

COORDINATION *of* Rail & Highway Transportation

An Address By

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TRANSPORTATION DEVELOPMENT It is true today, as it has ever been true, that we cannot continue for long at variance with economic law. Permanent and sound progress is always in harmony with it. This law is deliberate. It acts slowly and certainly and its decision is made in exceeding detail. It produces changes by evolution rather than revolution, and it retains the full usefulness of past methods and devices as a foundation or supplement to the new. It plays a three-fold part. It is first the chart by which we may steer a proper course; if our efforts are headed in a false direction, it is the pilot to guide our ship of fundamentals; and finally, if we stubbornly persist in an incorrect course, it becomes the very rocks upon which our plans are dashed, leaving the fundamentals to be washed ashore as material for building a better ship.

As land transportation has advanced through the successive steps of porter, pack horse, cart, wagon, hard improved highways, railways and now motor vehicles, the most efficient and economical, always opposed by the old order, has been finally chosen and has remained to do the task for which it is best adapted. One of the transition stages occasioned by a new tool is now on us. It has been met intelligently and aggressively by a few of our transportation leaders, and with doubt and fearful opposition by many, but—as always—the new order is advancing by the pioneering effort, inspired by a new opportunity. The present transition in our transportation methods is well advanced, due to various causes among which are: Demands for better service due to keener industrial competition, efforts to reduce expenses commensurate with good service, maintenance of lower inventories, inadequacy of present facilities and the advent of new, flexible transportation tools. These new transportation tools, insofar as this discussion is concerned, are the improved highway and the commercial motor vehicle.

OTHER FACTORS Let it be briefly stated that other transportation media, such as the canal, the coastwise ship line, the pipe line and the electrical transmission of power are of keener concern to the rail carrier. These affect the railway problem vitally, endangering the "carload traffic" which constitutes 97% of the business and for which the motor vehicle is not a contender.

L. C. L. NEEDS IMPROVEMENT The departments of the railway devoted to the handling of "carload traffic" have been constantly improved by greater mass transportation, ability and efficiency, and are now operating at the lowest cost ever attained in history. The handling of L.C.L. traffic which, until recent years, approximated 5% of the total tonnage and is now less than 3%, has not been fundamentally improved since the inception of the railways. The motor truck has characteristics which are complementary to rail transportation and properly coordinated with it will admit of marked improvements in L.C.L. handling.

GENERAL RELATION The general conception of our railways is that they constitute "our one great system of transportation." These words, expressing the view of our railway builders, may now be true, but they will remain so only as long as the aggressive spirit of the builders remains with the managements. It has been stated that but one person in ten who travels in this "travel crazy age" uses the steam railway. Our studies indicate that railway freight (not including express and parcel post where the percentage is higher) for more than 90% of shippers and receivers must be handled by highway between the freight station and the traders' places of business. Since all passenger and a large portion of freight traffic must be

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brought to and distributed from the railways by highway vehicles, we have come to view the railways as our "Secondary" system of transportation and since our highways reach virtually all traders' doors we consider highway transportation as the "Primary" system.

TRIBUTE TO RAILWAY MANAGEMENT

By the intelligent application of human ingenuity, organization and capital, the railways have at length evolved into the greatest, most efficient and economical system of mass transportation. Through successive stages the productivity of the individual has increased from the ability of the Porter to handle 152 ton miles per year at \$10.25 per net ton mile to the handling of 330,700 ton miles per year at \$.008 per net ton mile by each Carload Freight railway employee, an increase of 2176 fold.

Another accomplishment by our present management is the marked improvement in operating efficiency since the war. From 1921 to 1929, freight revenues increased substantially, although far from the normal rate. Passenger revenues declined seriously necessitating widespread revisions in that department, usually difficult to make by reason of labor and regulatory restrictions. Carload tonnage increased 47.2% from 1921 to 1929 while less-than-carload declined 7.5%. The railway situation was generally strong up to and including 1929. The net earnings of the carriers were higher in 1929 than in any year of their history; the stockholders collecting more money in profits. Earnings were not only larger but in spite of, and partially because of greater investments, the return on property investment was greater.

An outstanding factor in the increasing strength of the roads during this period is the fact that profits were largely improved by a reduction in operating expenses. In 1929, operating expenses of Class I carriers were \$389,000,000.00 less than in 1923. From 1926 to 1929 expenses were cut about \$163,000,000.00 a year. This was done in spite of an increase in service. More powerful locomotives have been pulling greater trains. The average speed of freight car travel was doubled from 1923 to 1930. In 1929 operating revenues were \$113,000,000. less than in 1926 but the profits were more than \$41,000,000. greater. "All of this was accomplished by the most determined, ruthless and intelligent drive on inefficiency and waste ever witnessed."

This was a gain for the railways, but it was probably a greater gain for general business. The eleven billion dollar expenditure by the railways during the last eleven years played no small part in the prosperity generally enjoyed. The improvement in transportation service permitting lower inventories with the resultant advantages is also of real importance to general and individual business.

