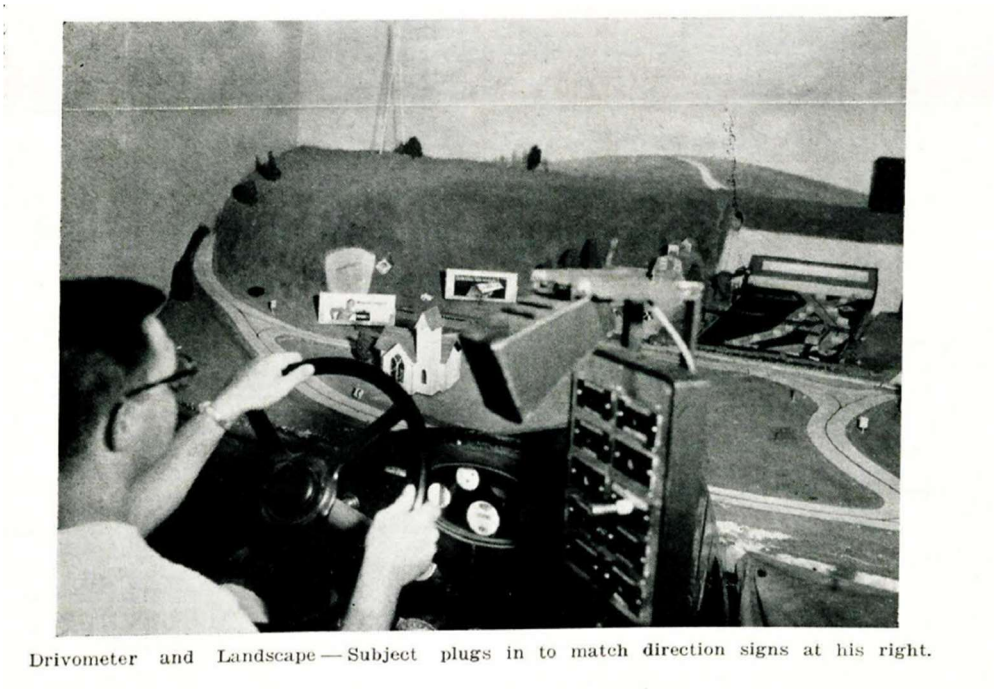
## ROADSIDE BUSINESS, ADVERTISING AND OTHER SIGNS INCREASE HIGHWAY SAFETY

Contrary to the opinion of certain persons there is growing evidence that roadside business and signs are safety devices. Here are a few of the reasons:

1. They combat highway hypnosis.
2. They keep stalled cars off the roadway.
3. They reduce towing range and hazards.
4. They reduce congestion in loop areas.
5. They slow down traffic.
6. They relieve the monotony of the road and serve as refreshment centers.
7. They alert the motorist to the advantages offered by the local merchants.

Anyone who has motored widely will attest to the benefit of such conveniences and their value to the motorist. Unless the eyes have something to see along the road drowsiness may ensue.

*Figure 5 Driving Laboratory News, Oct. 14, 1953*



Drivometer and Landscape — Subject plugs in to match direction signs at his right.

*Figure 6 Image from the 1950 Iowa-OAAA Billboard experiment, showing a man operating the "attention-perception booth" drivometer. Note the miniature billboards placed on the landscape diorama. Compared to the image in figure 3, we can see that the belt-driven model car is placed at some distance (and may be overall smaller) than previous iterations of the drivometer. Driving Laboratory News, Oct. 14, 1953.*

The following year, the *New York Times* reported on the study during the OAAA's annual convention in 1954. Lauer, apparently present at the national meeting, "told [the audience] that studies… tended to show that in most instances outdoor advertising tended improve the width of perception and alertness of drivers." Having "something along the highway to arouse the motorist was conducive to his better performance, as diversion of attention… has tended to improve efficiency." The *Times* reported with some surprise that, alongside Lauer, the OAAA had found an unexpected ally in Mary M. Taylor, a representative of the General Federation of Women's Clubs, an organization known for "often… attack[ing]" the medium.[37] For Taylor, editor of the Federation's journal *The Clubwoman*, billboards encouraged "community economic progress" which needed to be taken into consideration despite the "esthetic benefits" regulation might produce. The OAAA could therefore announce that billboards had won the endorsement of two major interest groups: their traditional enemy, the "scenic sisters" who were interested regulating billboards to preserve natural beauty, as well as the psychological sciences.[38]

