

# Mildred Lane Kemper Art Museum

## The Autonomous Future of Mobility

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In media and popular culture, cars feature as the ultimate symbol of luxury and freedom. While automobiles increase mobility by decreasing time and distance, acceleration has led to a set of catastrophes, including vehicle crash fatalities, environmental and atmospheric damage, military conflicts, insufficient infrastructure, and economic injustice and segregation in cities via the expansion of highways and use of eminent domain. With this problematic history in tow, the nature of automobiles is changing. In the last two decades, self-driving cars have advanced from research to reality and offer tremendous promise, from reducing emissions and congestion through ridesharing to decreasing the number of driving accidents and deaths. Nevertheless, we will only realize this potential if future development accounts for past failures and such possible pitfalls as mass surveillance and attacks on artificial intelligence.

*The Autonomous Future of Mobility* examines the car's legacy over the past century, predominantly in the United States, as depicted in art and visual culture. The works included in this exhibition are organized around six themes that address vehicular culture, signs, space, energy, speed, and autonomy, offering a view toward today's emerging technological developments and exposing our vulnerability in the face of the horsepower and political power that drive mass movement.

### Culture

Cars are objects of desire, tied to personal identity and presented as extensions of the individual. Automobile manufacturers and advertisers pitch cars as the epitome of convenience that increases freedom of mobility and individual autonomy, while American novels, music, and films have glorified them. However, the lure of automobiles is more extensive than its absorption in general culture; cars are among the few material objects around which an entire culture has developed. In the United States, car culture took off in the 1950s through the growth of the car industry and the expansion of vehicle ownership. Car culture developed around hot rods, drag racing, NASCAR, and an ever-growing number of standard cars on the road. During this boom a wide array of buildings dedicated to automobile-centric experiences began to populate the vehicular landscape, including diners, drive-in restaurants and theaters, motels, and roadside attractions.

John Baeder's screen print *Market Diner* (1979) presents an example of the everyday automotive environment in the United States. While *Market Diner* idealizes car culture, its photographic realism also captures aspects of the complicated sociopolitical history that

developed around the car. The image oscillates between a nostalgia for the recent past and the grittiness of the lonely paved landscape. Car culture thrives on wistful sentimentality for the open road and classic cars, but in the lived experience of vehicle use, both in the 1950s and now, driving is altogether far less the luxurious adventure that car manufacturers and advertisers sell to the public. Stuck in traffic on a daily commute or working as a taxi driver, the experience of driving is—more often than not—a lonely, time-consuming, and tedious chore. The growth in the automobile’s popularity gave way to another central element of car culture: the great American road trip. As a central part of the American experience in the 1950s, road trips live on as part of present-day culture. One such journey that took place from 1989 to 1990 is portrayed in Irma Boom’s design for the book *James Jennifer Georgina* (2010). Nearly as thick as it is wide, the yellow monolith fans out into an array of 1,200 pages that document 268,162 miles traveled, including through the reproduction of 1,136 postcards and over a decade of a family’s history. Written along the lines of what might seem to be a classic road trip with an existential quest—akin to Jack Kerouac’s *On the Road*—the book presents fragments of the complicated tale of one stereotypical American family. In the words of wife and mother Jennifer, her husband James “was drinking himself to death. But he could drive a car from A to B, have a sense of pleasure and not drink—so in an irritable panic, I decided to take him on a road trip to dry him out.”<sup>1</sup> The postcards with motifs of tourism and travel complement and contrast with the social complexities the family faced in parallel to their motion across time and distance.

## Signs

In addition to the growth of car sales, American industry and the production of consumer goods experienced a phenomenal boom following World War II. The US economy expanded, shifting its factories from wartime production to the manufacturing of products to fulfill growing domestic desires. The expanding array of consumer products made way for advertising to become a thriving industry. During this period Andy Warhol worked as a commercial artist and illustrator. His later work as one of the most prominent American Pop artists centers around that same consumer culture—as both subject and conceptual framework—from his media manipulation of found images to serial repetitions of commercial products, all iconic in their ubiquity.

Bracketed within this attention to consumerism is Warhol’s interest in the ultimate objects of desire and conveyors of goods: vehicles. He produced screen prints of cars, trucks, and crashes, including *Truck* (1985), which depicts a semi barreling forward. The misalignment between its various silk-screened layers almost mimic the blurred effects of speed. The graphic flatness of the image resembles the printing on the side of the truck itself, which focuses our attention on these grotesquely colorful, hulking, animated billboards that are typically invisible in their omnipresence.

