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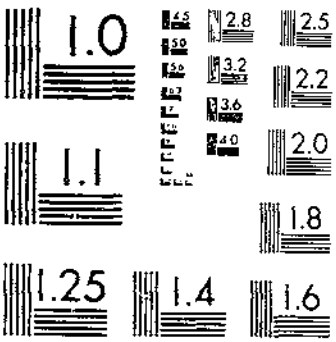

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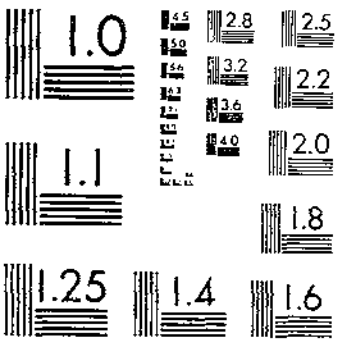

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NATIONAL BUREAU OF STANDARDS 1963-A

TECHNICAL BULLETIN No. 272 OCTOBER, 1931

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WASHINGTON, D. C.

THE MARKETING AND DISTRIBUTION OF FRUITS AND VEGETABLES BY MOTOR TRUCK

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INTRODUCTION

Motor-truck transportation of fruits and vegetables has become increasingly important during recent years. The use of trucks has resulted in an expansion of the market-garden area through the relocating of many market gardeners farther from market on cheaper land. Long-distance trucking of highly perishable fruits and vegetables up to a maximum distance of 700 miles has become a reality.

The great expansion of road building throughout the country and the increase in the number of registered trucks, from 410 in 1904 to

3,379,854 in 1929, have provided new facilities for shipping fruits and vegetables, have changed marketing practices to some extent, and have provided improvement in distribution under certain conditions.

SCOPE OF STUDY AND SOURCE OF INFORMATION

The purpose of this bulletin is to present a general picture of motor-truck transportation of fruits and vegetables in the United States. The study deals chiefly with long-distance motor-truck transportation. Movements of approximately 20 miles or less, most of which were formerly by wagon, including transportation of market-garden supplies and draying to local shipping points or canning factories, are excluded from the statistics except where noted. The volume of this long-distance motor-truck transportation is theoretically an additional quantity of fruits and vegetables which might be moved by rail and boat if trucks were not available.

Detailed studies of the motor-truck movements have been made in certain areas and in certain markets by representatives of the Bureau of Agricultural Economics. General information and estimates have been obtained for other producing areas and other cities. Redistribution by truck from large city markets has been studied, as well as some of the economic aspects of the use of motor trucks in transporting and merchandising fruits and vegetables. Information in this bulletin is based mainly upon interviews with 2,203 farmers, shippers, and truckmen in producing sections, 250 wholesale dealers in cities, records and observations of representatives of the Federal market-news service, and records of the Delaware State Highway Department. Summaries of preliminary mimeographed reports are included.

MOTOR-TRUCK TRANSPORTATION CLASSIFIED

In general, the territory from which large markets draw their motor-truck receipts can be conveniently divided into two areas. The first is the local or market-garden area extending to an average distance of about 20 miles. In this area, which has been considerably expanded since the advent of the motor truck, the farmers usually haul their products in their own trucks to farmers' markets in the city, and production is intensive both as to crops and cultural methods.

The second is the long-distance trucking, which is beyond the market-garden area. Conditions vary somewhat within the long-distance area. From the inner rim of this area, usually about 20 miles from the city market to about 75 miles from the market on an average, about one-half of the motor-truck shipments are hauled by the farmers themselves, the percentage decreasing as the distance from market increases. Usually part of motor-truck shipments originating in this area are sold through farmers' markets and part through wholesale or jobbing markets. Beyond an average distance of about 75 miles from market, truckmen instead of farmers haul practically all the motor-truck shipments. Within the long-distance trucking areas may be included commercial producing districts which ship by rail as well as by truck.

The outer rim of the long-distance area is arbitrarily placed at beyond 75 miles as an average. It is characterized by almost exclusive hauling by truckmen instead of farmers.

To facilitate a clear discussion of the subject, truckmen are classified in this study as follows:

The truckman carrier is one who specializes in hauling fruits and vegetables as a common carrier. A subclass is the general truckman, or drayman, who hauls fruits and vegetables occasionally and is available for odd-job hauling.

The truckman merchant combines the business of transportation with the business of merchandising. He buys from the producer or country dealer and sells on any available market. He frequently eliminates both the country shipper and city wholesaler by buying from the farmer and selling to the city small jobber or retailer. He may depend more for profit upon speculation or merchandising than upon transportation. In many sections these truckmen merchants are more or less itinerant, having neither regular source of supply nor regular outlet. In some sections it is mostly a 1-truck, 1-man business. Individuals engaged in this kind of trade are locally called "truckers." When the local harvesting season is over some of these men turn to hauling from one market to another to take advantage of price variations, and at other times they may buy produce on the market and peddle to the small cities and rural districts, or distribute through any channels of trade that offer profits. Some shippers have developed a large truckman-merchant type of business, selling by wire and delivering with a large fleet of trucks. These men are often referred to as "motor-truck jobbers." A subclass of this group is the merchant who operates trucks, such as the city jobber who sends trucks into the country for supplies and the country storekeeper who trucks loads of fruits and vegetables to market as he goes to buy merchandise.

Throughout this bulletin motor-truck shipments have been reduced to car-lot equivalents. Part cars have been counted as full cars when equal to one-half car or more and are ignored when less than one-half car.

QUANTITY SHIPPED BY MOTOR TRUCK COMPARED WITH QUANTITY SHIPPED BY RAILROAD AND BOAT

Estimates for 2 States and parts of 10 States (Table 1) show that 136,509 cars of fruits and vegetables were shipped by rail and boat as compared with 77,102 cars shipped by motor truck for one composite year, 1928–29. The latter figure represents long-distance shipments with the exception of about 10,000 cars of market-garden produce from Long Island.

TABLE 1.—*Summary of railroad, boat, and estimated motor-truck shipments of fruits and vegetables by specified States or sections for periods indicated* [1]

State and section	Year or season	Shipments of fruits and vegetables by—		Percentage shipped by motor truck
		Rail and boat	Motor truck	
		Cars	*Cars*	
Connecticut	1928	71	788	92
Delaware	1928	4,430	3,118	41
Illinois, southern	1928 crop	8,613	2,305	21
Indiana, southern	do	2,198	1,208	37
Maryland, Eastern Shore	1928	9,397	3,019	24
Maryland, western	1928 crop	1,273	392	24
Massachusetts, western	1928	2,175	163	7
Michigan, southwestern	1920	2,820	7,601	73
New Jersey, central and southern	1928	12,851	25,948	67
New York, western	1928 crop	44,244	10,605	19
New York, Hudson Valley	1928	2,689	5,429	67
New York, Long Island	1929	6,418	13,484	68
Pennsylvania, south-central	1928 crop	2,911	655	18
Pennsylvania, southeastern [2]	1928	204	1,160	85
Virginia, Eastern Shore	1928	30,832	1,054	3
West Virginia, Cumberland-Shenandoah Valley region	1928 crop	5,383	83	2
Total		136,509	77,102	36

[1] For counties included under States, see Tables 7 to 22. All motor-truck figures are exclusive of market-garden products and local hauling (less than 20 miles), except on Long Island, where market-garden products account for about 75 per cent of the motor-truck figure. Delaware and Eastern Shore boat shipments are included and motor-truck shipments have been calculated to 100 per cent from the 80 per cent figure in Tables 7, 8, and 9.

[2] Mushrooms only.

Combining estimated motor-truck shipments and actual market receipts by motor truck as covered in this study and eliminating duplications, it was found that 179,677 cars moved by rail and boat, as compared with 107,848 cars moved more than 20 miles by truck from the same areas, or that 38 per cent of the total moved by truck. (Tables 1 and 3.)

The total shipments of fruits and vegetables by rail and boat in 1929 for the United States were 1,068,745 cars. It is believed that between 150,000 and 200,000 cars would represent approximately the motor-truck shipments which were displacements, in effect, of rail and boat shipments. Shipments by motor truck to market were relatively unimportant in some leading producing sections, as Maine, Florida, Minnesota, Idaho, and Washington.

Truck displacement of rail and boat shipping amounts to about 12 to 16 per cent of total shipments, but on a mileage basis the percentage would be much less because of the much longer average haul by railroad.

The relation that motor-truck shipments of important commodities bore to total shipments for all sections included in the study are shown in Table 2 and ranged from 96 per cent for spinach to 12 per cent for cabbage.

TABLE 2.—*Comparison of rail and boat shipments with estimated motor-truck shipments of important fruits and vegetables for periods and sections shown in Table 1* [1]

Commodity	Shipments of fruits and vegetables by—		Percentage shipped by motor truck	Commodity	Shipments of fruits and vegetables by—		Percentage shipped by motor truck
	Rail and boat	Motor truck			Rail and boat	Motor truck	
	Cars	*Cars*			*Cars*	*Cars*	
Spinach	43	1,028	96	Carrots	1,528	989	39
Beans, string	191	1,472	89	Celery	4,545	1,782	28
Mushrooms	204	1,160	85	Cucumbers	2,228	743	25
Asparagus [2]	214	676	76	Potatoes	41,702	14,219	25
Tomatoes	2,342	4,217	64	Apples	29,127	9,437	24
Strawberries [2]	2,744	3,741	58	Lettuce	3,260	882	21
Cantaloupes	1,897	1,790	49	Sweetpotatoes	10,604	2,439	19
Grapes	5,093	4,759	48	Onions	4,290	973	18
Peaches	5,277	3,988	43	Cabbage	9,111	1,219	12

[1] Exclusive of shipments for manufacture and market-garden supplies, with the exception of Long Island.
[2] Includes some shipments listed in Tables 7 to 22 as "Miscellaneous."

These figures do not indicate the relative volume of motor-truck shipments to total shipments by commodities for the United States, but do show the adaptability of various commodities to motor-truck shipping in areas adjacent to large consuming markets.

