

The Future That Never Was

Lessons from Visions of Transportation



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The cover illustration on the February 1951 issue of *Popular Mechanics* depicts a man returning from work and parking his compact yellow helicopter in the garage of his suburban home. The magazine article promises that personal helicopter coupes soon will be the cure for traffic congestion. The personal helicopters were reported to be in production but were prevented by the Korean War from entering the civilian market, where they were expected to sell for not much more than a medium-priced car.

Joseph J. Corn, senior lecturer in the Department of History at Stanford University, pointed to the helicopter coupe as an example of a transportation visionary's prediction that never materialized. Corn was the opening speaker at a session titled, "Yesterday's Tomorrows: Past Visions of America's Transportation Future," at the 2003

TRB annual meeting and cocurator of a traveling exhibition with the same title for the Smithsonian Institution.

The session, sponsored by the Committee on Transportation History and organized by Lyn Long, a research specialist at the Institute of Transportation Studies at the University of California, Irvine, attracted an overflow crowd. William Withuhn, Curator of Transportation for the Smithsonian Institution, Washington, D.C., served as moderator, and in addition to Corn, speakers included Mark S. Foster, Professor of History at the University of Colorado at Denver; and Gregory L. Thompson, Associate Professor in the Department of Urban and Regional Planning at Florida State University. Martin Wachs, Director of the Institute of Transportation Studies, University of California, Berkeley, served as the discussant for the presentations.



Influential visionary Lewis Mumford (1895–1990) advocated transportation strategies that would preserve “the living tissue of the city.” He was cited frequently as a source and an example in the TRB session. (Photo courtesy of Murry and Leonie Guggenheim Memorial Library and Sophia Mumford Estate, Monmouth University.)

Three Fallacies

In a conversation after the session, Long spoke about failures to appreciate the strength of a vision. She noted the example of the computer: “In the 1940s, designers of the early mainframe computer insisted that there would never be a market for the device among consumers, because computers were too large and complicated to be operated by the average person. They predicted that 5 or 10 computers easily could meet the country’s needs for the foreseeable future. It took young visionaries like Steve Jobs, Steve Wozniak, and Bill Gates to see beyond this and make the changes that have put personal computers in virtually every home and office.”

According to Long, proposals for the future always provoke “a battle between technocrats and visionaries.” Moreover, in democratic societies, few individuals voluntarily will adopt a technically or socially feasible innovation that does not meet personal needs or desires. “When the future is on trial, the ultimate judge always will be the consumer,” Long observed.

In his talk, Corn, who teaches the history of technology, elaborated similar themes. Transportation visions from the past generally suffer from at least one of three fallacies, he said. For example, the vision for the helicopter coupe commits the “fallacy of the technological fix, a utopian assumption that a vehicle that flies will somehow eliminate traffic congestion.”

The picture on the magazine cover shows a man in an overcoat and fedora sliding his helicopter coupe back into his suburban garage. The shadows and the man’s appearance indicate arrival home in the midafternoon after an easy flight. Only one other helicopter coupe appears in the sky, suggesting that rush hour in a helicopter is quick, efficient, and carefree.

Another fallacy in the vision of the helicopter coupe is the promise of social continuity, “the expectation that technology will change radically in the future, but social behavior and relationships will continue unchanged,” Corn explained. “The illustration depicts a tomorrow in which male breadwinners commute in helicopters instead of in Chevrolets or Fords, but everything else remains the same.”

The third fallacy Corn identified is the expectation of a “total technological revolution”—the “prophets assume that a new advance will completely supplant an earlier technology.” Instead, he noted, “the new inventions stimulate improvements in old technologies and end up coexisting with them for long periods of time.” The steamship, for example, did not render sailing ships obsolete but spurred improvements in design and size, so that sailing ships could operate profitably into the 20th century.

Conspiracy or Convergence?

Any one of the three fallacies may cause a transportation planner’s vision to fall short, but planners often are blamed unjustly in revisionist histories, according to Foster, author of *From Streetcar to Superhighway: American City Planners and Urban Transportation* and *A Nation on Wheels*.

Lewis Mumford, the renowned writer on architecture, urban planning, and technology, for example, claimed that planners and engineers had allowed mass transit to deteriorate and had helped to destroy the “living tissue of the city” by building superhighways and massive parking garages. Mumford articulated a conspiracy theory alleging that the automobile and oil companies deliberately sabotaged public transportation companies, particularly the railways, to promote car ownership and increase the sale of gasoline.

History, however, does not substantiate these claims, Foster noted: “In 1903 mass transit companies were not considered victims, but predators. Privately owned mass transit companies ruled the city streets and enjoyed close and intimate involvement with urban political machines.” Graft was common practice for monopolistic companies extending their routes, the speaker said.

Automobile manufacturers, in contrast, were the “little guys,” producing “only a handful of cars weekly, mostly for the wealthy.” Automobile technology lagged behind street rail technology for nearly two decades. Meanwhile, street rail ridership reached 17.2 billion in 1926—the highest peacetime peak until World War II.