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<sup>1</sup> Jennifer Butler et al., *James Jennifer Georgina* (London: Erasmus, 2010), 6. See also James Jennifer Georgina (website) <http://jamesjennifergeorgina.com/>.

Signs in the vehicular landscape are not limited to discrete objects but form a continuous atmosphere. Informed by his trips between Los Angeles and Oklahoma City, Ed Ruscha cataloged this atmosphere in a collection of paperback books with a serial Warholian accounting of found objects or readymades selected from the vehicular landscape. Like instructional manuals or surveys, those books feature roadside scenography that is characteristically industrial, utilitarian, mundane, and even ugly. These mass-produced, cheaply printed books mirror the repetitive and disposable qualities of their subject matter. In his book *Every Building on the Sunset Strip* (1st edition, 1966), Ruscha presents two panoramic photomontages of LA's Sunset Boulevard in concertina format. The street front is littered with words in the form of commercial signage that creates a kind of super graphic field, akin to what Robert Venturi, Denise Scott Brown, and Steven Izenour later termed "decorated sheds" in their architectural publication *Learning from Las Vegas* (1972). The everyday content in LA, like Las Vegas, is iconic in its capitalist uniformity.

Noel Mahaffey's screen print *Night—Times Square* (1979) portrays an environment of a different nature: the gritty and dark New York City of the 1970s. Neon signs feature prominently, advertising restaurants amid seedy establishments. Veiled in a nighttime chiaroscuro, facades, figures, and van are only partially visible in the wash of colored light emanating from the signs. Despite the beautiful glow of lights, Mahaffey's image has a sense of foreboding. Reflected in it are the urban issues found in New York and many US cities at the time that were struggling with economic stagnation due to suburbanization and waves of crime.

## Space

With the car's proliferation came a litany of new urban spaces. Street photography, a genre dedicated entirely to the vehicle's domain and the adjacent pedestrian realm that forms around it, documents some such conditions, as can be seen in Garry Winogrand's photographs *New York City, New York* (1969) and *Beverly Hills, California* (1978). At the same time middle- and upper-class, predominantly white Americans began to leave crowded city centers and migrate to the rapidly sprawling suburbs. Automobiles made this possible, but not in isolation; a significant infrastructural expansion facilitated their success. With the development of the US Interstate Highway System, supported by the Federal Aid Highway Act of 1956, new arteries came into place. Individuals could travel greater distances from home to work, creating populous suburbs around cities throughout the country. Relocation to the suburbs was not universally accessible, however, with Black Americans being widely denied suburban home loans by the Federal Housing Administration.

Within cities, urban planners introduced highways that not only paved the way for the outflow of people and their tax revenue to the suburbs but also created barriers that divided neighborhoods and destroyed communities, often tearing down entire swaths of cities along racial and economic lines. The construction of public highways and the policies tied to them ultimately facilitated the privatization of mobility, further entrenched systemic racism, and instituted another layer of social inequities.

Ed Ruscha's series of photographs of the Sunset Strip and of parking lots (published in *Thirtyfour Parking Lots in Los Angeles*, 2nd edition, 1974; first published 1967) feature LA, the US city perhaps most informed by the car, resulting in its suburban-esque decentralized sprawl enabled by and dependent on highways. Architect Reyner Banham's reading of the city describes it as one in which "mobility outweighs monumentality."<sup>2</sup> Ruscha highlights this dominant quality of LA, turning his focus to its ubiquitous parking lots. Though designed to facilitate movement, the lots are notably still and empty. The photographs show "a geography of blank spots" throughout the city, vacant in the early morning with only their super-graphics, striping, oil stains, and tire marks signaling use.<sup>3</sup>

These collections of images encapsulate the documentary nature of Walker Evans's photography, the bleakness of Edward Hopper's paintings, and the clean typological indexing of Bernd and Hilla Becher's photographic series, infused with Pop graphics and the bravura of the Hudson River painters. In its avoidance of strict categorization and focus on the vehicular landscape, *Thirtyfour Parking Lots* disrupts our distracted perception of that landscape, yielding parallel examinations of the banality of these functional constructions and the sublimity of their magnitude.

Although infrastructure is in the service of function and rapid transport, that very immensity that Ruscha captures has a different relationship to time, one that sits between an architectural and a geologic scale. Characterized by a resistance to change, these enormous networks are intractable and immovable for decades or even centuries. The damage that highways have done in cities and society exemplifies that what determines the success of these instruments of mobility is not objective and that their ramifications should be examined before implementation. Infrastructure requires futurity that accounts for its political motivations as well as its social and ecological impacts.