The products that move in large percentage by truck are, in general, the light, highly perishable, or more valuable ones which either take a high rate by freight, or require refrigeration when shipped by rail, or have a low minimum car-lot weight. On the contrary, those that move in small percentage by truck are the heavy, less-perishable, or low-rate products.

Other factors enter into the question affecting the percentage shipped by truck. (1) Distance of the producing area from important markets makes the lettuce percentage only 21, since most of the lettuce involved is grown in western New York at a long distance from New York City and Philadelphia, where it is largely used. (2) Salability in volume in small as well as large cities makes such products as potatoes and apples favorites for intermediate hauls. (3) Perishability and high shipping costs by rail make such products as grapes, peaches, and berries desirable for long-distance distribution by truck. (4) The volume of production causes a variation in percentage distribution by truck. The satiation point of consumptive demand within a trucking territory for a given product may require a large or small percentage of the production, according to the size of the production and the per capita consumption of the product. Thus in the areas studied, 989 cars of carrots, or 39 per cent, were shipped by truck, as compared with 14,219 cars of potatoes, or 25 per cent. The actual quantity of potatoes moved by truck was much greater than that of carrots, but the percentage was smaller because of the larger quantity of potatoes marketed.

The great variation of percentage shipments by truck between sections is illustrated by the fact that in Connecticut it was estimated that 92 per cent of the fruits and vegetables were shipped by truck, and in the Cumberland-Shenandoah section of West Virginia only 2 per cent went to consuming markets by truck. (Table 1.) The

products of these two areas are similar. The difference is accounted for by relative distance from consuming centers, which is a factor of great importance affecting motor-truck transportation. On the other hand, Delaware shipped 41 per cent by truck, and the eastern shore of Virginia only 3 per cent. In this case, the main influence is the character of the products grown. Of the immense production of potatoes in the Virginia section, less than 1 per cent moved by truck, whereas the berries, fruit, and leafy vegetables of Delaware are more adaptable to trucking.

RECEIPTS ON CITY MARKETS

In 11 cities for which records or estimates were available, 16 per cent of the rail and truck unloads of fruits and vegetables from beyond the market-garden area was received by truck, or 306,315 cars by rail and boat, as compared with 56,414 cars by motor truck. The receipts at Buffalo, Indianapolis, Rochester, Syracuse, and St. Louis were estimated for 1928, and those at Boston, Cincinnati, Denver, Los Angeles, New York, and Salt Lake City were recorded for 1929. Daily reports from receivers in the latter group were tabulated. (Tables 3 and 4.)

For the group including Boston, Cincinnati, Denver, Los Angeles, New York, and Salt Lake City the total unloads by truck were 87,661 cars, of which 39,682 cars were from the market-garden area, as compared with 47,979 cars from the long-distance areas. From States in which these motor-truck unloads originated, 46,900 cars came by rail. This indicates that from States in which truck receipts originated, 65 per cent of the receipts, including local hauls to market, came by motor truck. Since parts of the States in which motor-truck receipts originate are outside the motor-truck area, as western New York with respect to New York City and the potato district of Colorado with respect to Denver, the actual percentage movement by truck within the motor-truck area would be somewhat higher than the 65 per cent indicated. If market-garden areas are included, these cities received 24 per cent of their fruits and vegetables by truck. Excluding the market-garden area, only 15 per cent of the total receipts by rail, boat, and truck came by truck. (Table 3.)

In the group of cities including Buffalo, Indianapolis, Rochester, Syracuse, and St. Louis, 8,435 cars were estimated to have been received by truck from districts which under former conditions would have originated rail shipments to these cities. These truck unloads represented 80 per cent of the truck and rail receipts from beyond the market-garden area in States in which the truck unloads originated, and 21 per cent of all receipts exclusive of market-garden stock. (Table 4.)

TABLE 3.—*Comparison of motor truck with rail and boat unloads of fruits and vegetables at six representative cities, 1929*

City	State of origin of truck unloads	Truck unloads	Car-lot rail and boat unloads from—		Relation of truck unloads to total unloads from—		Estimated truck unloads from beyond market-garden area [1]	
			States originating truck unloads	All sources [2]	States originating truck unloads	All sources [2]	Quantity	Relation to all unloads from beyond market-garden area
		Cars	*Cars*	*Cars*	*Per cent*	*Per cent*	*Cars*	*Per cent*
Boston	Massachusetts, New Hampshire, Vermont, Maine, New York, New Jersey, Connecticut, Maryland, Virginia, Rhode Island.	8,590	1,811	44,728	83	16	859	2
Cincinnati	Kentucky, Ohio, Indiana, Tennessee, Michigan.	3,012	850	15,184	78	17	740	5
Denver	Colorado	2,944	1,627	6,074	64	33	2,326	28
Los Angeles	California, Mexico, Arizona.	34,351	14,112	29,065	71	63	26,448	57
New York	Connecticut, Delaware, Maryland, New Jersey, New York, Massachusetts, Pennsylvania, North Carolina, Virginia, Rhode Island.	[3]36,200	27,957	186,288	56	16	16,374	8
Salt Lake City	Utah, Nevada, California, Idaho.	2,464	543	1,845	82	57	1,232	40
Total		87,601	46,900	274,184	65	24	47,979	15

[1] The market-garden area is considered that area in which the market-garden type of farming is practiced and from which transportation would be by wagon if trucks were not available.
[2] Bananas are not included in the unloads.
[3] Includes 5,000 cars, the estimated unloads at Harlem market.

TABLE 4.—*Comparison of estimated long-distance motor-truck with rail and boat unloads of 12 leading fruits and vegetables at five cities, 1928* [1]

City	State of origin of truck unloads	Long-distance truck unloads	Car-lot rail and boat unloads from—		Relation of truck unloads to total unloads from—	
			States originating truck unloads	All sources	States originating truck unloads	All sources
		Cars	*Cars*	*Cars*	*Per cent*	*Per cent*
Buffalo	New York	3,343	382	5,545	90	38
Indianapolis	Illinois, Indiana, Tennessee, Michigan	286	255	7,035	51	4
Rochester	New York	2,264	162	2,293	93	50
Syracuse	do	1,715	76	1,659	96	51
St. Louis [2]	Illinois, Missouri, Michigan, Tennessee	847	1,204	15,599	41	5
Total		8,435	2,079	32,131	80	21

[1] Market-garden supplies, those which would be marketed by wagon if trucks were unavailable, are not included. The market-garden area is within a radius of 15 to 25 miles from these cities.
[2] 18 leading fruits and vegetables are included in the figures for St. Louis.

TRADE AND OPERATING PRACTICES OF TRUCKMEN

FARMERS

In all of the territory studied it is estimated that truckmen carriers handled 40 per cent of the motor-truck movement, truckmen merchants 40 per cent, and farmers 20 per cent, exclusive of hauls of less than 20 miles. (Table 5.)

TABLE 5.—*Size and ownership of trucks by farmers, and estimated percentage of the fruit and vegetable motor-truck movement by type of truckmen for specified areas, 1928–29* [1]

Area [2]	Percentage of farmers owning trucks	Average tonnage of farmers' trucks, manufacturer's rating	Percentage of trucking done by—		
			Truckmen merchants	Truckmen carriers	Farmers
		Tons			
Connecticut	91	1.98	60	10	30
Delaware	87	1.44			
Indiana, southern	78	1.12	62	10	28
Illinois, southern	84	.87	62	10	28
Maryland, Eastern Shore	76	1.50			
Michigan, southwest	64	1.50	55	35	10
New Jersey	83	2.36	20	60	20
New York, Hudson Valley	75	1.34	33	57	10
New York, western	75	1.52	85	2	13
New York, Long Island [3]	94	2.84	20	60	20
Pennsylvania, southeast [4]	62	1.27	0	100	0
Cumberland-Shenandoah and adjacent sections of West Virginia, Maryland, and Pennsylvania	96	1.17	15	5	80
Weighted average			40	40	20

[1] In estimating the percentage of trucking performed by types of truckmen and by farmers, market-garden transportation and hauling to local shipping points and canneries were eliminated as far as possible.
[2] Counties included in these areas are indicated in Tables 7 to 23, except that certain counties considered to be mainly in the market-garden areas have been eliminated.
[3] Suffolk County.
[4] Chester County. Mushrooms only.

The percentage of fruit and vegetable farmers owning trucks varied from 62 in the mushroom district of Pennsylvania to 96 in the Cumberland-Shenandoah region of West Virginia, Maryland, and Pennsylvania. It was observed that in areas in which truckmen carriers and truckmen merchants were most active, a low percentage of trucks was owned by farmers and that a high percentage was owned by farmers where those outlets were absent. In market-garden areas nearly every gardener owned a truck. The relatively large percentage of farmers owning trucks in New Jersey and on Long Island is largely due to market-garden activities.

Of those who owned trucks in Illinois, 85 per cent stated that the trucks were for farm use only; of those in Indiana, 81 per cent. In western New York 13 per cent of the motor-truck shipments of fruits and vegetables were made by farmers themselves, but these were mainly over relatively short distances. Aside from areas within 30 to 40 miles from a city, only a small percentage of farmers who own trucks used them to haul to city markets. In areas of deficit production, as in Connecticut, and in areas in which consuming centers are near by, as in New Jersey, the volume hauled

by farmers is large. In West Virginia the little trucking to market is largely done by farmers because other trucking facilities are generally lacking.

Some growers in southern Illinois and southern Indiana used their own trucks to supply retailers on a regular route, or they hauled to city markets. As a rule, they preferred to have truckmen carriers do the hauling, if such service was available. Through experience, many growers had formed the opinion that it does not pay a grower to do his own trucking to market. Since growers are busy on their farms during the harvesting seasons, if they buy a truck suitable for transporting to market they must hire a driver, and are then confronted with the problem of keeping the truck busy.