Lauer's OAAA-sponsored findings were finally published in 1955, in a brief seven-page article in *Traffic Quarterly*, which was later entered into the Congressional record. As described in "Do Road Signs Affect Accidents?," the Iowa-OAAA experiment was an effort to "evaluate the various angles of vision… of the driver with respect to the efficiency of signs," indicating that the research was intended to serve in part as guidance (in-house best practices) for the OAAA on the construction of billboards. Further on, the introduction states that "[a]t the same time it was proposed that an attempt to be made to establish some relationship between

[37] "Billboards Said to Bar Accidents," *New York Times*, November 9, 1954.
[38] For a more thorough accounting of the history of the antipathy between middle-class and elite women's civic groups and the public advertising industry, see Gudis, *Buyways: Billboards, Automobiles, and the American Landscape*.

placement of signs and the possible 'distraction' of the driver…" Lauer's (not directly states) hypothesis here seemed to be that "it seemed conceivable that an optimal level of stimulation would have a beneficial effect upon driver efficiency."[39] Here, again, the language of distraction and stimulation were associated with the billboard. The initial "Study on Preoccupation in Relation to Driving and Reaction Time," then seems to have morphed, as Lauer was testing for multiple findings, including reliable data to provide the OAAA (to increase the efficiency of advertisements) while also attempting derive some measure of knowledge about the safety of billboards in general.[40]

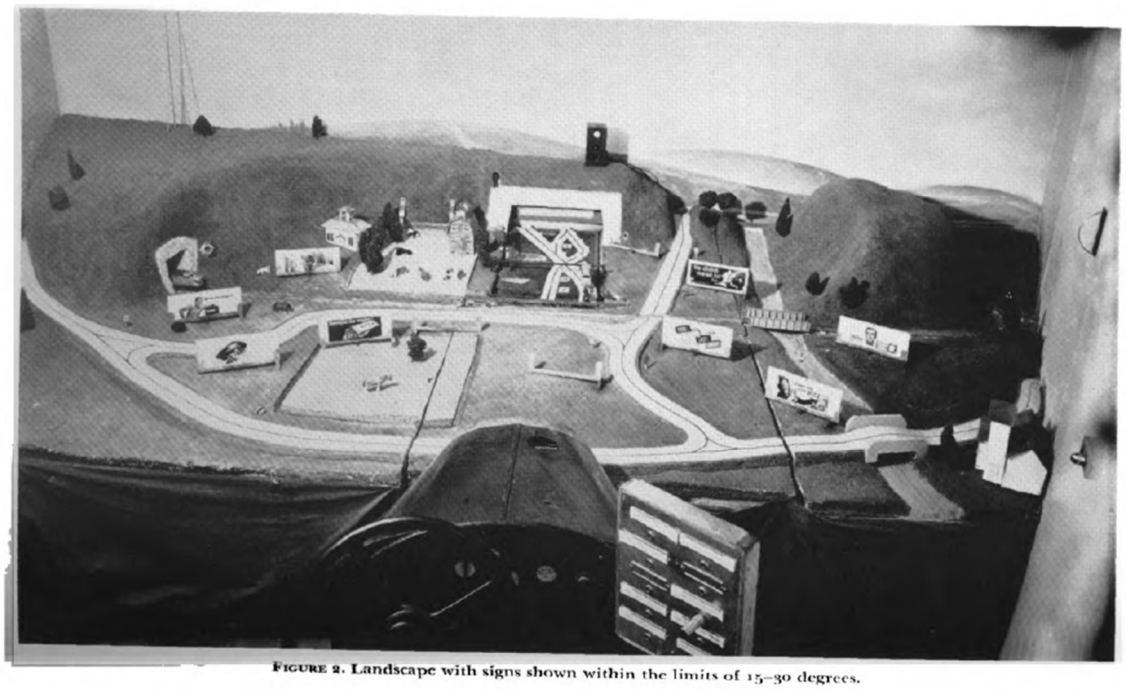


FIGURE 2. Landscape with signs shown within the limits of 15–30 degrees.