## Energy

While networks of highways fueled industrialization and built the US economy, they also led to a significant decline in the use of mass transportation for both people and goods. With this shift to individualized transit came an overwhelming increase in the demand for fuel. In *Twentysix Gasoline Stations* (3rd edition, 1969; first published 1963), Ed Ruscha collects a compendium of photographs of the stations that provide this valuable resource. Each photo features a single service station that, like the paper of the page, is made entirely of thin surfaces, all decorated by text in the form of advertisement and information. In Ruscha's photos, however, the camera angle is typically low to the ground, foregrounding the pavement so that it constitutes half of the image and placing the otherwise insubstantial, paper-thin stations in an extreme

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<sup>2</sup> Reyner Banham, *Los Angeles: The Architecture of the Four Ecologies*, rev. ed. (Berkeley: University of California Press, 2001), 143. Quoted in Susanna Newbury, "Thirtyfour Parking Lots in the 50 Fragmented Metropolis," in *Everything Loose Will Land: 1970s Art and Architecture in Los Angeles*, ed. Sylvia Lavin with Kimberli Meyer (New York: Distributed Art Publishers, Inc., 2013), 52.

<sup>3</sup> Newbury, "Thirtyfour Parking Lots," 55.

perspective. In this viewing angle, the stations are granted a monumental stature, one that is appropriate to a building holding what are, arguably, the most sought-after liquids in the world.

The oil that is refined to create gasoline and, ultimately, burned in an internal combustion engine to generate propulsion and forward motion, creates a host of complications. Chief among them is environmental degradation due to rampant pollution. Transportation is a primary cause of the global climate crisis and is exacerbated by inefficient modes of transit like automobiles. Vehicle pollution is responsible for the early deaths of tens of thousands of Americans each year, and extracting fuel by building pipeline infrastructure is damaging to ecosystems. All these losses are invisibly subsidized in their disconnection from the cost at the pump.

Larry Stark's screen print, *May 16th, 1970* (1970), depicts in its foreground an Enco gas station sign, in its middle-ground the top of a tree line, and in its background a smokestack. The entire image is black and white except the red, white, and blue Enco sign, emphasizing the logo's graphic quality and priority in the picture. At the time this print was made, Enco, Esso, and Humble stations were only two years away from undergoing an extensive rebranding as Exxon. The sign operates as a tombstone of a now-dead icon, marking the waste that accumulates in the constant renovations of advertising. Its subjects—trees, smokestack, and gasoline station—make an implicit observation of the consequences of automobiles and industry on the environment.

Ron Kleemann's *Gas Line* (1979) situates the viewer just behind a New York City yellow cab in a line of cars that wind around an urban lot. Drivers wait to fill up at the austere white gas station, decorated only with the green letters spelling "Hess Gasoline." Fittingly, the artist depicts the consumer luxury of the car with exacting precision and attention to its shine—emphasizing the glossy reflectivity of chrome, glass, and automobile paint—that it is akin to a gilded icon. The economic hold of automobiles extends beyond their body to the liquid gold petroleum upon which they rely. The print documents one of the effects of the 1979 worldwide oil crisis resulting from the Iranian Revolution. While the global oil supply decreased only slightly, there was widespread panic that drove consumers to the pump, increased prices, and resulted in economic recessions in the US and many other countries.

Kleemann's work captures one of many historic crises emerging from American and global dependence on oil. In our energy-centric world, control over oil and gas equates to geopolitical power for some countries and economic vulnerability for others. Countries dependent on energy imports rely on those with surpluses, often leading to external involvement in exporters' internal conflicts to prevent supply disruptions. The desire for resource control leaves the world vulnerable to economic crises, military entanglements, and wars that cause untold numbers of innocent casualties.

## Speed

The encumbrances of time and distance have been decreased by the automobile and infrastructural networks, but speed comes with risk. The art historian Sydney Pokorny noted that the theorist Paul Virilio's analysis of speed assigns to it the power of "dissolving human will, producing an accelerated world filled with passengers locked in a zombie-like trance...a 'dis-appearance into a holiday where there's no tomorrow,' an endless rehearsal of today's stretched out and held over indefinitely."<sup>4</sup> In the frenetic condition produced by the automobile, human will and agency are, to some extent, lost. Yet we still find ourselves bound to the allure of speed in our pursuit of perpetual motion through a destabilized context.