At several producing centers in western New York, producers are engaged in long-distance distribution in personally owned trucks, but, in general, the trend is toward truckmen-merchant operation. It is becoming common in some districts of western New York, as in parts of Ontario and Monroe Counties, for farmers to make transportation by the buyer a condition of sale. In many instances farmers also insist on delivery of supplies to the farm. Several factors have led to this development. In the first place the roads treated with tar are too slippery for horses. Tar-treated roads are rather general in western New York. Many farmers have concluded that it does not pay them to own a truck for a few weeks of hauling potatoes, cabbage, or other products to the shipping point, and for the other sporadic hauling they may have to do.

Most of the farmer-owned trucks in the southwestern Michigan area were for farm use only or for hauling to the Benton Harbor market. Some farmers picked up products for neighbors and took them to Benton Harbor. In other cases truckman-carrier companies operated pick-up trucks to farms. Of the entire distribution by truck in Berrien and Van Buren Counties, about 10 per cent was hauled by farmers. This movement was mostly distributed within 50 to 75 miles, to South Bend, Gary, and Fort Wayne, Ind., and to Kalamazoo, Battle Creek, Jackson, Lansing, Grand Rapids, and near-by small cities in Michigan, and to Chicago. Farmers and small truckers sell to retailers or on public markets, as a rule, whereas the large truckmen merchants and truckmen carriers transact their business largely through jobbers and commission merchants.

Farmers within 40 miles or less of New York City sell more than 50 per cent of their production on the farmers' markets, and do their own transporting. (Table 6.) At distances from 41 to 100 miles, wholesale merchants are the leading outlets, although some selling to retailers and on farmers' markets is practiced. The products sold through wholesale merchants on the New York markets are hauled largely by truckmen carriers. At distances of more than 100 miles the motor-truck movement is carried on predominately by truckmen and goes mainly to the wholesale merchants. The percentage of total production moving by truck in this area varies from 90 per cent at 20 miles to 83 per cent in the 41 to 60 mile belt, and 76 per cent in the belt just beyond 100 miles from New York City.

TABLE 6.—*Method of sale of fruits and vegetables from farms supplying New York markets related to distance from New York, 1928* [1]

Distance of farms from New York	Percentage of sales			
	Through commission men	At farmers' markets	At farms	By other methods
1–5 miles	0	60.5	5.5	34.0
6–10 miles	20.4	53.0	6.9	19.7
11–20 miles	34.6	39.5	11.7	14.2
21–40 miles	26.9	52.1	14.3	6.7
41–60 miles	46.5	19.4	19.8	14.3
61–100 miles	61.1	6.5	14.8	17.6
Over 100 miles	82.6	0.5	7.3	9.6

[1] PRICE, B. M., THE MOTOR TRUCK AS A CARRIER OF FRUITS AND VEGETABLES TO GREATER NEW YORK. N. J. Agr. Expt. Sta. Bul. 503, 87 p., illus. 1930.

In the motor-truck area tributary to New York City the average tonnage per truck owned by farmers was 2.1 tons, with an average of 1.3 trucks per fruit and vegetable farm, in 1928. Seventy-eight per cent of the growers owned trucks. It was found that nearly all of the market gardeners within 40 miles of the city owned trucks, many having two trucks, but as the distance from the city increased not only the number of farmers owning trucks declined but also the tonnage per grower and the tonnage per truck declined. This might be expected since a larger truck is needed for transporting to city market than is needed for farm use. Although most of the trucks (68 per cent) used in this area came in the 1 to 2 ton class, there were 18 per cent in the 3 to 8 ton class. The size of trucks used to transport fruits and vegetables has been increasing during recent years. From central and southern New Jersey and from Suffolk County, on Long Island, it is estimated that 20 per cent of the truck shipments were shipped by farmers and in the Hudson Valley 10 per cent.

TRUCKMEN CARRIERS

The truckmen carriers who handle fruits and vegetables usually specialize in these products and devote all of their time in season to them. At times when few or no fruits and vegetables are available for hauling some engage in hauling other products and others store the trucks.

A large volume of production, a long season, and the existence of large consuming centers within easy trucking distance seem to be essential to successful carrier-trucking activity.

In southern Indiana and southern Illinois there were no large truckman-carrier companies that specialized in fruits and vegetables. The only carrier business of any importance carried on by truckmen in 1928 was the movement of apples from Calhoun County to St. Louis, of cucumbers from Terre Haute to Indianapolis, of mixed vegetables from Terre Haute to lake cities, of canning tomatoes from "truck stations" to factories, a small portion of the potatoes from near-by fields into St. Louis, and apples to storage and to cider mills.

A noticeable absence of truckmen-carrier companies in the fruit and vegetable business was apparent in western New York, the Cumberland-Shenandoah sections of Maryland, West Virginia, and Penn-

sylvania, and in western Massachusetts. Aside from the hauling by farmers, the truckmen merchants largely occupy the field in these sections.

Large truckman-carrier companies acting as common carriers have developed in other sections, notably on Long Island, in the Hudson Valley, in New Jersey, in the mushroom section of Pennsylvania, and at Benton Harbor, Mich. On the Eastern Shore carrier trucking predominates, but is largely conducted by operators each of whom has only one truck although occasionally one man has several trucks.

To compare truckman-carrier rates with rail or boat rates the cartage at shipping point and at terminals is added to the rail or boat rate. On this basis truck charges on light and highly perishable products are usually lower than rail or boat charges up to about 30 to 40 miles. For hauls of 40 to 100 miles the truck charges are about equal to or slightly higher than car-lot rail and boat charges. Above 100 miles truck charges are usually considerably higher than car-lot freight, but compare favorably with express or less-than-car-lot freight charges up to several hundred miles. At greater distances the cost by truck is usually considerably higher.

In several sections of the New York City motor-truck area a few large trucking companies have announced specific rates from each locality. In a few instances several companies have agreements whereby interchange of trucks is practiced in heavy hauling seasons to obtain fullest use of equipment. Some large associations have entered into agreements with trucking concerns relative to truckage rates for a season. Rates are based upon packages, and include farm pick-up and store-door delivery. At Benton Harbor, Mich., and in New Jersey, during the heavy season, carrier-trucking companies rent trucks with drivers from other territories or hire individuals with trucks either on a percentage basis, usually 90 per cent to the truckmen, or at a flat price per trip.

A factor of great importance in economical motor-truck transportation is continuous use of trucks. Every effort is made by successful truckmen to keep their trucks operating regularly during the heavy producing season. Itinerant truckmen who travel from one producing section to another with the changing seasons are a result of efforts to keep the trucks in operation. Some truckmen in a fixed location accomplished the desired end by changing to general hauling during the dull season. In the New York City motor-truck area 42 per cent of the truckmen interviewed did no general hauling, their trucks remaining idle for about six months, more or less, when fruits and vegetables were not moving in quantity.

Another method of securing the fullest usage of trucks is to obtain a return load. Many carrier truckmen have abandoned efforts of this kind because such hauling interferes with their service to fruit and vegetable growers, since so much delay is usually entailed in obtaining these return loads that the trucks do not get back to the shipping point in time for the next market trip. Only 20 per cent of the carrier truckmen interviewed in the New York City area attempted to secure return loads. Some wholesale fruit and vegetable dealers in small cities have combined trucking to market for growers with hauling their own supplies from the city market. The

highest percentage of loads on return trips was reported by one truckman as 60 per cent.

No effort was made to analyze motor-truck operations by cost accounting. Little or no cost accounting is done by the truckmen carriers. On the basis of estimates made by truckmen it would seem that the load-mile cost varies widely from a low of about 30 cents per load mile to 75 cents or higher in cases in which the motor truck goes empty one way. If there is a return load this load-mile cost may be reduced somewhat. The highest load-mile cost usually occurs where trucks are given the least constant use. Large trucks have a less per ton cost than small trucks for hauls of considerable distance.

Estimates indicate that in Suffolk County, Long Island, 60 per cent of the motor-truck shipment of fruits and vegetables was carried by truckmen carriers; in the lower Hudson Valley of New York, 57 per cent; in important producing counties of New Jersey, 60 per cent; in the mushroom section of Pennsylvania, 100 per cent; and in a section of southwestern Michigan, 35 per cent. This contrasts with 10 per cent or less in other areas studied. (Table 5.)

Itinerant truckmen follow the season to the Eastern Shore area from the South, but since the local carriers are given preference, it is often difficult for these itinerants to get a load unless they are known to shippers. Some of these act as truckmen merchants, buying the loads they handle, but they are at a disadvantage in selling loads on the wholesale markets of New York City and Philadelphia in competition with regular shippers.

In the Eastern Shore area, as in other areas of small unit operation, many trucks are purchased through finance companies, and under recent conditions many trucks have been turned back to the companies at the close of the season. Since hauling fruits and vegetables is a seasonal business, truck owners without other resources find it difficult to keep up payments. These facts contribute to a rather unstable condition in regard to personnel and hauling rates.

The strong competition for business among the many motor-truck owners often results in the practice of cutting truckage rates. The truck owner who has a payment on his truck to meet, or one who is assured a return load, makes concessions in rates to get a load. Return loads are not common in the Eastern Shore section.

Two men usually go with a truck. Delivery in New York City under conditions existing in 1928 and 1929 was made between 10 p. m. and midnight for the most part, and this was the period of greatest congestion on that market; this congestion is exceedingly severe in the season of heavy motor-truck receipts. Time spent in reaching the dealer's door and unloading after arriving on the market averaged 2½ hours per truck for 54 truckmen at one period in 1928, with a maximum of 5½ hours spent in circling the squares trying to find unloading space, and in waiting because of traffic jams.[1] Part of the reason for this great cost in time is found in the many consignments that one truck may carry. It may take the consignments of a number of growers to make up a load, and each may consign to a different dealer. The average number of consignments to different dealers on a load was found to be 3, with a maximum of 30 in the case of Brussels sprouts and 60 in the case of mushrooms.

[1] PRICE, B. M. Op. cit. (See footnote, Table 6.)

Practically all truckmen carriers, except in areas of very recent development in this means of transportation, carry cargo insurance, which protects the shippers from loss due to accident or other cause. Some of the larger truck operators in the New York motor-truck area guarantee the delivery of the shipment at the market at a certain time, usually for the market opening, or at a specified time in the early morning. If late delivery results in lower returns to the shipper, the shipper is reimbursed for the difference between the early price and the price received.

