Some Observations on Highway Transportation

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One of the evils of specialization is the tendency to restrict our vision. Each group concerned with its own problem creates its own little island of interest and limits its horizon to the boundaries of that island. Nowhere is this better illustrated than in the field of transportation. The point of this paper is to encourage insular groups to extend their horizon so that it includes at least a part of the view from the numerous other islands in our archipelago, on which other persons with equal sincerity and industry are pursuing their daily task. Such a view deflates our individual ego, and we begin to see that none of us are all-important, but that all are important. We then become more sympathetic with the other fellow's point of view.

Transportation is a basic requirement of people. It may be accomplished in many ways. It is possible for mankind to survive without any one of the known means of transportation, but not without some means. One of the most important lessons to learn is that the basic requirement is for the movement of persons and goods, and not the movement of the vehicles by which they are transported. A wide variety of choice is possible in the means of movement.

In the recent global war, the success of our armies in farflung parts of the world was due in a large part to transportation. Never before was such a transportation job attempted. Getting there "firstest with the mostest" is still a fundamental principle of warfare.

The romantic and thrilling part of this transportation epic was played on a worldwide stage, but a very large part was done here at home without fanfare or pageantry, and largely without arousing undue excitement. Those of you who remember World War I will remember that the comparatively small movements of men and material in that war were accompanied by great congestion and, at times, port areas were so congested that movement was practically at a standstill. The methods developed by the Army Transportation Corps in the last war prevented this and kept transportation in a fluid condition, assuring the right cargo at the right port at the right time and in condition to load.
Most of the credit for this movement has been taken by the railroads. They operated with fewer miles of track and less rolling stock than was available in the previous war, and carried an almost incredible amount of ton-miles of freight and passenger-miles of persons. They did a good job and richly deserve the plaudit "well done."

**IMPORTANCE OF HIGHWAYS IN WARTIME**

It was my happy privilege to serve three years—first as Chief of Highway Transportation and later as Chief of Operations (including both highway and rail transport)—in a nine-state area in the heart of America. In this capacity I was able to observe the unfolding of this transportation epic. It is my considered opinion that much of the difference in transportation efficiency in the two wars was due to highway transportation. That was the basic difference in facilities in the two wars. Remember that rail facilities remained about the same. Now let's consider highway facilities.

At the outbreak of World War I the "good roads" movement was just beginning to make progress. There were, at that time, no transcontinental highways, and most of our states had not yet organized state highway departments. There were only a comparatively few miles of paved rural highways. America was still crying, "Get us out of the mud." The use of motor trucks was just beginning.

In 1917 only 525,000 trucks were registered in the United States as compared to 4,911,500 at the start of the last war. Such trucks as there were in 1917 carried much smaller loads; were mechanically imperfect; and because of the absence of good roads their use was largely confined to movements in and near cities. The large van-type trucks, tractors, and semi-trailers were as yet unheard of. No buses were registered at that time, while at the start of the last war there were 54,382 revenue buses and 93,398 school buses. There were also over half a million miles of high-type paved roads, and over three million miles of roads of all types. Not enough emphasis has been placed on the part played by those highways and vehicles in maintaining fluid transportation in the last war.

Surveys in Michigan of 741 war plants of all sizes revealed that 65% of all incoming and 69% of all outgoing freight traveled over highways in motor vehicles. To a large degree the successful operation of these plants, and thousands like them, was due to the flexibility, the availability, and the dependability of highway transportation. While only about 12% of all registered motor trucks are operated by carriers for hire, an additional 66% are operated in commerce and industry.
In this latter group are the large motor fleets operated by the industries themselves, ranging in size from 12,000 trucks down. In 1941 railroads alone had 94,000 trucks in terminal transfer, store-door delivery, and inter-city service. In that year a grand total of 54 billion ton-miles of freight was carried by motor trucks. In the first 18 months of the last war commercial motor trucks carried 5,843,000 tons of army freight, and commercial buses moved 3,901,733 troops. As the military effort was intensified these services were greatly extended.

This should suffice to show the part played by the highway transportation in the war, and this was done in spite of some glaring defects in the system.

Highway transportation involves many agencies. Unlike railroads, which have all parts of each system under one controlling head and a closely knit association of all systems, highway transportation has the construction and maintenance of its traveled way under the supervision and control of 48 separate and sovereign states and the federal government, its rolling stock owned and operated by thousands of separate organizations, and its operating rules subject to change in every state and in many communities within states.

