HISTORY OF THE ROADWAY

Introduction

The history of roads is the history of the needs of men. Roads express the desires, direction and purpose of the societies they serve. The common term "way" illustrates this clearly.

The English term "road" is derived from the act of riding a horse. The term "way", however, implies the means, the path, the opportunity to reach a goal.

"Ways" came about for different purposes and express this in their form. For nomadic man the hoof led the way and established paths of least resistance between sources of food, water and shelter. Once agriculture was established the paths were those made by domesticated animals on their way to the fields. With the invention of the wheel by the Sumerians came speed and the need for smooth, level, hard paths. With the wheel too came more freight. Commerce. Trade. Defense.

The Sacred Ways in ancient Greece were ceremonial paths leading to oracles through which one could communicate with the gods. At the end of the road a temple stood, each dedicated to a god, whereas, the Royal Way in Egypt was a sacred procession leading to the temples along the Nile and from there to everlasting life after death.
Civilizations powerful enough to would reach out along paths. The better the roads the farther the reach. Twenty-nine military roads, the *viae militares*, radiated from Rome. These "Ways" stretched 53,000 miles, connecting the capitol with the frontiers. They were laid out on a grid and garrisons were placed at intersections. These military roads, which are such engineering marvels, made no attempt to integrate with the land as they proceeded as straight lines from point to point regardless of natural or man-made obstacles.

In Europe the Roman empire was followed by the Middle Ages and there would be no great projects for a thousand years. With decentralization came the diverse connecting road patterns needed for fiefdoms. No longer did all roads lead to Rome. Trade between Europe and the Far East ceased.

In the same period in South America, the Incas established roads through the Andes with spectacular suspension bridges and masonry. The Incas were only one small tribe that was able to dominate many others. Its main weapon was the passage of information along a dependable highway system. The roads are still used today.

**Early American Roadways**

The American colonies relied on water routes principally. The land was so heavily timbered and distances were so great that roads were unfeasible. Gradually post roads were established...
for mail traffic.

The first dependable roads were the turnpikes - toll roads commissioned by the state with the profits going to the owner/operator. This early turnpike era had much in common with one later in the 1940's. In both periods the turnpikes were the finest quality roads available. And they prospered during times when the demand far exceeded the government's capability to supply funds for roads.

The first roads to head west through the Appalachians, such as the Cumberland, were meant to stop the French from holding the interior, or, like the Natchez Trace, to provide insurance in case of trouble with Spain over New Orleans. The waves of pioneers that settled the Midwest traveled over roads blazed by the military. The Cumberland, for instance, was extended to become the National road and reached as far as the capitol of Illinois. Trails across the far west, such as the Santa Fe Trail and the Mullan Road, were laid out by the army and were the only ways available to settlers.

Most of these roads have their origin in the routes established by wildlife. The hoof, the foot, the wheel. Man followed the herds, now he follows the market.

In the years between 1850 and 1900, 1.5 million miles of rural roads were built, mainly on section lines. These were the paths between farms. The important lines of transportation were the
railroads. Wherever possible, the railways paralleled the roadway but this was the age of steam and the roads could not compare, let alone compete, with the rails.

**Dawn of the Motor Age**

Enter the automobile. From the 1890's on, there would be pressure by owners and manufacturers of cars to improve highways. As late as 1907 there were only 152,662 miles of surfaced road in America. Groups such as the American Automobile Association and the American Highway Association worked for the sake of smooth travel by car.

Trucks were produced in large numbers for the first time during WWI. They were needed for transport and were indispensable for mobilization. The trucking industry took freight away from trains and the large truck is still the principal freight handler in America. The increased burden on highways demanded new attitudes and dimensions in highway construction.

So did the post-war industrial surge and the production of autos. The period between 1921 and 1929 saw the development of the commuter routes The Mount Vernon Memorial Parkway and The Bronx River Parkway. Both were masterworks that could have been paradigms of all highway construction afterwards.

In 1939 the U.S. began rearming for war. The War Department reviewed its strategic highway map, prepared by the Army in
1922. What was obvious was that thousands of miles of road and 2400 bridges failed to meet the standards necessary to move military equipment. 1941 brought the Defense Highway Act and its strong-arm merger of federal and state money. The next year the Interstate Commerce Commission was given the power to set uniform truck weights and sizes. Then in 1944 the Federal Highway Act brought even more money to the fore. Still missing, however, was a true commitment and coordinated effort between the states and the federal government.

After VJ Day the American economy changed and the peace-time demand for automobiles was as never before. Production jumped from 69,532 in 1945 to 2.1 million in 1946, 3.5 in 1947 and 3.9 million in 1948.

The nation's highways were too narrow, too structurally weak, too poorly paved. Overloaded trucks had seen widespread use during the war. The suburbs, growing fast because of private transportation, demanded more and more ribbon. Construction costs were inflated and engineers were in short supply.

**The Modern Toll Road Era**

Increased traffic meant increased revenue for the toll roads. Pennsylvania, Maine, New Hampshire and New Jersey had turnpikes that were fine roads that paid handsomely. The public was willing to pay for the privilege of good roads. Other states followed up with tollroads of their own.
All toll roads were access controlled. This significant change in form guaranteed little congestion from strip development. Later the Interstate would adopt this same form. Improvements included especially wide rights-of-way, independently planned lanes and smooth curves. All were to provide for speed, safety and amenities; but mainly speed. Access control as a policy for the Interstate was difficult until the toll roads set the standard.

The turnpikes, however, did not fit the bill entirely as a model for the Interstate. Different roads had different standards. Access was insufficient for local or short haul traffic. Perhaps most important was that the turnpikes were not free. This was not appropriate for the Interstate system. Today some stretches of Interstate are turnpikes, but generally that method of financing was rejected in favor of free access to tax-supported public road.