AND THEN CAME 1930

The year 1930 closed, as with business generally, with a 15.4% decline in freight revenues and a decline in passenger revenues of 16.5%. Gross revenues declined nearly \$1,000,000,000.00—15.9%. Railway stocks declined more rapidly than those of industrials. The latter sank 22% while the rails dropped 30%.

Why did the roads do so poorly in 1930 after such a splendid record in preceding years? The waterways, the motor bus and the motor truck were with us as thoroughly in 1929 as in succeeding years. These, therefore, could not be the determining factor. One partial explanation of this situation, conceded to be worse than the general industrial situation, is that present economic conditions have placed an exaggerated emphasis on low inventories with resultant "hand to mouth" buying. This tendency

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- B. "Container Car" meaning an organized and complete service utilizing containers or interchangeable truck bodies.

These are compared with motor truck costs operating under reasonably well organized conditions and rendering "complete service."

- C. Five Ton Truck.

- D. Five Ton Truck and Trailer.

- E. Tractor—Semi-Trailer and Trailer.

Characteristic of these costs are high terminal costs and low line haul costs for the railway methods causing the curves to mount slowly with distance. The highway vehicles, having lower terminal costs, start below the rail costs but mount much more rapidly with distance, because of higher line haul costs, and intersect the rail curves at theoretically equal competitive points.

ECONOMIC COMPETITION

These costs indicate the points of economic competition. Below 110 miles it is more economical to use the Five-ton motor truck than the "Coordinated-Car" rail method while for the "Container Car" method this point is about 70 miles. The Five Ton Truck and Trailer cost less than the Coordinated Car below 195 miles and less than the Container Car for distances below 130 miles. The Tractor, semi-Trailer and Trailer, when well organized, compete favorably with present rail methods for distances well beyond those shown on this chart, and with the Container Car method up to about 220 miles.

PROFITABLE COMPETITION

Considering average L.C.L. rates as applicable to both rail and truck—which is erroneous only to the extent that the motor truck avoids the lower classifications—the truck can operate profitably up to 60 miles, the Truck and trailer up to 150 miles and the Tractor, semi-trailer and trailer almost indefinitely. The Coordinated Car does not begin to pay until about 270 miles while the container begins to pay at about 110 miles. Considering rail costs on the "out of pocket" basis only, these mileages can be reduced to 65 and 30 respectively.

RAILWAY OPPORTUNITY

The railway opportunity, therefore, is to develop a coordinated plan utilizing each vehicle in the sphere above generally indicated. The borderline of each zone is not clearly defined and each carrier will have specific conditions either in operation or freight classification or volume which will require close attention before any remedy should be applied. That there is a definite opportunity for an improvement in present conditions is obvious and should receive the serious and thoughtful attention of all carriers and regulatory authority.

RAIL & BUS RELATIONS

The railways as a whole have for years lost money in their passenger operations. As pointed out recently by the Interstate Commerce Commission, this loss has reached the tremendous sum of \$460,000,000.00 annually. The majority of passenger train miles take in less than sufficient passenger revenue to pay the "out of pocket" expenses. These losses have been incurred in spite of the basic through rate of \$.036 per passenger mile. (It is recognized that this so called basic rate is much abused by deviation therefrom). The decline in rail passenger revenues since 1921 has been largely accounted for by decreased use of the short haul single ticket. These losses have been demonstrated by adequate study to have been

principally occasioned by the private automobile. Rate reductions have been tried as a measure to get this traffic back to the rails with generally disastrous results. This indicates that the railways cannot reduce rates but like any business must substitute facilities having operating costs commensurate with the revenues which existing unprofitable services will yield. This, regulatory authorities, have been slow to permit.

The Motor bus, with its operating costs but one fifth of train costs, renders services which in frequency and flexibility are impossible to the railways. By reason of this flexibility the bus load factor can be generally much higher than with the steam train. This permits a passenger rate of approximately \$0.02 per mile. The bus passenger is primarily of the class to whom fare consideration is of more importance than the longer travel time. This traffic is generally of the railway daycoach passenger type plus a large volume of additional traffic built because of the lower rate and greater frequency. Vacationists seeking the open road and the "main streets" also comprise a large volume.

In general the comparative characteristics of rail and bus are the same as with the motor truck namely "wholesale" and "retail." Where 150 or more persons desire to move at the same time between two points the rail method is more economical. Where less than 120 wish to move at the same time the cost favors the bus. Obviously only special conditions, such as commutation or movements between large centers of population, will favor the rail.

REMEDIES The railways can do much to aid themselves in this situation by a greater use of improved unit rail cars, the abandonment of branch line service where warranted, etc. These remedies, however, will require constructive aid from labor and regulatory authority. The inflexibility of rails and schedules and the importance of generally favoring freight movements make any wholesale return of bus or private car traffic to the rails impossible.