With highly perishable fruits and vegetables, dealers report that in nearly all cases truck receipts are better in condition than rail receipts, with fewer shortages and broken packages. This is partly because of personal responsibility, since the truckman signs for the produce when he loads it, and immediately becomes personally responsible for its safe delivery until he receives a clearance receipt from the city dealer. As a result the claims are few and are commonly settled for when trucking charges are paid without legal recourse or compromise. The truckman carrier serves as contact man between the shipper and receiver, keeping each informed of the others' problems.

Special services have been rendered to growers by truckmen carriers in the New York City motor-truck area. At first, farmers were required to bring the produce to a loading platform, but gradually pick-up service was inaugurated by truckmen. Where competition is keen, the pick-up trucks may visit a grower a number of times before the shipment is ready. Truckmen have been known even to help tie up bundles and pack crates in order to expedite departure. The departure is delayed as long as possible to allow growers several more hours for harvesting than would be possible under existing rail-service conditions.

Commonly the grower stacks his produce along the road or at an agreed place on the farm, where it is picked up by the truckman without assistance from the grower. Late-evening departure in places like New Jersey permits harvesting to be done after the dew dries from the fields. Except where daily pick-up is practiced the truckman seldom has knowledge of shipments earlier than the morning of the day shipment is desired. In New Jersey, truckmen often pick up empty crates at the city market and return them to the grower, at small added cost, if any.

Since anyone with small capital can enter the trucking business at will, it is often hard for a truckman-carrier company to retain a good business after building it. Notably in the mushroom industry of Chester County, Pa., the leading companies stated that they have bought the business of small competitors, only to find that each year when the trade is heavy others enter the business. The newcomers were said to cut prices, being assured profits because of heavy shipments. Later, when shipments are light and unprofitable, the regular concerns are expected to carry on at a loss.

Many of the trucking companies expressed a desire to have legal regulation of the trucking business as to rates, liability, service, and franchise, in order to free the business of the conditions mentioned. The division among a relatively large number of truckmen carriers of the volume of produce to be hauled at a given point has sometimes

resulted in loss for all the truckmen concerned and poor service to the grower. Truckmen stated that most carrier trucking of fruits and vegetables has been carried on under conditions of long hours and low wages, considering the entire season.

A great variety of laws regulating motor transportation have been passed by the various States. Many of these were enacted for the purpose of public safety and the proper utilization of roads. In 1930 the average cost of State registration for carrier trucks was $268.68 for a 3-ton truck with pneumatic tires, the highest being $900 and the lowest $18, according to the 1930 report of the National Automobile Chamber of Commerce. In the past, license-tax difficulties arose between States when trucks from one State were forced to pay taxes in neighboring States in case of interstate trade. By reciprocity such difficulties have been settled in a number of instances. In a few cases special operators' licenses are required.

Many States now have rigid regulations for truck hauling, covering tonnage, equipment, and speed, which are enforced by State police. In Michigan and Delaware trucks are stopped and loads are weighed as a regular practice.

Among the objections to the truck as a carrier are the delays and accidents due to sleet, snow, fog, and rain, and the impassable condition of some roads in wet weather or deep snow. The use of old trucks frequently results in accidents and breakdowns. Near New York City motor trucks are sometimes delayed at railroad crossings, and congestion on roads sometimes slows up delivery seriously.

Truck service is likely to be available to shippers only at those shipping points or seasons when a considerable volume of produce is available for shipping.

Truckmen have had to overcome much trade resistance. Shippers were accustomed to shipping by rail, and many did not wish to change. The large shippers and receivers frequently found that motor-truck movements tended to decrease their volume of business and therefore resisted its spread. Market men found that truck shipments arriving at all hours of the day and night made it impossible to gauge supplies and determine prices. Porters and salesmen have to remain at stores longer, and it is difficult to clean up supplies promptly.

TRUCKMEN MERCHANTS

Truckmen merchants operating from cities are a development from the peddler or drayman. Finding a poorly served market in small cities, peddlers began to buy in wholesale produce markets and to sell in the hinterland. In time they reached out farther and farther, bought larger trucks and operated not only from central markets to surrounding territory but from producing areas to central markets. (Fig. 1.)

In some producing areas some growers used to send out men with truck loads of produce to peddle in near-by towns. These peddlers usually worked for a percentage. In time many of them bought trucks, bought produce, and sought new markets farther and farther away; thus they became jobbers.

These truckmen merchants in such territories as southern Indiana, southern Illinois, western New York, and Michigan usually dis-

tribute their loads to markets much farther away than do truckmen carriers who haul for cartage alone, because with a merchandising profit added to transportation income they are able to cover considerably more distance at a profit.

The whole development of fruit and vegetable truck transportation is in such a state of flux that it is difficult to analyze the trends. But it seems true that in large cities as New York and Philadelphia the truckmen merchants are making small progress, whereas in smaller cities and in rural and mining areas they are increasing in importance.

Truckmen merchants dominate the motor-truck business in southern Indiana, southern Illinois, and western New York, and are as important as truckmen carriers in the southwestern Michigan area.

In southern Indiana and southern Illinois it is estimated that 62 per cent of the long-distance truck shipments during the period studied were carried by truckmen merchants. Very few of them have a place of business other than their residence, and much of the

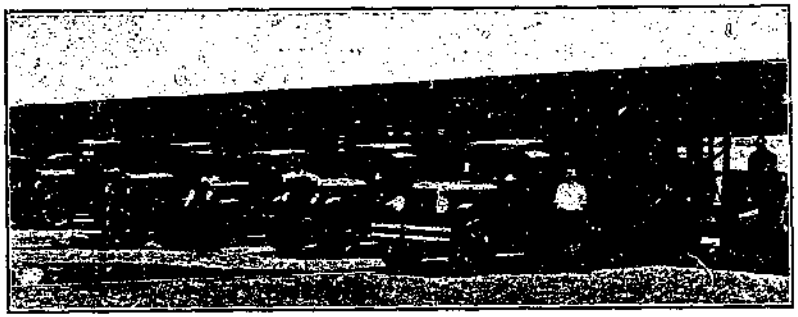

FIGURE 1.—A portion of a truckman-merchant fleet of trucks at the regional motor-truck market in Benton Harbor, Mich.

business is of an unorganized nature—that is, is done without regular connections.

The period of truck movements is short in this territory, lasting from four to six months in the peach and apple districts. At a few points where cold storage for apples, or storage houses for sweetpotatoes are available the period is extended several months. Some of the truckmen merchants start in southern Illinois with strawberries and asparagus in May and June and continue with summer apples and peaches in July and August; then they move to other districts for melons and other products to fill the slack periods, and haul apples throughout the fall. Thus they are busy for eight months of the year. But the great majority are local people who haul for only a few weeks or months.

In western New York 85 per cent of the truck shipments, excluding those trucked to local canneries or storage plants, are moved by truckmen merchants, mostly sold on farmers' markets, to retailers, and to jobbers, although some sell to consumers and some to wholesalers, especially in Buffalo.

Most of these "truckers" make the merchandising and hauling of fruits and vegetables their main or sole business. Many of them

have little financial responsibility and prefer to handle a cheap or low-grade product. It is generally a 1-man business, without regular connections, system, or place of business.

In Wayne County several truckmen merchants have prospered to such an extent as to have good financial ratings. Their practice is to buy whole crops of fruits and vegetables, which they place in storage to furnish supplies for practically a year-around trucking business.

Most country dealers have no dealings with small truckmen merchants in western New York and do not make use of the truck as a means of transportation, but some are selling their low-grade products and odd lots to "truckers," and a few country shippers have adopted the motor truck as a means of delivery on wire or contract orders to dealers in the various markets in western New York.

A unique development in trucking has occurred at Buffalo in the form of the commission truckman merchant. This man takes the produce from the grower and sells it on commission. He includes cartage with commission, charging 25 cents a bushel on most items on hauls of about 35 miles. These commission truckmen constitute a small group; the members are usually local truckmen who are well known to the growers and have established records of honesty, integrity, and responsibility.

At Rochester "runners," who scour the city for orders for truck loads of produce, supplement the truckmen merchants, placing the produce for a commission. This practice is not as common as it was formerly.

Some wholesalers in Rochester and Buffalo have made a practice of sending trucks and buyers into the country for supplies of celery, onions, pears, apples, and other products, which they sometimes put in cold storage in the country and truck in as needed.

The largest shipping-point concerns engaged in truckman-merchant operations are at Benton Harbor, Mich., where some of the old shippers have reorganized their business, combining transportation with merchandising. Their usual practice is to sell truck loads by wire for the next morning delivery in any city within 200 or 300 miles and deliver with personally owned trucks or trucks hired with the owner as driver. In some cases they have contracts with chain stores to supply a string of these stores. In other cases they consign to commission merchants in Chicago or Detroit. Some of the buyers for wholesale merchants deliver by truck.

As many as 50 "truckers" operate from the Benton Harbor community in one day at the height of the season. In some cases they have a local dealer buy their load on the market, but most of them buy directly on the market or go to the associations or farms to make purchases. Some operate to Chicago, peddling to retailers or consumers.

Other truckmen merchants sell to consumers and retailers in the smaller cities at some distance, particularly through Indiana and Illinois. Some move with the seasons and haul from the various producing areas from Kentucky to northern Michigan, in some cases keeping busy with fruits and vegetables from April to December, and occasionally having hauls both ways. Some supply one market, as Grand Rapids, and others try to sell in any available market.

"Truckers" can, and usually do, top the market and force local shippers to pay all the market conditions will stand. Most of the small "truckers" complain of making a poor income, and do not contemplate an expansion of their activities.

