

supervisor, the delivery man, and the sorter working to produce the least number of miles and the most effective delivery for the next day.

Another important engineering problem we have in metropolitan areas is the combination of delivery and pickup. This is a major engineering job. The problem is to allow within an 8-hour day 3 hours for pickup and the remainder for deliveries within a certain area in the least number of miles. We have solved this problem quite well now that we have the machines and the computers.

Management, it seems to me, is our greatest skill both in its presence and in its absence. I have a list of 5 questions that I think are fundamental to success for carriers in the urban areas to reduce the congestion, to reduce pollution, and to reduce the problems of satisfaction with customers and themselves.

First, is it possible through engineering attention to dispatch (which is our word for it), or to assign or plan, an efficient day's work? If we fail in overdispatching or underdispatching, this is measurable and controllable. We can check against the theory and we can check against the fact. There is no excuse for overdispatching or underdispatching. We attempt to find out the cause for it and then eliminate it.

Second, what is the cause of nonproductive time, if we know what our dispatch is? If the man fails to return in the time planned, we check first to see if he was delayed waiting at a dock, waiting for a traffic light, or waiting for a customer.

Third, what is the cause of substandard work? Substandard work may merely be the man's pace. Many men work at a slower pace than the job calls for. If this is the case, we take him out and the supervisor takes over. We have had strikes to preserve the right of our supervisors to do today's work when performing on-the-job training. We feel it is vital not to lose this right, because if we lose this right, then we have lost our control. Often a supervisor will take out a delivery load for a whole day with the driver sitting alongside of him. The supervisor will deliver the load an hour or two faster than the driver does without ever running or without ever lifting his heels off the ground to demonstrate that it can and must be done. And we have made discharges stick when we have been able to make the demonstration that this solution is required.

Fourth, what is the cause for excess to-and-from time, that is, the time from the terminal to the first stop and the time from the last stop to the terminal? Many drivers have a tendency to gather in bunches at coffee stops and spend a long time chatting with each other or stopping for lunch or dinner when they come back in. We pay strict attention to the to-and-from route time and distance (and, of course, to the cause of disinterest).

Fifth, how are standards maintained? We work with our thrift plans and require managers and supervisors to spend time after hours. Any man who is not up to standard can expect to spend evenings out of uniform with his boss. There is something about a uniform that dehumanizes a person. We make it a point for a supervisor to spend much time with a man when he is dressed the way you and I are today. He is a human being and has points of view that are valid and ideas that are valid.

A REGULATED INTERSTATE CARRIER

Paul H. Banner

What can we do as an interstate carrier about the flow of goods in the urban area? We operate within the city in a limited manner; we carry traffic through towns; and we are called on to perform certain functions within the city for which we generally lose money. Our tracks sometimes are on city streets. Our trucks enter the city for we deliver to people who do not have sidings. We serve individual plants, and we do something called intracity switching. We may deliver from a water terminal to a plant.

Our major contribution is where we succeed in eliminating transportation within the city. (I exclude TOFC service where essentially we perform as a trucker so that we are no different from the motor carrier.) What we can do as an intercity carrier to eliminate transportation and solve some of the problems in the city is to influence the market, the nature of the product, and the production process. For example, the weight of the commodity can be reduced; product substitution can be made such as frozen products instead of fresh ones; and the quantity, size of the shipment, periodicity, packaging, or form of delivery can be changed. Any one of these that eliminates the number of moves will help. Rail can and has contributed to change in these areas.

The furniture industry is an example of this kind of change. Furniture is a bulky commodity, and storage is very expensive. Interest rates have gone up, and rental rates have gone up. What can we do to eliminate the industry's transportation problems? Eliminating multiple movements within the city and using direct delivery from plant to receiver will contribute to eliminating some pressure on transportation. We have succeeded in doing this and have actually experienced a growing participation in this industry. We consolidated movements in the area of production by putting consolidators into business, and we moved large quantities to distributors near the point of consumption who then delivered directly to the consumer. Wherever we can improve storage outside the city and eliminate city movement, we have made a contribution.

A change in the density of the product itself can reduce the demand for transportation within a congested area. A good example of this is the movement of wool. It is very light and fluffy; moved sheared, it requires a lot of transportation facilities. However, building a rate structure that provides an incentive to moving a more densely packaged commodity actually eliminates the demand for transportation. Delivering 60,000 lb of a commodity in 1 delivery rather than 20,000 lb in 3 deliveries seems more efficient. Delivering a bulk commodity in large quantity reduces handling and congestion.