*Figure 7* POV image of "Attention Perception Booth" Drivometer included in Traffic Quarterly, *Lauer and McMonagle, "Do Road Signs Affect Accidents?,"*

Photos of the "Attention-Perception Booth" indicate that the laboratory retooled the drivometer for the purposes of the experiment. In the traditional drivometer, the test subject

[39] A. R. Lauer and J. Carl McMonagle, "Do Road Signs Affect Accidents?," *Traffic Quarterly* 9 (July 1955): 323.
[40] Hoping to find more information at the OAAA records at Duke

operated automobile controls to manipulate a model car affixed to a rotating belt. For this experiment, Lauer constructed a diorama landscape offering a "bird's eye view" of a driving scene with the model car apparatus at its center. The scene itself resembled an idyllic small-town America, with model church, railroad, and rolling hills dotted with trees. This diorama featured a number of potential stimulants/distractions: additional roads, the church house and other buildings, a working model train, various flashing lights, and critically, billboards. The experiment was run across three groups, a control group where no billboards features on the landscape, and two separate groups where the angle of view of the billboards was adjusted slightly. The experiment, as described, was to test driver response when the various angles (from the perspective of the driver-test subject) of the billboards were altered. No findings were published regarding what, if any, change in the angles of the billboards offered, but according to the findings the presence of billboards seemed to increase driver efficiency by about 10%.[41] A corollary finding noted that having billboards on the periphery of their vision allowed drivers to recall more details of the simulation (recalling the model train, position of various buildings, and the features of the "natural" environment, and so on). This finding was inserted seemingly to dispute the conservationist critique that billboards prevented drivers from noticing from natural beauty and to assert the primacy of the driver, who "will observe and keep in mind what appears to him as the most interesting stimuli along the highway regardless of the frequency and density of distribution."[42]

[41] "Efficiency" as measured by the Auto Trainer/Drivotrainer was described by Lauer as including measures of ability at steering, response time to traffic lights, errors in manipulation, breaking and gear shifting, and total time to complete the simulation, see A. R. Lauer, Virtus W. Suhr, and Earl Allgaier, "Development of a Criterion for Driving Performance," *Highway Research Board Bulletin* 172 (1958): 1–8.
[42] Lauer and McMonagle, "Do Road Signs Affect Accidents?," 324.

The second half of the *Traffic Quarterly* article interprets a separate study by J. Carl McMonagle, a director within the state of Michigan's Highway Department. McMonagle's study looked at a 100-mile stretch of highway over a period of three years (1947-1949) and recorded the roadside "features" where 3,025 accidents were reported: taverns, gas stations, stores, restaurants, "other establishments," private drives, "design features," and advertising signs. This correlational data was tabulated in an IBM punchcard computer to determine correlation coefficients. It was found that there was a very slight negative correlation with billboards in non-intersection parts of the highway, hence the relationship between billboards and car accidents was deemed "non-significant." Because the beta coefficient was very slightly negative, the findings could be understood to indicate that the relationship between advertising signs and accidents was "negative or beneficial if anything." Thus, in comparing the two studies, Lauer could tentatively argue that billboards helped to prevent car accidents.

Table 3

MICHIGAN STUDY—FACTORS RELATED TO ACCIDENTS
(NON-INTERSECTION SECTIONS)

Multiple R = .8155 — Factors Measured = 67%

| Variable | Order of Importance | beta | r | Coefficient |
|---|---|---|---|---|
| Vehicle miles | 1 | .4216 | .6796 | .28651936 |
| Private drives | 2 | .1932 | .5133 | .09916956 |
| Other establishments | 3 | .2035 | .4425 | .09004875 |
| Restaurants | 4 | .1796 | .4381 | .07868276 |
| Taverns | 5 | .2127 | .3126 | .06649002 |
| Gas stations | 6† | .1040 | .4420 | .04596800 |
| Design features | 7† | .1465 | .3026 | .04433090 |
| Stores | 8‡ | −.0330 | .3211 | −.01059630 |
| Advertising signs | 9‡ | −.0639 | .5575 | −.03562425 |

† Scarcely significant.
‡ Non-significant. Actually negative or beneficial if anything.

These studies gained a new public circulation and wide reportage at approximately the same time that federal interstate investment (and potential advertising regulation) seemed close at hand. Lauer published summaries of these findings in several venues, including in *The*

*Optometric Weekly*, just weeks before his Senate testimony.[43] Around the same time, the OAAA's public relations wing went to work doing what they did best: producing advertisements to assuage public fears (figure 8).

**Billboards help him get home safely**

The next time your husband drives on the highway, be thankful for billboards. They help fight one of the major causes of accidents.