The desire to go fast, and to watch others move at high speed as in recreational racing, not only outweighs the violent nature of speed, it is motivated in part by the danger of a potential collision. Robert Stanley's painting *Crash, 1966 (Indianapolis 500)* (1966) and Doug Aitken's film *fury eyes* (1994) present us with a picture of acceleration's allure. Aitken's film underlines that the will to speed is tied to the desire for control and dominance, particularly as it relates to the figure of the white American male. The film's opening text introduces its content: "On August 13, 1993, at Palmdale International Raceway, Ron Fringer plans to ride a motorcycle running on 99% methanol and 1% alcohol at 190 miles per hour." The attainment of speed would seem to be the dominant focus, yet the slow-motion footage never affords us a view of the film's promised peak velocity. The camera mounted on the motorcycle faces the driver's chest, creating a picture that appears static, only offering hints of acceleration through the motor's roar and the wobbling of the recording. At 175 miles per hour, however, the video's capacity to record breaks down, and the picture becomes illegible, ultimately revealing a loss of control.

Ruscha's *Royal Road Test* (3rd edition, 1971; first published 1967), completed with Mason Williams and Patrick Blackwell, reflects on the nature of speed's destruction, but with entirely different parameters. On "August 21, 1966, at 5:07 P.M.," in "perfect" weather, Ruscha performed a *Consumer Reports*-style crash test, dropping a vintage typewriter from a 1963 Buick LeSabre traveling ninety miles per hour along US Highway 91. The project's title references both the typewriter manufacturer and the Royal Road—"the original highway" of the ancient Persian Empire, now an aphorism for efficiency. The book is a face-off between two machines—car and typewriter—and a confrontation between the two dominant linear threads in Ruscha's work: words and the road. Like an ironic forensic catalog documenting the typewriter's parts strewn across the southwestern landscape, the book traces the material evidence of speed's destructive power.

The wall-mounted sculpture *Hanging Herm* (1974) by John Chamberlain reveals the fragility of a car's metal enclosure. To create this work Chamberlain crumpled a selection of painted or chromium-plated steel scraps from the body of a car, compacting the large-scale, flat sheets

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<sup>4</sup> Sydney Pokorny, "Doug Aitken," *Frieze*, November 6, 1994, <https://frieze.com/article/doug-aitken>. Quote from Paul Virilio, *The Aesthetics of Disappearance*, trans. Philip Beitchman, (New York: Semiotext(e), 1991), 65.

into a compressed, three-dimensional sculpture. Metal is malleable and can be crushed, underlining that the fact that, despite the sleek, powerful affect of its design, the car is nothing more than a destructible and destructive object. *Crash*, *Royal Road Test*, and *Hanging Herm* hint at the most dramatic consequence of vehicular speed: injury and death. Vehicle crashes are one of the leading causes of avoidable injury and death in the US and are the number one cause of death among the young.

Arnold Odermatt points our view directly to our vulnerability in the face of speed. His black-and-white photographs, like *Hergiswil* (1968) and *Dallenwil* (1977), capture the aftermath of motor vehicle accidents. From 1948 to 1990, Odermatt worked in the Swiss canton of Nidwalden as a police photographer and was a pioneer in this undeveloped field. Odermatt empties the image of everything but the forlorn wreck and contrasting picturesque landscape. In *Dallenwil*, a disfigured white Mercedes is folded around a telephone pole. Like Chamberlain's sculpture, the metal of the car is contorted and refitted with an almost Cubist effect. The vehicle is situated alongside a bucolic field of flowers, standing in sharp contradiction to the violence of the crash.

In *Hergiswil*, a submerged black Volkswagen Beetle is shown being lifted out of a lake beneath the Swiss Alps. It resembles a Weegee or Mell Kilpatrick photograph, absent any unaffiliated onlookers. The terraced roadway towers above, mirroring the profile and enormity of the mountains beyond and expressing the sublime power of infrastructure and the speed it facilitates. The pictures cast the car as a memento mori, one that exposes the fragility of steel, glass, us, and our world in the face of automotive speed.

## **Autonomy**

With the automotive past still largely present today, new technologies are actively being introduced into the vehicular landscape. Navigation—like Global Positioning Systems and web mapping services—play a significant role in our day-to-day travel. In these systems, cities amount to matrices of relations, where data is charted to virtually replicate the real. These data interfaces are not merely reflections of the world; they become worlds themselves, ones that are generative and active, tracking and reacting to our movements within them and, consequently, affecting political, economic, ecological, and social realms.

The kinetic sculpture *Float* (1972) by Robert Breer is an early example of a self-navigating object. *Float* is part of a series of the artist's sculptures that are akin to exhibition vehicles in parades, as the title suggests. The sculptures move silently and at an almost imperceptible rate of speed, with hidden mechanisms that make them appear to hover just above the ground. The *Floats* are minimal, often neutral-colored forms. Their apparent abstraction, however, is overshadowed by a robotic surrealism and uncanny figurality that surfaces in their movement. Breer's objects glide with a "gentle *détournement* that defunctionalizes the expressions of

commodity culture and grapples through the medium of motion.”<sup>5</sup> Altogether contrary to the contemporary proclivity for speed and efficiency, these sculptures allow for a rarely experienced slowness, reshaping our expectations of mobility and attuning our attention to the navigation of space over time.