In observing its operation during the war, many defects became apparent. One of the most troublesome was the state barrier problem, created by varying standards of size and weight limitations and lack of reciprocity between states. Another was duplication of routes and services among carriers, cut-throat competition, and lack of proper interlining and cooperating arrangements. There appeared to be a tendency in some states toward the belief that construction and maintenance of highways is an end in itself rather than merely being a part of the nation's transportation system. In that viewpoint one sees this insularity of thought.

Handicaps to Truck Transportation

There are three basic components of highway transportation: roads, vehicles, and people. All three are needed for successful highway transportation. A basic need of society is the transportation of people and goods. No highway transportation system is good unless it performs the service required, and no road is good unless it provides good service. There has been and still is, in many places, a resentment over the use of roads by commercial trucks, in spite of the fact that movement of goods is a national necessity. We have grown into the habit, prompted in part by competing types of transportation, of building restrictions around highway transportation and disregarding its essentiality. Many absurdities crop out in our treatment of highway transport.
The question might well be asked why we continue to build highways for 20,000-pound axle-weight limit, when it might be demonstrated that a large segment of the users need 24,000-pound limits.

Do highway authorities consult with the users of highways in an attempt to build what the users need, or do they continue to use the same cross-section year after year and rely on arbitrary limits to keep down the size and weight of vehicles?

It is argued that variations in cross-section design and subsoil make it necessary to set lower limits than would otherwise be required. Isn’t this, rather, an argument for flexible limits suited to the individual road?

In my Army experience, the absurdities of some of these restrictions were glaringly apparent. The city of Denver is the breaking point for transcontinental truck shipments. Freight from the East comes into Denver from Chicago and St. Louis, across the plain states, and is transferred there to the mountain lines for shipment West. Trucks used in mountain transport are diesel outfits, much heavier than those used by carriers in the plains. To carry the same pay load, much heavier gross loads are necessary in the mountains. An arbitrary limit, set by law, for one part of the state, obviously does not fit conditions in the other part.

We also ran up against the condition that the only trucks available during the war for gasoline transport were too large to fit the state regulations, and if used partly filled, were dangerous because of shifting of cargo. Here is a place where manufacturers and highway builders could get together.

There was one celebrated instance in which I spent a merry two weeks acting as an Army-appointed arbiter in a dispute between the Colorado Motor Carriers and the Colorado Highway Department over size and weights of vehicles. The carriers had grown so desperate that they staged a strike, not a worker’s strike but a carrier’s strike. After two weeks of bickering a truce was signed in the office of Governor Vivian. I found both sides equally sincere and, in my opinion, equally wrong in that neither was making any attempt to view the other fellow’s problem.

The state of Iowa also developed a very effective way of hamstringing army transportation. They weighed the vehicles, and if one was a hundred pounds or so overweight the cargo was partly unloaded and left there, the operator was fined, and the load proceeded minus the part unloaded. Occasionally a cargo was loaded to conform to regulations and sealed under army seal. One was a load of machine guns. Enroute the cargo shifted so that one axle was overweight. The Iowa
authorities broke the seals, unloaded part of the cargo and let the truck proceed. I was sent into Iowa to see what could be done. As a result of my previous connection with the Indiana State Highway Department, I was received very graciously and informed that they had no intention of letting carriers tear up their roads in order to make more money. They stated very frankly that they wouldn't believe a carrier's statement of necessity, but they very readily agreed to grant passage to any load which I certified was essential to the war effort. From that time on we had no trouble in Iowa. Similar instances arose in Missouri and Kansas.

I hold no particular brief for highway carriers, but I do insist that highway transportation cannot reach its fullest efficiency until such differences are reconciled, and they can be reconciled if each group tries to broaden its horizon to see the other fellow's problem.

There was another case in Colorado which brought a lot of heat on me from top Army authorities for a reason which, at the time, I could only guess. There was a very secret project under way at Hanford, Washington. It later developed that it was an atom bomb project. Having inadequate housing facilities, they had purchased from a construction project in Galveston, Texas, several hundred house trailers. A carrier in Detroit was given the contract to transport them at once to Hanford. He put one trailer in a truck, and hooked one on behind, and started his caravan westward. All went well in Texas, but when the first unit hit Colorado it was stopped because it was overlength. The carrier called Washington, and Washington called me. I contacted the Colorado Highway Department. There was no question of overweight; it was a few feet overlength. They took the position that the carrier should unhook the trailer, cross the state to Wyoming, unload the trailer from the truck, go back and get the other and then proceed on the way. Such an operation was the height of absurdity. In the meantime the atom project was burning up the wires for release of the units. Finally, after about three days' delay, it was agreed to permit the movement on the payment by the carrier of a nominal permit fee of about $2 per unit. There must be a better way than that to get around such necessary movements.

