

Transportation Past, Present and Future

by George Koch

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Most of you are familiar with transportation modes of the past. Men on foot, animals, wheeled carts, boats, trains, trolleys, buses, and personal transportation, otherwise known as cars. Over the years I've studied these modes searching for some common denominator, something that would tie this complex subject together, to make it

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more easily understood, and from this to supply answers to the third part of my theme....Transportation in the Future.

I believe most of you would hope that my searching found the key to this mystery and that the key would be real estate. That isn't too far from the mark but the real key is people. For thousands of years the tide of transportation rose and fell with the rise and fall of population. Although the number of people inhabiting our planet earth has been constantly on the rise for the past century, this has not always been true. In earlier history wars, plagues, famine and flood caused substantial declines in the population and equally substantial declines in the movement of people and the goods needed to sustain them. Real estate played a part in all this but not in the way you would like to see it. Revolutions were fought to establish ways to equitably distribute this primary resource but this did not have a major effect on transportation. Rather it was the topographical characteristics of the land that dictated early transportation paths. Waterways first, since in general, these provided the most easily negotiated routes and also because water is the most essential need of both man and beast. Early trails followed the waterways, followed by rough roads, railroads, trolleys, and finally, the highway system. Take a map of any area of the world, lay out major streams then overlay railroads, then highways, and you will find that, to an amazing degree, they overlap one another. Now plot on a final overlay....symbolic

population density and the whole meaning of my original statement becomes clear. It is people that provide the common denominator for all transportation needs.

In the early nineteen hundreds, the dependence on easily traversable terrain declined. Development of the gasoline engine and new transportation vehicles did not need the relatively low friction factor of steel wheels on steel rails. People could, and did, strike out in all directions. Goodbye traditional patterns and projections, hello freedom for everyone to own and live on his own piece of property. And with this freedom came a rising hallelujah chorus, led by road builders and engineers, enhanced by developers and raised to a crescendo by the people involved in the buying and selling of real estate. Lord be praised! We've found the land of milk and honey and for a pittance every man can have his share. Hallelujah!

But wait a minute, who paid for all of this? Highway proponents will quickly point out that through special interest taxes on vehicles, tires, oil and gasoline, supplemented by tolls in some instances, the user and thus the primary beneficiary paid for the ever growing street and highway network with secondary benefits going, without cost, to non-users in the form of lower transportation costs for the goods they consume.

Others are not so enthusiastic about the program. Railway proponents point out that they must pay taxes on their plant, equipment and rights of way while highway users are exempt from these taxes. Thus the railroads subsidize the highway system and in the process find themselves with declining revenues, which in turn require cutbacks in service and reduction of maintenance for the facilities providing this limited service.

Highway opponents, perhaps the most vociferous of these groups, cry

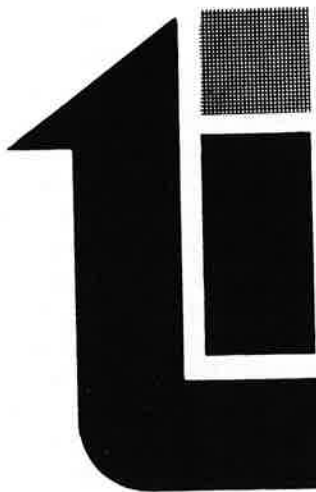
for an end to subsidized highways and a transfer of the highway user funds to other social programs nearer and dearer to them. Suddenly the hallelujah chorus become the Tower of Babel. Since no one understands anyone else, no one listens. All of this presents a rather simplistic view. The whole problem is complicated by government programs, not necessarily related to transportation but having a significant impact on the need for more and better systems.

Probably the most important of these programs in terms of impact on the transportation system, was the Federal Home Administration. Started prior to World War Two, this program permitted low down payments and federally insured mortgages which brought home ownership into the reach of nearly everyone. Following the war, this program was expanded and a new program to aid veterans in obtaining homes was added. These programs,

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more than any others, influenced the urban sprawl that now is causing serious transportation problems. Government intervention in the free market place for petroleum products added to the problem by maintaining unrealistically low prices for gasoline and home heating fuel. It should be obvious that if these costs were realistic in the past our transportation and heating costs would have limited urban sprawl and we would not have been caught as short as we have been in recent months.