Breer’s motorized sculptures, neither programmed nor computerized, move at random, changing direction only when they encounter surrounding objects. Nevertheless, their automated movement anticipates the significant changes underway decades later in the emergence of advanced self-navigating vehicles. Chief among these are autonomous vehicles, drones, and autobots that are shifting the predominance of human visual perception toward machinic data-driven navigation.

These technologies present a host of new issues in the vehicular landscape. Autonomous driving has gained purchase in the automotive industry and promises to improve safety and reduce vehicle emissions. Autonomous vehicles, however, employ artificial intelligence systems susceptible to malicious attacks; they are reliant on programming that could be adversely influenced by economic over public safety concerns; and, without a concerted effort to advance mass transit and ridesharing systems, they could vastly increase the number of cars on the road by decreasing the cost of individual transit since, unlike taxis, Uber, or Lyft, they are not dependent on human labor and its associated costs.

Most problematically, artificially intelligent vehicles of the variety revealed in Trevor Paglen’s photograph *Untitled (Reaper Drone)* (2010) have been used in the implementation of military actions and surveillance. In this photograph of a sky at sunrise, softened by passing stratus clouds above the Mojave Desert in Nevada, there is a nearly imperceptible black speck. In contrast to the picturesque beauty of the image, its parenthetical title reveals its sinister subject. The black dot is an unmanned aerial vehicle, more specifically a General Atomics MQ-9 Reaper Drone, also known as Predator B. Operated by the United States Air Force, its primary roles include military activity, renditions programs, extralegal wars, covert surveillance, and hunt-and-kill missions, often in countries with which the US is not officially at war. These are contemporary versions of the military entanglements fueled by oil that Kleeman’s work highlights.

The mobility of our time is unique in its independence from human intervention and sight but is still entangled with social, political, and economic realities. Autonomous vehicles depend on energy, data, and their neural network. Machine vision and remote sensing facilitate their navigation with multicamera attachments and sensors. The images generated by these technologies are not “seen” as a gestalt but interpreted based on their pixel configurations as they relate to large data sets of existing images and read in combination with other sensors. Both motion and vision are automated and can be digitally mined for information. While that

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<sup>5</sup> Sonia Bridge, “Robert Breer: Single-frame Aesthetics and Inherited Modernisms in Relation to the Neo-avant-garde and Debates on Film Animation,” PhD thesis, University College London, 2016) 28, [https://discovery.ucl.ac.uk/id/eprint/10024629/1/Bridge\\_ID\\_PhD-thesis\\_REDACTED-version.pdf](https://discovery.ucl.ac.uk/id/eprint/10024629/1/Bridge_ID_PhD-thesis_REDACTED-version.pdf).

data is required for autonomous systems to function, governments and corporations may use it in surveillance for financial gain, “unambiguously serving (their own) interests at the expense of vulnerable populations and civic life.”<sup>6</sup> Paglen’s work leaves us with a sense of the sublime incomprehensibility of an endless sky potentially full of drones, the scale of data they are amassing, and the invisible networks of power activating and activated by them.

At the dawn of the era of artificial intelligence and in light of the pending broad use of autonomous vehicles, it is crucial to assess how cities can address new technological imperatives and ongoing sociopolitical and environmental problems tied to the legacy of the car. It is possible to imagine a very different vehicular landscape, one that aims to reduce or eliminate the negative impacts of car culture and environmental damage through energy-conserving transit. With architecture and urban planning that prioritize public over commercial and private interests, and the thoughtful incorporation of autonomous mobility that accounts for infrastructural and spatial considerations, our world might be one in which the individual mobility and freedom that the car provides no longer come at the cost of social and collective liberty.

*The Autonomous Future of Mobility*, the fall 2020 Teaching Gallery exhibition at the Mildred Lane Kemper Art Museum, is curated by Constance Vale, assistant professor of architecture in the Sam Fox School of Design & Visual Arts, in conjunction with her fall 2020 undergraduate studio class of the same name.

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<sup>6</sup> Trevor Paglen, “Invisible Images (Your Pictures Are Looking at You),” *The New Inquiry*, December 8, 2016, <https://thenewinquiry.com/invisible-images-your-pictures-are-looking-at-you/>.