Nonetheless, automobiles were viewed as an environmental improvement over horses—horses not only left manure and urine in the streets but often died in harness and were left to rot in the open. When automobile



Street rail technology predominated over automobile technology for nearly 20 years in the first part of the 20th century. Above, vintage postcard of streetcars in Norwich, Connecticut, circa 1905. (Photo courtesy of Thomas J. Dodd Research Center, University of Connecticut.)

Historic Effort to Conserve Transportation's History

ALAN E. PISARSKI

“We need to establish ways to conserve our history for the future benefit of the transportation community—that would be the main challenge of the task force.” This statement of purpose, in a 1995 letter to TRB Executive Director Robert E. Skinner, Jr., led to the establishment of TRB’s Transportation History Committee, first as a task force and then as a standing committee in the Technical Activities Division. Past Chair and longtime member of the TRB Executive Committee Lester A. Hoel of the University of Virginia played a key role in developing and advancing the idea for the committee.

At the time, TRB was about to mark its 75th anniversary, underscoring the need for and the value of maintaining an historical understanding of transportation and its related professions. Since its establishment, the committee has worked to promote appreciation and understanding of transportation history.

Shared Heritage

Most TRB technical committees provide a forum for professionals in a specialized field to meet with peers to exchange research-related ideas, strategies, and concerns. The Transportation History Committee fills that role in a limited way for archivists, museum curators, historians, and transportation professionals. A shared interest in history binds together the members’ disparate professional interests.

But the committee plays a broader, more significant, role by instilling in the transportation community a greater interest in, and appreciation for, a shared heritage. The committee’s primary goal is to establish a recognition among transportation professionals of the importance of maintaining a sense of history and of preserving historical archives. In pursuing this goal, the committee employs the skills of its members to place before the TRB community stimulating, useful, and fun ideas from transportation’s past.

The accompanying article by Cosgrove and Orrick describes a superb example of that goal at work—the well-attended TRB Annual Meeting program, “Yesterday’s Tomorrows,” developed by Lyn Long, a committee member. Long creatively assembled an extraordinary cast of speakers who presented intriguing and rewarding ideas.

Formidable Agenda

Although the committee can point to several significant accomplishments in its brief tenure, the tasks still on the agenda are formidable. One of the original stimuli for convening the committee was the need to capture the understanding and insights of many leading transportation professionals now reaching the age of retirement.

Recent experiences have demonstrated the richness and the fragility of the knowledge, recollections, and personal papers of some of the profession’s longtime leaders. The com-



The TRB History Committee seeks to encourage recognition and preservation of historic transportation sites in every state. Above, archival photograph shows construction of the Whiting River Arches, East Canaan, Connecticut, circa 1870. (Photo courtesy of Thomas J. Dodd Research Center, University of Connecticut.)

mittee is developing strategies to assemble, record, and archive the thoughts, ideas, and wisdom of distinguished elder achievers.

One related committee project open to all is the compilation of lists of transportation-related historical sites in each state. Maryland has provided an initial example to serve as a stimulus and model.¹

Other challenges include assembling the experiences and historical records of state transportation institutions, as many approach 100th anniversaries. A clear understanding of the past efforts and achievements at the state level can inform and enhance current and future initiatives.

The Transportation History Committee invites participation and interest in pursuing these challenges.²

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¹ <http://gulliver.trb.org/committees/ABG50TTS.pdf>.

² See the History Committee web page, <http://gulliver.trb.org/committees/ABG50.pdf>.



Cars and streetcars through intersections at New York City's Times Square, circa 1930.

traffic began to overwhelm cities, urban decision makers relied on technological fixes—the first fallacy according to Corn's analysis. Starting with mounted police, then stationary police and manually operated traffic signals, the solutions moved on to mechanical signals, synchronized lights, and multilevel traffic arteries, like New York's West Side Highway.



The vision for San Diego's trolley defied the odds, succeeding in a decentralized city with a high level of car ownership. (Photo courtesy of San Diego Metropolitan Transit System.)

Between the World Wars, these approaches could be implemented more quickly and cheaply than subways and high-speed rail programs. Moreover, the approaches did not encounter resistance from politicians who wanted to avoid the perception of serving the downtown business interests that would benefit from mass transit. Street widening and expanding the road network created tangible benefits from the voters' perspective.

Contrary to the conspiracy theory, the reason that cars took over the American landscape was a matter of historical forces, Foster maintained: "The convergence of the timing of technological advances, the free enterprise system, and democratic decision-making made the triumph of the automobile almost inevitable in the first half of the twentieth century."

Discontinuity and Innovation

Transportation visionaries are not always thwarted, according to Thompson. In the 1950s, the recent past would have offered little hope for a new type of rail transit. Yet long after the triumph of the automobile and the disappearance of the streetcar, antifrewayay, prorail movement started up, spurred by the political activism of the 1960s.

The visionaries responsible for the renaissance included Stewart Taylor, a transportation consul-

tant in Pennsylvania who read *Modern Tramways*, a magazine that featured articles about the light rail movement in Germany and other Northern European countries. Taylor visited Germany, met with transit experts, then returned and wrote an article that appeared in a 1970 issue of *Traffic Quarterly*.