These are not direct attacks on congestion within the city but rather on problems of commodity interface between the intercity and intracity movement. We could assist in the movement of material from the city. A large percentage of urban hauls are scattered within the city and do not occur along particular corridors. They are haphazard movements, but there is a commonality in the movement of many products. Any diminution in the average haul for these items moving into or out of the home should contribute to lessening congestion and contribute to a more efficient use of the streets. What has a railroad that can be used to contribute to the movement of material out of the city? We have one thing: a track, running through the city. How can this facility be used to help solve urban commodity flow problems? The household has mail coming into it. It has electricity coming into it. It has water. It has other utilities. And it has trash going out. Perhaps rail cannot collect the trash, but certainly it can play a role in where it goes.

What have we done in this area of trash collection and disposal? While society has advanced phenomenally in the last 50 years, trash collection has remained about the same or deteriorated. Dump trucks now have compacting units, but the system of collection and disposal is about the same, even in the newest, fully planned cities. As far as I can see, the only infusion of capital into this industry has been the capital of the individual. He buys more trash cans. For 3 people in my family, I now have 6 trash cans. Every Monday morning I listen for the trash men to come by and hope that my trash will be removed. The system consists of a man standing at the bottom of the truck and one standing at the top. The man at the bottom throws the trash can up with a whoop. The top man empties the can by hitting it and throws it with all his might to the man below who, if he catches it, emits a cry of success and moves to the next container. If he misses, I repair or replace the can. At the end of 4 blocks, the truck is filled and is moved to some destination where the trash is burned. Obviously, this is an inefficient scheme and we could do it a lot more efficiently.

Where does this trash go and what can we do about it? In the city of Washington, we are building a new subway, and it happens that the subway track will use our railroad yard. As long as the subway goes through the city where the people are and by our railroad yard, is there any reason why trash collection points could not be located along

the subway for nighttime movement and consequently for shorter hauls by truck on the city streets?

The reaction of the subway planners to this has been close to outrage. If the subway were to have multiple use, then planning of items such as curvature of track, weight on rail, and equipment would require consideration. Furthermore, other uses could immediately be considered such as mail and small-parcel movement.

I do not think that it would be unreasonable to request that post offices be built along corridors to improve utilization of public investment. Furthermore, there is no reason why water, electric power, and telephone facilities could not be built along the same corridors so that public investment could be shared. If you have seen how streets are dug up for telephone lines and then for gas lines and so forth, you can appreciate the advantage of commonality of investment.

This is not now being considered, and the reasons are unknown. Without even the use of the subway, rail movement of trash has not had very sympathetic reaction. We have been willing to perform a service at a total cost that we believe is less than the out-of-pocket costs for the city, which is normally a reasonably good economic argument; and we have not been asked to bid on the service. This raises a question when we talk about the requirements for transportation. Are we dealing with economics, or do we have a whole host of political and social arguments that must be dealt with?

A NATIONWIDE RETAIL ORGANIZATION

Stanton P. Sender

I would like to describe the operations of Sears, Roebuck and Company as shipper of goods in the urban areas. The first part of my remarks will provide some statistics about the firm, and the second part will describe the changes that the firm is making in movement of goods in the urban and other areas.

Sears has approximately 850 retail stores, 1,900 catalog sales units, 11 catalog order plants (the twelfth is being built in Columbus, Ohio), and 600 warehouses. We also have a number of catalog sale merchants. Sears buys over 150,000 different items from approximately 20,000 suppliers. The 1969 published net sales of \$8.8 billion represents a volume of freight that would cover a 4-lane highway between New York and Chicago, covered to a depth of 10 ft.

More than half of all items listed in the Sears catalog did not exist 20 years ago. More than a third of all items did not exist 10 years ago. Most of these products could not have been made then because the necessary materials or manufacturing processes were not available. For example, let me refer to the trash situation. Our newest product is called a trash compactor. Six cans of household garbage can be placed in this small device that can be installed next to the dishwasher. We feel that the ecological problems of trash can be solved better by compacting it into small packages that then can be handled by the garbage men in neat packages and sent out to the local landfill to be disposed of or burned.

Sears' transportation expenditures are more than a quarter of a billion dollars a year. More than half of this is accounted for by inbound transportation on purchases. This is the merchandise shipped to Sears by suppliers, and it consists of goods, supplies, and equipment. About a quarter of Sears' transportation dollar goes for home delivery of merchandise purchased by customers. Approximately 10 percent is expended for postal service charges to deliver catalogs to customers. The remainder is cartage expense for moving goods between stores and warehouses. Approximately 50 percent of Sears' transportation dollar goes to common carriage, approximately a fourth for private and a fourth for contract carriage. The contract carriage operations