From the viewpoint of the farmer, the truckman merchant saves the haul to the local shipping point in buying at the farm, eliminates the risk of shipping in paying cash, frequently pays more and usually as much as the shipping-point price, and may furnish sacks or packages in which to pack the products. Sometimes the trucker harvests what he buys. Products that were formerly unsalable such as soft-ripe peaches find an outlet through the truckman merchant, who frequently pays as much for United States No. 2 and soft-ripe peaches as is obtained for United States No. 1 grade in shipping to some distant city through the usual channels. Strawberries picked after a rain, odd varieties of apples, and second-grade products are usually merchandised better by truckmen merchants than by dealers in city markets. During periods of heavy supplies, when prices obtained on city markets do not cover the expense of packing and shipping, the truckers afford a limited market and some cash returns.

From the viewpoint of the consumer in small cities the truckman merchant hauls direct from producing areas, eliminating the old circuitous route by which the fruit went to a central market from which it was jobbed to the smaller places. This direct distribution may result in cheaper prices and fresher, less bruised products.

Outstanding progress has been attained in merchandising vegetables by truck by a cooperative at Terre Haute, which uses the Federal-State inspection service for truck shipments. They sell by wire to lake cities and Indianapolis for next morning delivery by truck, and have made progress toward achieving assured supply, reliability in pack, service in delivery, and regular outlets.

As in the case of most new enterprises there have been many failures and many unscrupulous individuals in the business of jobbing by motor truck. At first the "wooden check" was a favorite way to defraud the grower or shipper. The dishonest "trucker" sought to gain confidence by trading with a grower for some time on a cash basis and then through a ruse he would secure a load on credit and would fail to make payment. Another common fraud was to contract for an entire crop, putting up a small deposit. If prices went down the "trucker" would disappear.

A common practice in attempting to defraud the buyer was to make a false pack, or sell on the basis of high-grade samples, with the remainder merely faced with good quality. Cull products such as windfall apples and dropped peaches were distributed.

Many "truckers" have been inexperienced as merchants. In going to a farmer the novice was at a disadvantage in bargaining and often paid too much, and again in selling he was frequently the prey of more sagacious traders. In northern Pennsylvania "truckers" sometimes converged on the small cities in large numbers with grapes and produce from the Chautauqua belt. Dealers found that they lost by buying at the market price from the first "trucker" who came along, for later in the day other truckmen who had become discouraged in driving from town to town looking for buyers would sell at a

sacrifice. Such conditions may not only result in loss to the unsophisticated "trucker" but may unsettle the trade and may react on prices in other markets.

Some of the most frequent criticisms of the truckman-merchant trade are that it is irregular and unreliable. Heavy "trucker" demand at a given producing point one season may largely disappear by another season. Then, again, the price bickering and time required to attempt to sell to the numerous "truckers" with limited needs is objectionable. These troubles are largely eliminated by the regional motor-truck jobbing market, where many growers with produce meet many truck buyers.

The freight rate on potatoes is relatively low. It usually costs less to ship potatoes more than 20 miles by rail than by truck. Yet 5,399 cars were hauled by truck in western New York in 1928–29. Nearly all of these were handled by truckmen merchants, some as far as 75 to 110 miles. Obviously much of this is poor business unless they are bought at less than their value in the country, which seldom occurs nowadays. The "trucker" hauling such distances would probably do better to ship by rail to his market and job by truck from the car door.

ECONOMIC ASPECTS OF SHIPPING BY TRUCK IN MARKETING FRUITS AND VEGETABLES

EFFECT UPON DISTRIBUTION

The use of the truck for shipments direct from commercial producing areas to small consuming centers has been an important influence in increasing consumption in rural and mining sections and small cities. Because of the directness of much of the truck movement and the shorter time required, those small consuming points which formerly depended upon l. c. l. and express shipments from a larger city now generally receive produce in better condition, and not infrequently with less cost of distribution for relatively short distances. In so far as highly perishable fruits and vegetables arrive at large city markets in better condition, which is commonly true with highly perishable products, the trade in such fresh products is improved.

A considerable part of the production of commercial orchards of apples, peaches, and pears is composed of stock that would not classify as United States No. 1 grade. The same may be said of other crops as potatoes, cantaloupes, carrots, and sweetpotatoes. The truckmen merchants have found a large outlet for stock other than culls but below United States No. 1 grade in rural and mining sections, and a market has been opened for products too ripe to ship by rail. Trucking activities are more than ordinarily successful on first harvestings of the various commodities when prices are high, because it is difficult to secure full carloads.

There is much difference of opinion as to the advisability of distributing cull produce. Some growers market all their products as orchard run or field run since buying by "truckers" has developed, and some pay less attention to spraying and other practices necessary to quality production. Among the most successful growers the opinion prevails that the distribution of some low-grade products in small markets is highly desirable but that culls should be kept on the farm.

Truck movement of peaches from some districts has been accelerated by the presence of the Oriental fruit moth which causes heavy rejections in rail shipments. In some cases the motor truck has been used to ship peaches infected with brown rot to market because the quicker movement by truck permits the peaches to be sold before decay is apparent.

In the larger cities most of the long-distance motor-truck receipts are sold on commission. In cities of medium size the wholesale dealers buy little or nothing from motor-truck jobbers; yet the trucked products almost entirely displace their business in near-by products during the local season of production. Most of the wholesale fruit and vegetable dealers in southern Indiana, southern Illinois, and western New York stated that the products handled by truckmen merchants were below the standard of quality that they were able to merchandise satisfactorily, and that truckmen merchants were often not reliable. In these sections the itinerant truckmen merchants prefer to go direct to retailers, and retailers seem to like to buy from them, although they can seldom secure adjustments if inferior products are obtained. In sections in which jobbing by truck is older, as at Benton Harbor and Baltimore, the large truckmen merchants prefer to sell to jobbers, and the objections as to quality have largely been eliminated.

In areas new to motor-truck jobbing the cooperatives and large distributors do not make use of the truck outlet as a rule. But in those sections in which long-distance trucking has been practiced for some years, some distributors and cooperatives are making large use of the truck for distribution.

The main volume of motor-truck movements is not to large city markets but to rural and mining districts and to secondary cities, in all the areas studied except on the Atlantic seaboard and in Berrien County, Mich.

The tendency in western New York has been to decrease rail shipments somewhat to large city markets, as New York, Boston, and Philadelphia, in favor of greater motor-truck distribution to markets in western and northern New York. and to adjacent consuming territory in Pennsylvania, Ohio, and Canada.

The unloads of 16 commodities at Chicago from Michigan by rail for certain years were as follows: In 1924, 4,473 cars; in 1925, 4,534 cars; in 1928, 2,380 cars; and in 1929, 2,245 cars.

It is seen that rail receipts at Chicago from Michigan were much less in 1928 and 1929 than in 1924 and 1925. This decline in rail receipts is pa.tly attributed to motor-truck shipments to Chicago and partly to motor-truck shipments direct from Michigan to smaller cities that were formerly supplied largely by redistribution from Chicago.

Motor-truck shipments from Berrien County to Chicago were large in 1925. Chicago received 56 per cent of the motor-truck shipments from Berrien and Van Buren Counties in 1929. Before the use of the truck, it is said by old shippers, Chicago received a much larger percentage of the shipments, reshipping much of it to other cities in its trade territory.

Along with the rise in truck movements, motor-truck jobbing markets have developed in certain cities, notably in Syracuse, Baltimore, New Haven, Albany, Chicago, and Salt Lake City.

EFFECT UPON PRODUCTION

Motor-truck transportation may change quantity or kind of production in certain areas. Already some effects are seen. Some market gardeners have sold high-priced land near large cities and moved out where land was cheaper. In some cases they continued the methods previously employed, but more often they became truck farmers, growing larger acreages with less diversification, and devoting their time to production. Some growers near Brooklyn, for instance, moved to the eastern end of Long Island, and a few gardeners near Boston have moved to the Connecticut Valley. Some New Jersey market gardeners moved from near New York City and Philadelphia to southern New Jersey.

Growers living remote from rail stations were formerly unable to engage in the commercial production of highly perishable products, usually because of difficulties in getting them to market. Now these farmers, if they are near an improved highway, may be as advantageously situated as those near shipping points. The soil may be better adapted, and the land may be cheaper.

Motor-truck shipping gives the producing areas extending from the Carolinas to New Jersey an added advantage over the Mississippi Valley in highly perishable items like berries, beans, and peas. Rapid movement and other advantages of shipments by truck are tending to restrict the midseason source of supply of certain items in Atlantic seaboard cities to areas within long-distance trucking radius. Likewise the grower who lives from 20 to 100 miles from a given market has an advantage over the grower who lives farther away, other things being the same. Potato growing is increasing within this distance of Buffalo and Rochester, while declining in some more remote places in western New York.

In southern Indiana and southern Illinois the use of the truck has made peach growing more profitable because of the ready sale for "ripes," and fruit of inferior quality. Sometimes the best-quality fruit sells at a higher price at the farm than at some distant market. Increased plantings of peaches, attributed to the use of the truck, were reported at Anna, Centralia, and Olney, Ill., and Oaktown, Vincennes, and Mount Vernon, Ind.

Increased profits due to sales to truckmen and a resulting tendency to increase apple production were reported at Laurel, Orleans, and Oaktown, Ind., and Olney, Flora, Anna, Centralia, and Quincy, Ill. Similar influence was observed in apple production in the Hudson Valley and in Connecticut.

New production directly attributed to the use of the motor truck includes early tomatoes and small fruits in the Vincennes district and at Brownstown, Ind. A tendency to increase strawberry production in the Egypt district of Illinois and strawberries and tomatoes in Ulster County, N. Y., was attributed to truck service.

The important production of mixed vegetables near Terre Haute was said to have increased because of the extensive use of the motor truck in supplying distant markets.

On the other hand, such gains are partly at the expense of competing growing areas farther removed by road from the consuming markets.

The use of the motor truck has had little effect on the volume or kind of production in western New York as yet, except to encourage potato growing within easy trucking distance of the large cities. It has made available to the southern part of the Finger Lakes district new and good market outlets in north-central Pennsylvania and along the southern border of New York State.

In Berrien County, Mich., the acreages of berries and peaches have been increasing rapidly during recent years, partly at least because of the improved outlet prevailing as a result of the use of the truck.

Overnight delivery of berries by truck as far as 300 miles has greatly increased the outlet and often improved the returns to the growers.