The Freeway

Freeways were and are an expression in America of a person’s right to travel. There is the inalienable right to freely move about and the freeway represents that to Americans. Leisure driving is America’s number one outdoor activity. Nothing comes close to the hours spent cruising in the car, touring scenic sites or just going out to be seen.

The freeway form allows the traveler to move quickly with little resistance. The citizen is free to roll on with no obstructions.
The free man is presented with the means, the tools to zoom around anonymously, snugly belted into the cockpit. This was sensed by the public and spurred interest in a modern Interstate. The Korean conflict, resulted in increased freight and an increase in vehicle registrations which pushed the highway systems to the limit.

Up to this time, roads were simply topped, widened and improved to accept the automobile and the increased traffic. They were, most often, roads that had long existed for foot traffic, later carriage, cart and horse traffic. They were upgraded after they had become obsolete.

The interstate was different. Here were miles of road, conceived, planned and built according to "modern" needs and safety requirements. Rights-of-way took commanded new routes and assumed forms resulting from the impact of modern travel. Where the freeway interfaced with urban patterns, the associated problems necessitated a major restructuring and redefinition of neighborhoods.

The Interstate reflects an important step reached by lawmakers in the forties - that it would be thought of as one large project - not many. That there would be a standardization and a uniformity throughout the states and that the federal government would be setting policy in terms of construction. That the form would be consistent and recognizable anywhere in the nation.
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The federal government would pay the majority of the cost, would set standards and see that they were enforced, would decide routes in general. The states would decide exactly where and how routes would be situated and would establish relative "need" for funding. The states needed a fundamental, though limited, control over the impact of the roads. Meanwhile, they agreed to take over much more responsibility in the planning and construction of secondary roads.

Perhaps the time was just right or perhaps the road movement needed a personality to coalesce its power and argue need. In 1950 Dwight D. Eisenhower became president. Eisenhower had unique insight into roads. After WWI, while still in the service, he was assigned to an expedition moving tanks and trucks across the country on the incomplete Lincoln Highway. That expedition took two difficult months. He had also witnessed as General and Commander of the Allied Forces during WWII the potential of Germany's Autobahn and Italy's Autostrade. He was able to carry out the inception of the largest peacetime construction program ever undertaken. He signed into law the Federal-Aid Highway and Highway Reserve Acts of
1956. They authorized 25 billion dollars for the Interstate system through 1969. Both the time frame and the amount proved to be miscalculations.

The I-system took many more years to build and is still not quite finished. There are, scattered around the country, access ramps to nowhere and overpasses that don't connect to anything. However, the national landscape is saturated with the freeway form.

The system follows basic transportation channels that have long existed, but because of scale and form has found opponents critical of the resulting environmental impact. The features which make the freeway safe for high-speed travel require and lay claim to, large areas of rights-of-way and cause great and long-term damage to the ecology of the surrounding landscape.

Some of the sensitivity to ecology, which was so evident in the 60's and 70's, grew out of movements begun to block certain highway projects. Where the highwayman talks access to natural beauty for the public, the environ-mentalists describe large-scale destruction of ecosystems and areas, and human congestion and overuse damaging areas previously pristine. The urban scene has the same sort of confrontations. The highwayman talks about access to the central city and the people in the neighborhoods talk of communities split, urban blight, air pollution, noise and traffic congestion.
A basic dichotomy exists between providing access and the congestion and demands that follow. The interface between the high-speed freeway and the lower speed streets is a friction zone. At the suburban level the strip architecture is devastating to the development of neighborhoods. Buildings and advertising of just about any kind are allowed on land along freeway frontage zoned as light industrial. Expressways have been enlarged by lane additions again and again, the result being enlarged flow and greater demands down the road.

Much has been written during these building years about the experience of traveling on and living next to the freeway. The driver's high-speed visual experience is explained and described in a number of texts. This kinetic, dynamic experience can be stimulating or hypnotic. Relative position and speed combine to produce patterns and rhythms that affect driver's perceptions.

Freeway architecture can be aesthetically appealing - some projects are the distilled essence of the forces of high-speed auto travel. Spiraling, slithering, sinuous ribbons down which the experience is one of constantly changing position in space. There sometimes is real choreography against a veritable stage set.

And sometimes the freeway is an experience of disorientation, anxiety or boredom. Sometimes the poor siting, or the commercial and industrial strip or the relative perception of speed will
ruin a trip. Too often it is a dirty no-man's land - smelly, noisy, dangerous, bleak, dreary - something to be screened out through the air-conditioning and the stereo.

All in all, the I-system today is an impressive project. There will always be grief for those special places lost forever because of the bulldozer. But it is difficult not to be a little awed by the length, breadth and meaning of this road.

It is one of man's most recent grand, socially oriented, progressive projects. It has the scale to stand up to some of the great works of the antiquities that we revere. At its best it enriches our lives. We have access to opportunity, recreation, education, wealth, and welfare over the roads. These physical connections manifest their purpose in the personal connections which result. They are a span across the space between people and are corridors for growth. At the same time they are the ties that bind us to our government, to centralized power. It certainly helps to strengthen the political clout of the federal government. Like the "ways" of the Roman Empire, the U.S. Interstate is a net of influence and control.

The Future of the Roadway

Futurists envision groups of people living in megastructures great planned communities with such things as transportation integrated with the structure. Automatic systems-controlling high-speed travel would be integrated with slower inter-urban
systems. Such large-scale planning, while providing convenience, security and order, would threaten the personal freedoms of the individual. A growing dependence on computers to control technology leads to an acceptance of it as a controller of men's lives. The use of the freeway corridors in the future may lose much of its romanticism when the individual ties himself to an electronic guidance system and gives up issues such as personal choice and skill.