If there were nothing of special interest to break up the monotony of driving, he might fall victim to "highway hypnosis"—be lulled to sleep at the wheel.

Outdoor advertising displays counteract this hypnosis. Every scientific study of the problem shows this. To quote from one conducted by Dr. A. R. Lauer, psychologist, and Mr. J. Carl McMonagle of the Michigan State Highway Department:

". . . numerous signs in the driver's field of vision no way influenced efficienty at the wheel adversely, and in fact, seemed slightly beneficial. The difference was about 10% in favor of conditions with signs.

"The effect of properly placed design and roadside features in breaking the monotony of driving is recognized."

A billboard is a colorful spot in the landscape which a driver can see and read in seconds. It provides a point of interest which every unprejudiced study has shown helps traffic safety.

MEMBERS OF THE OUTDOOR ADVERTISING ASSOCIATION OF IOWA

*Figure 8 "Billboards help him get home safely," a newspaper public relations advertisement from the Iowa chapter of the OAAA, which cites Lauer by name. The Des Moines Register (Mar 23, 1958) courtesy of WeirdUniverse https://www.weirduniverse.net/blog/comments/when_billboards_become_visible*

[43] A. R. Lauer, "Helping Them To See Better: A Favorable Case for Highway Advertising Signs," *Optometric Weekly*, February 28, 1957.

**Signs on the Periphery, or Building the Case for Distraction**

Lauer was originally scheduled to testify before the Senate subcommittee on March 26, but due to scheduling issues his testimony was delayed until the next day, long enough for him to fall ill. In his place, Frank Blake of the OAAA read a prepared statement from Lauer, which said in part:

> Our studies… find a great deal of evidence that the monotony of some limited-access highways tends to lower alertness, attention, and to produce drowsiness which laymen often refer to as highway hypnosis… [the *Traffic Quarterly* article] conclusions were that stationary roadside installations which are close enough to permit a normal scanning of the field of view within 15° to each side tended to act in a beneficial way to driving efficiency by keeping the driver at a higher state of alertness.[44]

Lauer would continue to make the case for distraction in his publications through the remainder of his life. His final monograph, the highly revised 1960 version of *The Psychology of Driving: Factors of Traffic Enforcement* argued that distractions were often found to boost efficiency, both in common-sense scenarios ("When one wishes to solve a problem connected with his business or profession he rarely ever seats himself comfortably in an arm chair before the fireplace…") and drawing from industrial psychology ("in most factories considerable noise exists and some recent experiments have shown that the presence of reasonable noise is not in any way detrimental to performance… it sometimes speeds up production, acting as a stimulant").[45] Drivers themselves could not be trusted to account for causation of their own accidents, as such "[c]omplaints are usually in the nature of alibis for one's behavior." Conditions external to the vehicle were critical, as "such objects tend to keep [the drivers]

[44] "Control of Advertising on Interstate Highways: Hearings Before a Subcommittee of the Committee on Public Works. On S. 963, a Bill to Provide for the Control of Certain Advertising on Federally Owned or Controlled Lands Adjacent to the National System of Interstate and Defense Highways, and to Encourage Such Control on Other Lands Adjacent to Such National System," 348–49.
[45] Lauer, *The Psychology of Driving: Factors of Traffic Enforcement*, 64–65.

interest in the problem of driving, which is monotonous to say the least….” By way of conclusion, Lauer compared the driver to an infant, who “from his earliest remembrances, is constantly dividing his attention between specific points in his seeing,” most illustrated by “having toys to look at while in his cradle” which improved learning and happiness. As such, it “is necessary to provide certain objects of artificial nature in the field of vision to maintain the level of efficiency in driving.”[46]

[….]

The American highway experience has largely remained one dominated by our own peculiar nursery mobile, omnipresent and always skirting the periphery of our vision. Lauer was not asked to appear again before Congress and the idea of billboard-as-public-danger was abandoned in future regulatory efforts, which have haltingly continued under the auspices of “highway beautification.” The experience of encountering visual advertisements while driving continues in the billboard form, and has crossed into the vehicle itself with targeted advertisements on certain smartphone GPS programs. While the danger of “distracted driving” in the mobile phone era remains regulatory and driver’s safety hurdle, the notion of “understimulated” driving has all but disappeared. Untangling the birth of highway hypnosis, driving research, and the billboard offers a unique vantage into the ways the psychological sciences have encountered, studied, and prescribed media for the American public.

[46] Lauer, 68.