One of the more devastating aspects of these and similar programs has been to disenfranchise a major segment of our population, namely, the handicapped, poor and elderly. Programs to assist these groups with their transportation problems require massive redistribution of available resources. This now brings us to transportation present.

Let's look at what we have. The waterways are still there and although to a lesser degree are still used. Cost of maintaining these waterways? For the most part general taxation of the population as a whole. This could be to the detriment of other transportation forms since government subsidization lowers the transportation costs for those goods moving on these facilities.

Highways? We still have those. There are some who say we have too many, others who say we have too few and probably a small group who thinks the system is about right. Cost of maintaining this system? Still paid for by highway user fees in one form or another. These users are divided in their assessment as to who pays the greater share, truckers or automobile drivers. Studies of this subject show, depending on the bias of the group ordering the study, both sides are right.

Railroads? They're still out there, still operating but in many parts of the country, including ours, service is minimal and time is running out. Who pays for this system? User fees still pay for a substantial part of the maintenance being performed but

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more and more government funds are being channeled to this activity. Interestingly enough, most of these funds are being provided by the highway user through redistribution of his contribution to the cost of building and maintaining his system.

Up to this point, I haven't mentioned the movement of people and goods by air. Just as the development of the motor vehicle during World War One accelerated the car and truck revolution, so too the development of aircraft during World War Two accelerated the movement of people and goods by air. Although this mode accounts for an extremely high percentage of trips by people traveling three hundred miles or more, in the total transportation picture this is still a relatively small percentage. Who pays for the facilities needed to provide safe air travel? For the most part, user fees as a part of the trip charge cover the cost of the vehicles and the fuel used to propel them. The cost of terminal facilities is also reflected in the ticket cost. However, the cost of airports and navigation aids is paid for by federal subsidies, monies derived from general taxation.

In summary then, transportation in the present is provided by motor vehicles traveling on streets and highways, and accounts for approximately 90% of the movement of people and 85% of the movement of goods. It pays its own way, but to an ever increasing degree roads are in a rapidly deteriorating state, requiring more and more financial aid. Waterways are still the cheapest transportation form, carrying a substantial percent of bulk cargo, subsidized by the government and, finally, air carriers

providing a substantial percentage of long range people movements and a substantial percentage of perishable goods, fish, flowers and the like, with a minor amount of non-perishable cargo where time is more important than cost.

With this background we can now look toward transportation in the future. My crystal ball percentage is about as good as Jean Dixon's so how right I'll be is anybody's guess.

About twenty years ago when I was trying to cope with the highway problems existing at the time and foreseen for the future, I predicted that not too far in the future no big cars would be privately owned. Privately owned personal vehicles would be relatively small, light in weight, carrying one or two people and highly energy efficient. Bigger cars would be owned by car rental fleets and would be used only when greater capacity and comfort were needed, that is full family use for both short and long use. When you look at the mix of vehicles on the road today and the trend toward smaller and lighter cars, I wasn't too far from the mark, so this gives me courage to make other far out projections.

First let's look at the road beds carrying all these people and goods. Most of them are in place but unfortunately deteriorating at an alarming pace. Many of the 40,000 miles of the Interstate system have been in use for twenty-five years or more. For cost-benefit analysis we use twenty years for life-expectancy so on this basis these roads have outlived their useful life. Realistically, most pavements, with adequate maintenance, will last for forty years. Assuming that maintenance is adequate, although traveling on our streets and

highways convinces me it isn't, we can expect to rebuild the pavements on the entire Interstate system between 1990 and 1995. I wouldn't even hazard a guess as to what this will cost or where the necessary financing will be found.

Railbeds have deteriorated even more. The current pace of maintenance and reconstruction guarantees even faster deterioration in the next fifteen to twenty years. Many waterway facilities, particularly dams and locks, are also suffering the ravages of time and will require substantial outlays of capital in the next decade.

Airport runways and terminals are also subject to the aging process and they too will require extensive renewing.

Navigation aids along the airways and waterways will suffer not only from the effects of aging but also the effects of new technological innovations which will require capital for replacement and improvement.

What does this litany of problems have to do with future transportation? Without the solution to these problems there is no future transportation. Our

railbeds, highways, airports and waterways will be like the great pyramids of Egypt, monuments to great engineering feats to be gazed at in awe and wonderment. But, unlike the pyramids, our transportation system serves a most useful purpose and must survive. Solutions to the financing problems will be found and our future transportation will be little altered from the systems we have today.