He cast his story in the contexts of the antifreeway movement, the widely perceived horrors of sprawl, and the need for an intermediate form of transit between automobiles and heavy rail that would be less expensive to build than regional rapid transit lines. Taylor advocated the “rapid tramway,” which came to be called light rail.

In 1978 Edmonton, Alberta, became the first city in North America to implement modern light rail. Contributing to the breakthrough were the city’s healthy, municipally owned transit system, an unpopular freeway plan that would have obliterated several city parks, and the energy crisis of 1973, which enabled Alberta to command high prices for its oil reserves and to commit substantial funds to the light rail system.

No prophet could have foretold the success of light rail in San Diego, however, according to Thompson. Unlike Edmonton, San Diego was large and decentralized, served by a massive freeway sys-

tem. Car ownership was high, and the city’s arterial system was well developed.

But State Senator James R. Mills of San Diego County also was a reader of *Modern Tramways*, and he also visited Germany. Mills convinced the San Diego planning agency to consider light rail. Since the launch in the summer of 1981, weekday boardings on the 47-mile system have reached 75,000.

Thompson described the early proponents of light rail as visionaries who were “highly enthusiastic about their mission, public servants in the best sense of the word.” None was motivated by personal financial gain.

Vision Is Alive


Reflecting on the presentations, discussant Wachs maintained that visionary thinking is still at work, despite observations by critics that transportation planning is mired in formulaic approaches. For example, Michael Brooks, a professor of planning, had “decried the fact that the future is not what it used to be.”

Brooks maintained that the fields of transportation engineering and urban planning once “were dominated by visionaries, like Daniel Burnham and Lewis Mumford, whose visions were powerful and could move us and the future forward.” Brooks also argued that those visions achieved a necessary “disconnect”



Light rail transit vehicle crosses a dedicated bridge in Edmonton, Alberta, Canada, which proved the viability of a vision for “rapid tramways” in North America. (Photo courtesy of Edmonton Transit System.)






from the present; today's planners, by contrast, employ mathematical models that project the present into the future, no longer "envisioning a future and making something new from scratch."

"Brooks saw this as a terrible change," Wachs reported. "He concluded that the future is dead."


Wachs, however, disagreed: "This is a misunderstanding of what is happening—the coupling of Thompson's presentation on the emergence of light rail with the presentations by Corn and Foster makes that clear. In the past, vision emerged from a few intellectuals and appeared clear because maybe three or five percent of the population wrote or read about that vision."

But Wachs warned against romanticizing past descriptions of the future that issued from small groups: "Corn mentioned the democratization of thought about the future—that is important. Vision is alive in our field."

Competing Visions




Wachs drew two examples from his experience as director of a transportation research center: "My staff believes that resolving traffic congestion requires a dramatic discontinuity—the application of telecommunications, that is, intelligent transportation systems (ITS). They see a future of electronic toll collection and automated highways."



But "on the other side of the campus," he reported, graduate students in city and regional planning "talk about smart growth—they think the future of our cities requires transit-oriented development, discouraging the use of the automobile, encouraging higher density of settlement, and penalizing the profligate use of energy."

The two different visions "are powerful," Wachs observed. "We live with both visions daily, but we do not think of them in the same way we think of the visions of Burnham and Mumford." Instead, he said, people with competing visions work through governmental agencies and a complex democratic process to select and set priorities.

"We learn from criticizing one another's visions," he added. In Wachs's view, the latest visions have moved away from technological fixes to sustainability, in response to concerns about equality and environmental protection.



"The three visionary fallacies that Corn identified—the fallacy of the technological fix, the fallacy of social continuity, and the fallacy of total technological revolution—are hard to escape, whether looking forward or backward," Wachs said. "The commitment to ITS is a kind of technological determinism; but the notion that smart growth will solve all social economic problems in cities is a kind of physical determinism

that also falls short of the mark."

Spotting the fallacies is valuable in weighing debates about the future, Wachs noted: "It helps me see the shortcomings as the two sides line up—the future reflects the shortcomings in our visioning efforts. As Thompson pointed out, light rail transit in the United States was a movement, a product of a vision that might be described as discontinuous with the past. Many who were critical of light rail investments 10 and 15 years ago—and I was one—looked at the cost-benefit analysis and argued that the money could have been better spent on another form of transit or for another type of policy."

The Vision Emerging

Wachs distinguished an emerging trend in policy making, of "not favoring one technology over another but one mode of analysis over another—analysis is important, but in the end we will make decisions that sometimes override the analyses. We are moving away from technology and technological fixes as the centerpieces of our competing visions. Emerging is another vision, the vision of sustainability, which embraces concerns about environmental quality, environmental protection, and access for all groups of people. Technology is less in the center—in some ways, the emerging vision is critical of technology as a panacea."

Wachs concluded by applauding the panelists: "You have inspired visions of visions, which shows that this concept is valuable as we look into the future."

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