More cantaloupes and tomatoes are being grown in Berrien County because of the outlet through roadside stands and to "truckers."

Early apples are less profitable and production is decreasing because of the competition from southern Indiana and southern Illinois. The superior second early varieties from these sections are being trucked north when the earliest Michigan apples are ready for market, which makes northern Michigan about the only outlet by motor truck for the early Michigan apples.

Selling at the farm has greatly increased during recent years as a result of buying by truckers and motorists in all areas except those very close to cities and those very remote from consuming areas.

EFFECT UPON TRANSPORTATION

In general, service on main-line railroads has remained as good as before or has improved in the face of motor-truck shipping, but electric lines, boat lines on short inland routes, branch railroads, and small shipping points have suffered loss of business.

An electric line that formerly served the fruit and vegetable interests of southwest Michigan has been torn up; the boat lines to Chicago and some branch-line railroads have all but discontinued service in this area as the result of motor-vehicle traffic.

Some of the advantages cited by shippers who use railroad transportation is that it is cheaper for long hauls and that best markets often lie at too great a distance for truck transportation. The railroads give continuous service in all kind of weather and all seasons, whereas truckmen-merchant trade is irregular. Railroads afford refrigerator service, which is important when markets are so dull that the products must be held several days before being sold. Advance reports at markets of rail movements tend to avoid the overloading of some markets while others are undersupplied.

REGIONAL MOTOR-TRUCK MARKETS

Benton Harbor, Mich., has long been an important shipping point, but during recent years a profound change has occurred. Growers in the immediate community formerly sold more or less of their produce to shippers from a street-and-open-lot market in Benton Harbor. Since the rise of truck shipping a newly built market has become a concentration point for a whole region, and the terminus for truckman-merchant and truckman-carrier operations with a 400-mile radius.

It is estimated that 50 per cent of the motor-truck shipments of fruits and vegetables from Berrien County in 1929 went through the Benton Harbor market, ranging from 85 per cent in the area immediately adjacent to Benton Harbor to 10 per cent at Buchanan and Niles (25 miles south). In Van Buren County 3 per cent of the commercial production of fruits and vegetables was estimated to have passed through the Benton Harbor market. In addition, occasional truck loads of peaches, plums, and apples are hauled from Allegan County, apples from Kent County, cherries from Oceanic and Grand Traverse Counties, Mich., and celery from Kalamazoo County (largely for local use), hothouse tomatoes from the Terre Haute and Indianapolis areas, field tomatoes from Bloomington, Ind., and cantaloupes from Knox County and northern Indiana. A few peaches came from Kentucky, and a moving van returned from Georgia with a truck load of sweetpotatoes. In 1930 some early apples were trucked 400 miles to this market from New Burnside, southern Illinois.

Michigan truckmen sell loads of produce in Indiana and Illinois, and if products are available they buy a load to bring back to the regional market at Benton Harbor rather than go to some large city. Likewise southern Indiana and southern Illinois "truckers" may occasionally bring loads to the Benton Harbor market and buy Michigan products to take back.

As Table 23 shows, larger quantities of fruits and vegetables are redistributed by motor truck from Benton Harbor market over longer distances and in greater volume to large cities than are shipped from the remainder of Berrien County and from Van Buren County. This is because agents of wholesale firms and large shippers operating through truckmen carriers and shippers turned truckmen merchants on a large scale, dominate the market. They distribute through wholesalers and jobbers, whereas the small truckman merchant distributes through retailers, and often seeks the smaller cities and villages where prices are often highest.

Estimates indicate that 25 per cent of the motor-truck shipments from the market are carried by truckmen merchants of the small type, as against 50 per cent carried by truckmen carriers hauling for shippers and 25 per cent carried by shippers in their own trucks and contracted trucks. This predominance of the regular shipper in the truck movement is unusual and denotes unique progress in motor-truck distribution.

Motor-truck shippers buy nearly all of their produce for cash on the open market from farmers, with the exception of grapes, apples, and cantaloupes, a part of which are bought at the farms.

The creation of such a regional market for redistributing the products by motor truck is a recent development in marketing. It is the result of efforts to fill needs arising out of the use of the motor truck as a carrier. In the first place, truckmen want to buy quickly in quantity. Many of the trucks now haul from one-half to a full carload of small fruits, and with trailer as much as one and one-half cars. Early in the truckman-merchant movement a "trucker" could go to farmers in remote places and buy cheaply, but with the dissemination of market news and the choice of alternate outlets, the "truckers" to-day find that the asking price of farmers is usually

as high as the shipping-point price, and in running through the country it may take hours or days to buy what is wanted. Thus the shipper and "trucker" save time by buying at a concentration point. With competitive bidding and numerous buying factors the trade is vigorous, and the prices are considered relatively high. Truckman-carrier companies offer the service to farmers of picking up the produce at farms and selling it on the market at a small cost. Thus farmers at some distance from the market may get the full benefit of it without owning trucks themselves.

In the matter of bringing products from a distance to sell at Benton Harbor, in preference to taking them directly to Detroit, Grand Rapids, or some other city, a grower with cherries from Grand Traverse or with tomatoes from Indiana finds that at Benton Harbor he has some buyers from cities representing 10,000,000 to 12,000,000 population in seven States. Thus, in a way the market is becoming an index of "trucker" demand and supply for products grown in a large area.

The town of Benton Harbor has built a new, large market for this trade which opened in the spring of 1930. There is no retail selling, and Benton Harbor merchants buy an insignificant quantity on the market.

At Albany, N. Y., the market square has been the meeting place of motor-truck movements from Syracuse, the Champlain Valley, and the lower Hudson, as well as the near-by market-garden area, and it is also the meeting place of "trucker" demand from this same territory and parts of New England, with the overflow finding its way to New York City. Moreover, items not otherwise supplied come up from New York City by truck. The traffic has grown much above the local needs of Albany, which puts it in the regional-market class. The New York State Department of Agriculture advocates a new and larger market to replace the grossly overtaxed farmers' market.

The farmers' markets at Syracuse, Rochester, Buffalo, New Haven, and Baltimore supply more than local needs and have taken on some of the aspects of regional or motor-truck jobbing markets.

Syracuse receives products from most of the producing territory of western New York up to 140 miles away. Fruits and vegetables are hauled from a distance largely by "truckers" who buy from growers and from near-by points by farmers coming in with their own trucks and wagons. Consumer demand is represented here by trucks from Canada on the north, from Pennsylvania on the south, from Albany and Troy to the east, and from the west as far as Geneva. Probably over 20 per cent of the supplies arriving by truck are jobbed to truckmen-merchants who haul out of the city.

Rochester is in the center of a heavy fruit and vegetable producing section, and dealers do not need to reach out so far to get supplies, but a considerable redistribution by "truckers" goes to industrial towns in south-central New York and north-central Pennsylvania.

Although but a small percentage of the motor-truck receipts at Buffalo are rehauled into Canada and east and south, the volume is not small. Buffalo reaches out as far as 100 miles for motor-truck supplies, part of which are jobbed to truckmen-merchants who sell in municipalities over half way to Pittsburgh, Cleveland, and Rochester. Even though Buffalo is not a large regional market

from the redistribution side, it is a regional market of considerable importance viewed from a receiving side since products are received here from 10 New York counties and some fruits and vegetables are brought in from Ohio and Canada. Buffalo is estimated to have received 3,343 carload equivalents of fruits and vegetables by motor truck in 1928, outside the market-garden area in western New York, a goodly portion of which was sold over the so-called farmers' market.

Included in the plans for the railroad produce terminal now being erected in Buffalo are space and facilities for a regional motor-truck market, in accordance with plans drawn by the New York State Department of Agriculture.

About New Haven, market gardeners have expanded acreage until production is fully 10 per cent greater than consumption in New Haven and near-by consuming areas. This surplus is jobbed on the farmers' market, in large measure, to motor-truck jobbers who haul mainly to New York City and Boston, as well as to Hartford, Bridgeport, and other New England cities. Considerable green corn, Lima beans, tomatoes, green beans, and strawberries have been merchandized in this way in recent years.

The Marsh market at Baltimore is one of the oldest and largest regional markets, though strikingly different in operation and services from those in New York and Michigan. (Fig. 2.) As many as 2,000 truck loads of produce are hauled into this 24-hour, covered market place in one day, coming from near-by commercial growing areas in Maryland, Pennsylvania, and New Jersey. Some loads are ferried across from the Eastern Shore, and others come from North Carolina and South Carolina. A few loads of lettuce and celery came from Wayne County, N. Y.

This is strictly a jobbing market. Farmers are not allowed to sell. In 1930 all selling was done by 16 licensed commission agents, who sell for the farmers' accounts at 5 per cent commission. Truckmen and farmers pay nothing for the use of the market, but the agents pay $400 annual license. Much of this produce is sold in truck loads or car lots. A 10-package lot is the smallest unit of sale.

The Marsh market is an immense steel building without walls. It is a series of streets and loading platforms covering a city square. Built after the Baltimore fire, it was originally intended as a local service to near-by farmers and city consumers, but an increasing motor-truck area has resulted in supplies exceeding the needs of Baltimore from spring until late summer. The surplus is bought by packers and shippers for rail distribution, and a considerable quantity is redistributed throughout Baltimore's trade territory by truck.

In the village of Candor, N. C., a regional motor-truck market has developed. "Truckers" not only from neighboring localities but from Virginia, West Virginia, and Atlantic seaboard cities come in to buy. Since most of these "truckers" do business in small cities, a demand for mixed loads has grown up. To supply this demand new production has developed, and "truckers" bring in watermelons, cantaloupes, tomatoes, green corn, beans, and cucumbers from other parts of North Carolina, South Carolina, and Georgia, hauling these vegetables in and hauling peaches out.

A somewhat similar market has sprung up at Mount Olive, N. C., where the vegetables are sold over a farmers' auction block. This makes a convenient arrangement for truck owners in buying and loading, and for producers in selling. The assembly of trucks furnishes an added means of transportation to the regular buyer who buys stock for wholesale houses.