**City Traffic Problems**

This same insularity of thought may be found in the planning, construction, maintenance, and regulation of traffic on city streets. Remembering again that the basic need is for movement of persons and goods, not vehicles—are we expending vast sums in a vain effort to pro-
vide a way for each person to get his individual vehicle to the center of the city, when such a movement may be accomplished more safely, more efficiently, and more cheaply in some other way?

When we speak of city traffic we think almost automatically in terms of vehicles, not people. Highway engineers are prone to think in terms of vast numbers of persons coming to the city daily in private automobiles. While this movement is considerable, it does not constitute a major part of any city's traffic problem. In large cities there are four chief means of movement that make up the city circulatory system: (1) walking, (2) transit vehicles, (3) private passenger automobiles, and (4) commercial vehicles for hauling goods.

The number of movements of persons and the total mileage traveled is in about the order named. Yet, practically every one, traffic engineers included, looks out of his office window, sees a congested line of automobiles each with its horn protesting the delay, and thereupon assumes that everyone is moving by private automobile. Let's look at an example.

It is estimated that there are now in Indianapolis metropolitan area about half a million persons. About 115,000 private automobiles are registered in Marion County. Perhaps 100,000 of these are in the city or close to it. If all were in use every day, making one round trip at average city loadings of 1.7 per vehicle, they would move 170,000 persons one round trip, or 340,000 rides per day. Indianapolis Railways carried, in 1946, an average of about 323,000 riders per day for each of the 365 days in the year. In order to carry these persons in private automobiles at present loadings, a total of 95,000 automobile round trips would be required. This would almost double the space required for movement. Obviously, no such street space is available, nor can it be made available. Parking facilities already strained to the breaking point would have to be increased to provide an additional 100 square blocks of off-street parking or over 2,000 sections on both sides of curb space to accommodate these vehicles.

It is evident, then, that cities must depend on transit vehicles for a large part of their transportation, and the larger the city the more necessary this movement becomes. Realizing this, is it not time that planning and traffic engineers review their circulatory plans to assist this movement of a large segment of these cities' population?

There is a widespread resentment on the part of private automobile drivers against trucks, and a corresponding resentment against transit vehicles. Instead of viewing these movements in terms of the companies who operate these vehicles, should we not view them in terms of basic necessity for movement?
The two biggest problems for city traffic engineers today are those of providing street space for movement and space either on or off street for parking. Both are expensive.

What do the transit rider and the transit vehicle require? Certainly they do not require parking space or expensive street widening programs. This movement does require and should be provided with the following:

1. Curb loading zones of adequate length to permit boarding and alighting from vehicles at the curb. Since transit passengers require no parking space, they should at least be entitled to enough curb space, kept free from parked vehicles, to permit loading at the curb.

2. A signal system that permits reasonable freedom of movement.

3. Restricted parking on narrow streets along routes.

4. Where street cars are still in use, the provision of well-lighted and well-drained safety zones of sufficient length to provide quick loading of passengers.

5. At unsignalized intersections, preferentiality for streets carrying heavy transit movements.

6. Establishing of loading zones, either near- or far-side, on a basis of safe and efficient operations rather than according to the whims of a few persons with selfish interests.

7. Larger turning radii to accommodate larger vehicles.

8. A selective maintenance program designed to keep transit routes in good repair and to provide prompt and efficient snow and ice removal.

9. Continuity of enforcement effort.

10. Provision for loading and unloading on express highways.

11. Routings that provide a minimum of turns.

12. Routing of parades on streets that will not disrupt transit movements, especially during peak periods.

13. Erection of traffic signals in some instances, even though national standards of warrants are not met.


15. Better street lighting.


17. Consideration of transit needs in all traffic movement changes before they are made.

It must be borne in mind that transit systems are public utilities and are required to operate as such. Their value lies in the quality of service they are able to give to the public. Their use is necessary to
avoid complete stagnation of movement and represents the only immediate hope for traffic authorities to keep abreast of traffic demands. Their continued use, when private automobiles become more plentiful, rests largely with the safety, comfort, and speed of their service. These things are governed to a great degree by their treatment by government officials.

I hope I have touched on some points that may stimulate some thought and discussion. If highway transportation is to attain its full usefulness, there must be a willingness to hear the other fellow’s side, and all must be willing to reconcile their views to the common good. If we all extend our individual horizons, we will be better able to solve our mutual problems.