But, just for the fun of it, let's look at how it might be. First let me impress on you one fundamental axiom. No personal trip nor the passage of one pound of goods has its origin or destination on a highway, a railroad, a waterway or an airport. When we think of trips we must think of the whole trip, from farm or factory to home or the next step in the manufacturing process, from home to office or wherever. All these movements require a tremendous amount of energy, energy that is becoming increasingly costly and having diminishing availability. The old ways just won't do and new ways must be found.

Like Martin Luther King, I have a dream and I'd like to share it with

you. First, forget about exotic transportation forms, monorails, people movers, subways, light rail transit and the like. No, I'm not writing them off. I'm just saying we'll have difficulty financing improvements and maintaining our existing systems and there is no superfund available to provide for the costly exotics.

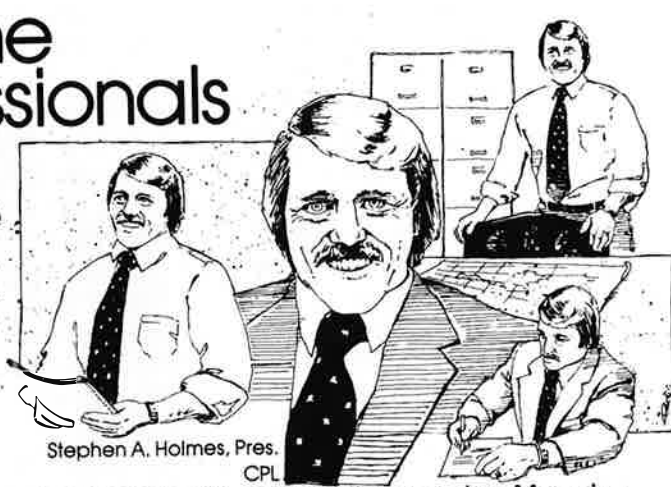
My dream is this. Let's use what we have only more efficiently. A load of oranges from Florida or California to New England can be moved by truck but at what energy cost? Why not piggyback that trailer and hundreds more on an improved railbed? Fine, but how about facilities to move that fruit from railcar to distributor to wholesaler to store? To do that we need railyards and warehouses constructed for just that purpose. These would all be new construction since few facilities of this nature exist today. Obviously, these new facilities would have to be built in undeveloped areas where sufficient land is available. Unfortunately, the ultimate consumer wouldn't be in these areas either, so new highway facilities would be required to bring these goods to the marketplace.

If we're going to build new highways, why not make them all-purpose, utilizing the right of way most efficiently? Let's build a lane for trucks, wider and capable of handling heavier loads than presently permitted. Then add a lane for mass transit and high occupancy private vehicles, then lanes for the private vehicle, each paid for by the user. In one well-planned enterprise we've solved several transportation problems. You notice that I specified that the cost of each of these diverse use facilities would be paid for by the beneficiary of each. I've done this because it is becoming increasingly obvious that the highway user can't. As I've already pointed out, his contribution is already so diffused that even ordinary maintenance on the system he has already paid for is not being financed.

The same argument can be used by railroads, truckers and other

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transportation forms. The simple truth is that we all pay. We pay in increased energy costs as owners and processors strive to maximize their gains from a diminishing resource. We pay higher prices for food and manufactured products, all the essentials of a good life. The price is high now and will get higher unless something is done soon.

The present National Congress and Administration sees these problems just about as I have outlined them for you. They're taking the first tentative steps to find solutions. The cure is going to hurt and, unfortunately, the people involved in real estate are going to be among the first impacted and be hurt the hardest. This is already evident in the high cost of housing. Interest cost to finance not only new construction but also the transfer of existing housing is sky-high with every indication that it will go

higher still. The cost of fuel for heating and transportation will further restrict housing development. These same forces will dictate changes in life styles and the shape of all development in the future.