At Salt Lake City practically all trucked-in produce is sold over the growers' wholesale market, owned and controlled by farmers. Over 90 per cent of the produce is jobbed in unbroken packages. No retailing is done from the market, as this is handled by small dealers near the market and by hucksters.

About 50 per cent of the motor-truck receipts are grown within 15 miles of Salt Lake City on irrigated areas. Large quantities of

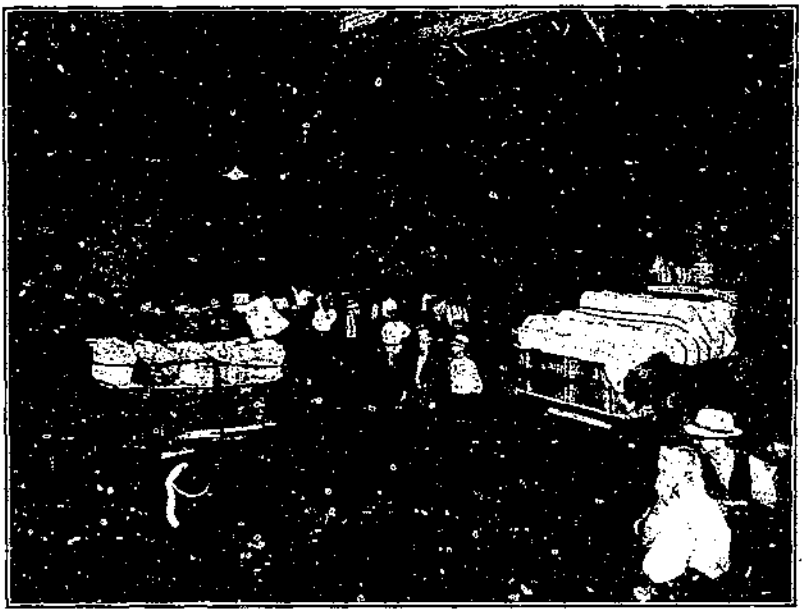

FIGURE 2.—Jobbing from motor trucks on the regional Marsh market at Baltimore. A characteristic scene in the small hours of the night

potatoes, cucumbers, tomatoes, and fruit are hauled in from a greater distance. There is little opposition on the part of the wholesale distributors to this system. They are able to buy slightly under the price paid by retail stores and handle considerable produce for redistribution at a profit, mostly in trucks.

Motor-truck shipping has made Salt Lake City a regional market for motor-truck jobbing to the surrounding territory within a radius of 250 to 350 miles. The volume sold over the growers' market has increased each recent year, although the number of trucks is decreasing because of the use of larger trucks. Several groups of growers have organized motor-truck cooperatives for the purpose of buying large trucks to serve a number of growers. Few dealers in surrounding towns buy and haul in their own trucks. They are supplied

mainly by motor-truck deliveries of wholesale houses, or truckmen merchants.

Efforts have been made in some cities to exclude truckmen from other States, who bring in produce for sale. The development of a regional motor-truck market is obviously dependent upon unrestricted trade. The local viewpoint is frequently prejudiced particularly in instances where certain commodities may be trucked in from a distance to compete with local production.

In the past local authorities have sought to restrict selling on farmers' markets to the actual grower. No doubt this was a desirable ruling, and still is in some farmers' markets. But with regard to a regional motor-truck jobbing market, at times most of the selling is done by truckmen merchants. It has generally been found by farmers that it is not profitable nor desirable for the grower himself to engage in motor-truck distribution except for short hauls. Selling on a regional market should be open to all on equal terms.

WHOLESALE ROADSIDE MARKETS

Wholesale roadside markets are similar in purpose to regional markets but are located in the country. Notable examples are those near Flora, Sandoval, and Carbondale, Ill. There, large growers assemble their own, and in some cases purchased fruit, in large quantities to sell to truckmen and motorists. Most of the trade at these markets is wholesale. Truckmen seem to favor these markets because they can obtain a full load without loss of time and because they consider the packs reliable.

The leading fruit authorities in Illinois said there were about 10 of these wholesale stands in the State in 1928, some of which operated during the entire year, shipping in fruit and vegetables for resale by the carload, in some instances. Several of them did a business of over $50,000 a year.

The retail and wholesale roadside-stand method of sale is highly developed in western New York along Highway 31, from Buffalo to Syracuse, and along Highway 3 in Monroe and Wayne Counties, and around the southern end of Cayuga Lake. In the northern part of Oswego County roadside stands relay to the north fruit that has been obtained from the lake shore farther west.

In southwestern Michigan cooperatives serve as wholesale motor-truck markets at various country shipping points.

ADAPTABILITY OF CERTAIN PRODUCTS TO MOTOR-TRUCK TRANSPORTATION

The more perishable a product the more amenable it is to truck transportation within certain limits of distance. A combination of factors relating to time and to damage favors the truck. Dealers generally stated that berries traveling 200 to 400 miles by truck arrive in better condition than when shipped by rail unless trucked over rough roads or on solid tires. Even in those cases where express service is equal, or nearly so, to truck time, many growers favor the truck because of the alleged greater shaking and jolting by rail. Quick delivery in the cool of the night permits trucked peas

to be put on markets 400 miles away without icing, and they usually look better and hold up longer than rail shipments of the same distance. With potatoes, however, there is no time-and-condition advantage in shipping by truck. Freight rates on potatoes are so much lower than truck rates that the distance must be very short if the savings in cartage and rehandling are to make up the difference in transportation charges.

Class and commodity rates play an important part in possibilities of shipping by truck. By truck all commodities take nearly the same rate per ton, because trucks can be loaded to about the tonnage capacity with almost any commodity. Watermelons and mushrooms are exceptions. Loss from damage is given practically no consideration in rate making in shipping by truck. On some railroads berries take first-class rate, grapes and peaches second, oranges and lemons third. Considerably lower are the rates for celery, cucumbers, tomatoes, cantaloupes, and watermelons, which take the fourth-class rate, and potatoes and pears, which take the fifth-class rate. In the case of commodities such as a few of the highly perishable soft fruits for which refrigeration is used in making rail shipments within the radius of truck transportation, the cost of refrigeration is eliminated in shipping by truck.

Hence in charging about the rail cost combined with cartage to and from stations, trucks may profitably haul grapes, strawberries, and peaches several hundred miles, when they could carry onions or cabbage profitably only 25 to 40 miles.

Lightness affects the relative economy of trucking or shipping by rail. Only 5 to 6 tons of such products as asparagus, beans, and Brussels sprouts are loaded to a car, whereas 12 to 15 tons of apples, cabbage, and watermelons constitute a carload, and 15 to 20 tons of rutabagas and potatoes. Trucks are usually loaded to double their rated capacity. Hence a 3-ton truck can haul a carload of beans or asparagus, if the bed is sufficiently extended or if a trailer is used, whereas it can haul only one-third of a car of some of the heavier and less perishable items. Therefore light products and those with a low minimum car-lot weight are adapted to truck shipping. Ninety-six per cent of the spinach in the territories covered in this study was shipped by truck, 89 per cent of the beans, only 18 per cent of the onions, and 12 per cent of the cabbage. (Table 2.)

Quantity consumption or common usage of a commodity aids truck shipping in areas of limited population. Dealers in small cities may not be able to use a truck load of carrots or turnips, whereas they can use a truck load of grapes or cantaloupes. The latter can be jobbed by truckmen-merchants in villages and rural neighborhoods. This is indicated by Table 2, which shows that for the areas studied 49 per cent of the cantaloupes and 48 per cent of the grapes were shipped by truck as compared with 39 per cent of the carrots and small quantities of turnips. (Tables 7 to 22.) Potatoes and apples are favorite commodities of truckmen-merchants because of their ready salability in volume.

High value of a commodity may influence shippers to use the motor truck. Thus Pennsylvania mushrooms are shipped mainly by truck, although express rates have been reduced below the truck

charges. Slightly faster delivery in better condition make mushrooms preeminently a motor-trucking crop, whereas some cheap products like watermelons and pumpkins are not.

MOTOR-TRUCK TRANSPORTATION AS COMPARED WITH OTHER FORMS OF TRANSPORTATION

Most of the high-grade products, in many sections, are shipped by rail to distant cities, and what remains is available for motor-truck distribution. This is particularly true of apples, potatoes, and peaches produced at a considerable distance from large city markets.

On the other hand, in areas with a large and fairly affluent population motor-truck shipments tend to vary less in volume than do railroad shipments. In years of low supplies and high prices the truckmen reach out farther for supplies, but consumption is somewhat curtailed. In a measure, the railroad shipments of any particular commodity are the surpluses above the requirements of markets within the motor-truck range in areas near good markets and where truck transportation is fairly stabilized, according to the opinion of close observers of the trade.

The chief time advantage of trucks over railroads is due to delays in picking up cars at stations in producing areas or at division points, and delays occasioned in breaking up a train at diversion points and switching a car to the team tracks at terminals. These delays in railroad transportation are constants, the relative importance of which decreases with added distance. The saving of expense of cartage effected by motor-truck transportation is a constant the relative importance of which diminishes with added distance. Hence the shorter the haul the greater the advantage of the truck. Much long distance truck hauling has been unsound economically.

There are many points between which no direct rail connections exist; there trucks can haul direct at savings in mileage. Again, many purchasers want less than a carload, and frequently a shipper wishes to ship less than a carload. Since l. c. l. freight rates are considerably above car-lot rates, and some perishable products will not carry satisfactorily under l. c. l. freight conditions, the truck is found desirable both for small-lot shipping and short-cut shipping. Many producers of highly perishable products wish to clean up the day's picking in the evening and may have more or less than a carload.

MOTOR-TRUCK TRANSPORTATION IN VARIOUS SECTIONS

DELAWARE AND THE EASTERN SHORE OF MARYLAND AND VIRGINIA

The shipments of fruits and vegetables by truck from Delaware and the Eastern Shore of Maryland and Virginia in 1928 were tabulated from the records of the Delaware State Highway Department. Practically all traffic moving north from the Eastern Shore section passes over certain highways in Delaware on which State police maintain weighing stations. At these stations the inventories, origins, and destinations of the loads were learned. It was estimated that these records represent 80 per cent of the truck movements from the

Eastern Shore section. Some loads cross the Chesapeake Bay without traveling over Delaware roads, and some trucks are missed when the State police are called away on emergency duty.