The principal opportunities for Rail and Bus coordination are:

1. Reduction of operating losses.
2. Speeding up of rail schedules by local bus service.
3. Feeder lines coordinated with rail service.

PRIVATE CAR COMPETITION The short haul bus has the same competitor as that causing the decline of interurban traction lines, namely the private automobile. The lower cost of the motor bus compared with the electric railway gives the former an economic advantage in obtaining traffic from the private automobile which makes its competition less keen and dangerous. Until the average passengers per private car increases materially (the tendency is down rather than up) the economic advantage will remain with the interurban bus. Unfortunately, in average times, the convenience of the private auto usually causes the owner to neglect economy. Consequently it is reasonably certain that as car registration increases the interurban lines will decline. This is also subject to local conditions and should not be accepted as generally applicable.

RAILWAY ACTION Many aggressive and intelligent efforts have been made by the railways. These have been faithfully reported upon in various publications and are undoubtedly well known to you. The year 1931 has seen some 2500 additional trucks and nearly one thousand additional buses enter the railway service. These are in use directly or indirectly by some 85 carriers.

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COORDINATION EXAMPLES As examples of coordination, reference is made to the Pennsylvania for the reason that we were fortunate to have assisted in developing the plans now in effect.

The use of the truck in pedler train substitution has been extended until it now totals 49 routes, covering 1770 route miles daily and saves approximately \$1,335,000.00 annually.

The container is in extensive use and the coordinated demountable truck body plan was placed in service during November, 1931.

The Pennsylvania, through its subsidiaries, has made substantial investments in highway operations. Favorable results have been obtained as follows:

Trucking: 1930

Gross Revenues.....	\$3,711,155.00
Gross Expenses	3,464,157.00
Net	\$ 246,978.00

Bus Lines: 1930

Gross Expenses	6,014,997.00
Gross Revenues	\$6,831,617.00
Net	\$ 816,620.00

DOCKET 23400

Examiner Leo. J. Flynn has recently completed his report to the Interstate Commerce Commission as a result of the well known investigation under Docket 23400. While we do not subscribe to the findings as completely in accord with our practical "on the ground" studies, the result is highly commendable and will undoubtedly be largely adopted. It is proof that constituted authority is alive to the new conditions and intends to give intelligent guidance to meet them.

TAXATION

We are forced to take exception to his discussion of the taxation problem which is primarily a State function. His conclusion in this regard is the result of the monotonous tune sung at the several hearings by railway representatives. That the matter should be studied carefully is sound, but unfortunately the considerable discussion now heard is indulged in most by those who understand it least. There is ample evidence available justifying the statement that the common carrier motor truck pays more per gross ton mile for its right to use the public highways, than do the railways for their private highways. Also on high public authority, the commercial motor vehicle more than pays its proper share of construction and maintenance of the highways. Further, the economic relations of these modes of transport are such that unjustifiable increases are not in the public interest, but rather they will retard the coordination of our transportation methods which is so necessary to the continued progress of American industry.

COMMISSION COOPERATION

Commissions, both Federal and State, have not been backward in expressing their judgment, which in general is constructively critical of the railways failure to meet the new conditions more aggressively. This also indicates that, as proper plans are advanced by the railways, they will be met with cooperation by these authorities.

**GENERAL
CONCLUSION**

Several years ago we submitted a report to one of our large railway systems which recommended a policy that has become the established course of action of that carrier. The main conclusion of

the report was:

Giving consideration to the loss of short haul rail traffic, both freight and passenger, to the highway and to the probable future loss of high class freight movement and passenger travel to the air; and

Giving consideration to the general movement to transform water power and coal into electrical energy at the source, the present and future possibility of smelting ore at the mines by such energy, and the increasing tendency to move gas and liquids by pipe line; all of which constantly increase the importance of foodstuffs and manufactured articles as the dependence of railroads for freight traffic to be moved; and

Recognizing that foodstuffs and manufactured articles are being successfully handled by the motor truck for constantly increasing distances, augmented by the rapid extension of hard surfaced highways; we must

Concede that the part to be played in the transportation scheme by the highway vehicle will grow in magnitude and importance.

Further recognizing the part played by the railroads in developing the country and traffic that now exists, and

Recognizing that they are the chief producers of organized transportation, and that their importance rests chiefly in their individual unity and completeness; and

Giving consideration to the vast amount of capital invested, we must

Conclude that the Railroads have a responsibility to themselves, their stockholders and to their patrons, to assume aggressive leadership in coordinating transportation over the highways with the rail movement, even to the extent of entering the highway transportation business.

"New times demand new measures and new men;
The world advances, and in time outgrows
The laws that in our father's day were best;
And, doubtless, after us, some purer scheme
Will be shaped out by wiser men than we,
Made wiser by the steady growth of truth."

—JAMES RUSSELL LOWELL.

Mr. Scarr is President of the Scarr Transportation Service, Consulting Engineer, New York. He is a recognized authority in regard to the subject matter of this address.