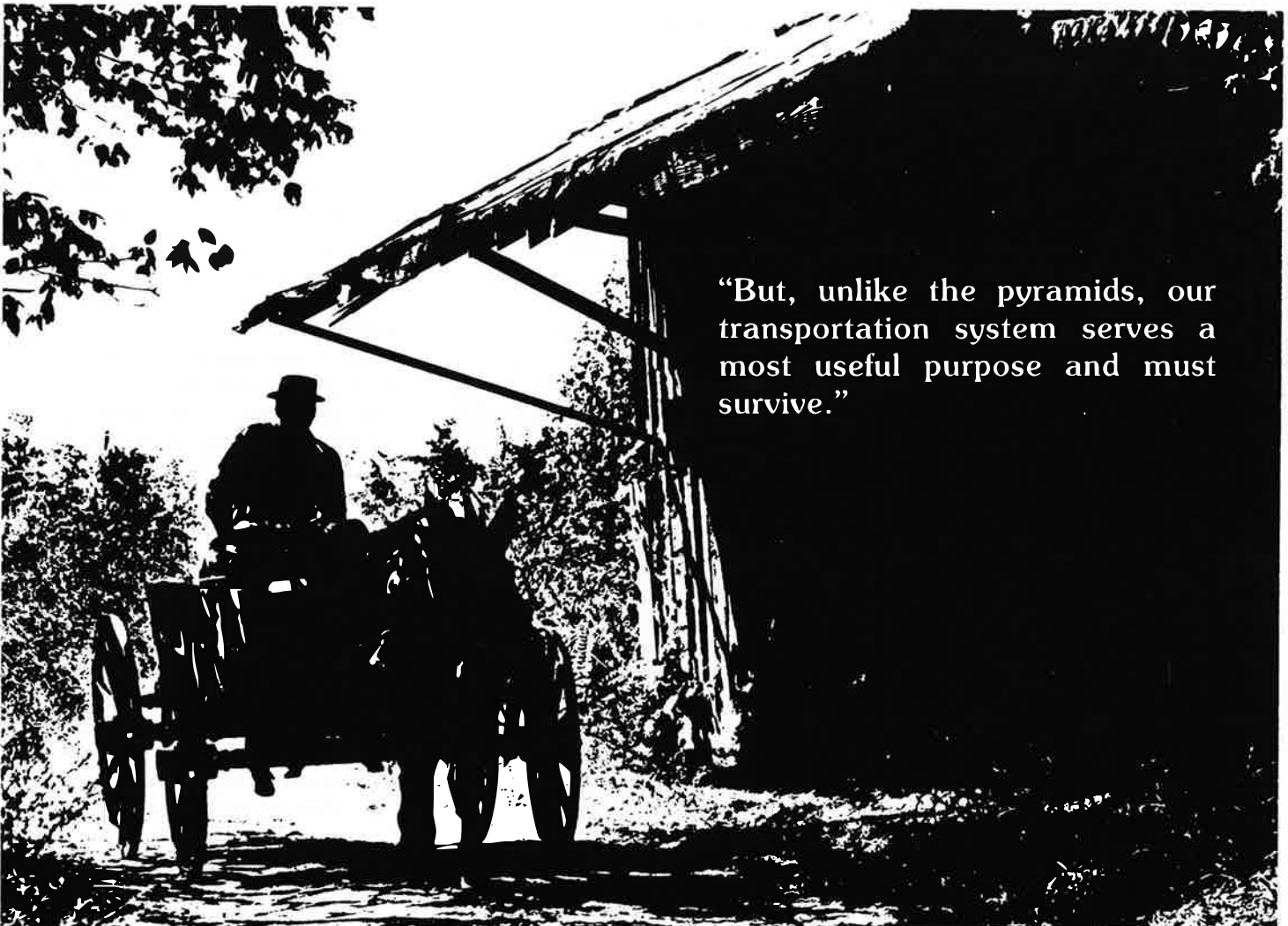
Along with these changes will come a change in the way transportation costs are allocated. The highway user will still pay one hundred percent of the cost of this system. You can be sure that increases in fuel taxes and tolls will raise the already high cost even further. Probably some part of the tax burden of the motorist will be transferred to other transportation modes, but, hopefully, not as high a percentage as is currently transferred.

Users of buses, railroads, airways and waterways will have to bear a higher percentage of the costs of their systems than they do today.

This will be upsetting to those who think that the highway user should bear all of these costs.

Finally, a larger percentage of general taxes will be required to improve the various systems, hopefully along the lines I outlined earlier. All of this will hurt everyone but there is no easy answer. It took about forty years to get to where we are now. With hard work, common sense and a lot of bullet biting we can restore all modes of transportation so that each can be used most efficiently. Each of us must recognize the overall problem and the best way to solve it, even when our own self-interest will suffer.

If we all do this the Tower of Babel will fall and once more a great Hallelujah Chorus will swell through the land.



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