In comparing motor-truck movement with rail movement for individual counties as shown in Tables 7, 8, and 9, it should be kept in mind that although the total motor-truck movement from the area may be considered approximately 80 per cent complete, figures shown for specific crops and specific counties may vary considerably from 80 per cent of the motor-truck movement.

TABLE 7.—*Railroad and reported motor-truck shipment of fruits and vegetables from Delaware, 1928* [1]

County	Apples		Asparagus		Cantaloupes		Cucumbers		Grapes		Miscellaneous	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Kent	595	80	0	7	0	9	0	----	11	3	1	20
New Castle	5	----	0	----	0	----	0	----	0	----	0	----
Sussex	738	82	0	9	427	543	214	112	0	49	0	175
Total	1,338	162	0	16	427	552	214	112	11	52	1	201

County	Peaches		Potatoes		Sweetpotatoes		Strawberries		Watermelons	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Kent	22	25	42	21	419	3	10	81	0	1
New Castle	0	----	1	----	0	----	0	----	0	----
Sussex	8	2	113	80	1,163	235	611	927	50	24
Total	30	27	156	101	1,582	238	621	1,008	50	25

[1] Motor-truck figures, for Delaware and for the Eastern Shore of Maryland and Virginia (Tables 8 and 9), are based on the records of the Delaware State Highway Department and are estimated to be only about 80 per cent of the total long-distance motor-truck movement of fruits and vegetables from this area. For specific crops and specific counties the figures may vary considerably from 80 per cent of the total motor-truck movement. Items included under miscellaneous differ in Tables 7, 8, and 9. Some are "highly perishable" and some "less perishable" as discussed herein.

TABLE 8.—*Railroad and reported motor-truck shipments of fruits and vegetables from Eastern Shore of Maryland, 1928* [1]

County	Apples		Beans, string		Cantaloupes		Cucumbers		Miscellaneous		Peas		Peaches	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Caroline	29	2	0	2	98	58	15	11	0	7	0	----	0	1
Cecil	9	2	0	----	0	----	0	0	0	----	0	----	0	----
Dorchester	12	3	0	7	376	109	1	7	0	8	31	31	0	----
Harford	25	----	0	----	0	1	0	----	0	----	0	----	17	----
Kent	0	----	0	----	0	----	0	----	23	----	0	----	0	----
Queen Annes	0	----	0	----	0	----	0	----	0	----	0	----	0	----
Somerset	0	----	63	54	0	5	0	1	7	9	0	2	0	2
Talbot	128	----	0	----	0	----	0	----	0	----	0	----	46	----
Wicomico	33	9	1	157	497	394	511	109	0	39	0	4	14	3
Worcester	203	----	1	14	0	1	28	4	36	12	0	----	34	----
Unknown	0	----	0	----	0	----	0	----	0	1	0	1	0	----
Total	439	16	65	264	971	568	555	131	66	76	31	38	113	6

TABLE 8.—*Railroad and reported motor-truck shipments of fruits and vegetables from Eastern Shore of Maryland, 1928*—Continued

County	Peppers		Potatoes		Sweetpotatoes		Strawberries		Tomatoes		Watermelons	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Caroline	0	43	21	7	31	9	65	126	0	1	8	1
Cecil	0	------	1	------	0	------	0	6	0	------	0	------
Dorchester	0	------	10	7	52	1	1	78	0	1	4	1
Harford	0	------	0	------	0	------	0	------	0	------	0	------
Kent	0	------	0	------	0	------	6	------	5	------	0	------
Queen Annes	0	------	2	0	0	------	0	------	0	------	0	------
Somerset	0	1	436	3	70	3	399	219	414	49	0	1
Talbot	0	------	5	------	1	0	0	------	0	------	0	------
Wicomico	0	------	47	26	1,525	170	258	445	0	10	55	------
Worcester	0	------	2,603	20	338	9	224	57	86	4	0	12
Unknown	0	------	0	------	0	------	0	6	0	------	0	------
Total	0	44	3,128	63	1,817	192	947	937	505	65	67	15

[1] See footnote 1, Table 7. In addition to the rail shipments shown in this table the following number of car-lot equivalents were shipped by boat in 1928 from Eastern Shore of Maryland: Apples, 7; cantaloupes, 25; cucumbers, 2; onions, 1; sweetpotatoes, 278; potatoes, 207; strawberries, 31; tomatoes, 1; watermelons, 141.

TABLE 9.—*Railroad and reported motor-truck shipments of fruits and vegetables from Eastern Shore of Virginia, 1928* [1]

County	Beans, string		Cabbage		Greens		Miscellaneous		Onions		Peas	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Accomac	5	86	26	7	0	68	1	24	50	1	8	14
Northampton	0	21	634	3	0	7	8	17	0	------	2	7
Unknown	0	1	0	------	0	------	0	2	35	------	0	1
Total	5	108	660	10	0	75	9	43	85	1	10	22

County	Peppers		Potatoes		Sweetpotatoes		Strawberries		Tomatoes		Turnips	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Accomac	0	3	11,016	29	4,792	56	365	351	0	1	16	------
Northampton	1	17	10,989	7	811	23	98	92	22	0	0	------
Unknown	0	------	170	1	0	2	0	2	0	------	0	------
Total	1	20	22,175	37	5,603	81	463	445	22	1	16	0

[1] See footnote 1, Table 7. In addition to the railroad shipments shown in this table, the following number of "car-lot equivalents" were shipped by boat in 1928 from Eastern Shore of Virginia: Cabbage, 29; onions 91; strawberries, 59; sweetpotatoes, 539; potatoes, 919; watermelons, 146.

Shipments of fruits and vegetables reported by rail and boat from Delaware and the Eastern Shore of Maryland and Virginia in 1928 totaled 44,659 cars, as compared with 5,752 carloads reported as sent by motor truck. Assuming that these motor-truck records represent only about 80 per cent of the total motor-truck shipments, a total movement of the equivalent of 7,191 carloads by motor truck—that is, 14 per cent of the movement from the area—is indicated. (Table 1.) From the Eastern Shore of Virginia the estimated total motor-

truck shipments were 1,054 cars, or 3 per cent, from the Eastern Shore of Maryland 3,019 cars, or 24 per cent, and from Delaware 3,118 cars, or 41 per cent. These variations reflect the importance of distance from markets and perishability of commodities grown, on the volume of motor-truck shipments.

Of the class of highly perishable commodities, including berries, cantaloupes, grapes, peaches, watermelons, asparagus, beans, cucumbers, greens, peas, peppers, spinach, and tomatoes, 4,703 carloads were recorded as being shipped from Delaware and the Eastern Shore section by motor truck. Assuming that these records were 80 per cent complete, the total shipments of these more perishable items would amount to 5,879 carloads, as compared with 5,496 cars of the same products shipped by rail and boat. A little more than half, therefore, was sent by motor truck. On the other hand, the motor-truck shipments of a group of less perishable commodities consisting of apples, cabbages, onions, potatoes, and sweetpotatoes was estimated as comprising slightly less than 3 per cent of the total movement of these commodities. The motor-truck shipments of this latter group totaled 1,129 cars (considering the records of the highway department as 80 per cent complete), as compared with rail-and-boat shipments equal to 39,057 cars. Less than 1 per cent of the potatoes moved by motor truck.

TABLE 10.—*Shipments of strawberries by rail and boat and reported motor-truck movement from Delaware and the Eastern Shore of Maryland and Virginia, 1926, and 1928–1930*

Year	Rail and boat	Motor truck, as reported [1]	Percentage of total reported by motor truck
	Cars	*Cars*	
1926	2,862	1,056	28
1928	2,121	2,396	53
1929	1,649	2,073	56
1930	839	1,129	57

[1] Reported motor truck shipments are not complete but as a general estimate may be considered as 80 per cent of the total motor-truck movement.

The actual count for the shipment of strawberries during four seasons is shown in Table 10. These figures give a picture of the increasing importance of the motor truck in the distribution of strawberries from this region.

Of the total number of trucks stopped by the Delaware State police in 1928, 76.9 per cent were hauling fruits and vegetables, 5.8 per cent poultry and eggs, 7.6 per cent fish, 0.9 per cent livestock, 5.4 per cent mixed produce, and 3.4 per cent other materials. This is not so much a measure of the adaptability of various items to truck transportation as it is an index of the industry of the section.

The volume of the motor-truck shipments was light from September to April, inclusive. The months of greatest motor-truck movements were June and August, in which 4,263 and 4,434 truck loads, respectively, were reported. In May, 3,230 truck loads were reported;

in July, 2,540; and in November, only 362. A total of 19,891 truck loads was counted from the police records. These figures include other commodities as well as fruits and vegetables. Spring greens comprise a large part of the truck shipments during March and April, strawberries constitute the main shipments in May, and beans, peas, and strawberries in June. Various crops make up the summer and fall shipments. In 1928 the average truck load was between one-third and one-half a carload.

Philadelphia led in reported destinations of motor-truck shipments from Delaware and the Eastern Shore of Maryland and Virginia, with 2,437 cars; New York City was second, with 2,160 cars; Newark, third, with 431 cars; Baltimore, fourth, with 95 cars; Boston, fifth, with 77 cars; and Chester, Pa., sixth, with 59 cars. Motor-truck shipments to Wilmington, Del., and other local markets were not tabulated. The length of the haul to Philadelphia from some of the important producing districts of the Eastern Shore is about 125 miles and to New York about 225 miles. The six large cities, New York, Philadelphia, Newark, Boston, Baltimore, and Washington, received 93 per cent of the total movement, according to declarations of truckmen. Some diversions from the original destinations were made after these shipments had passed the Delaware highway stations. (Table 11.)

TABLE 11.—*Destination of motor-truck shipments of fruits and vegetables from Delaware and the Eastern Shore of Maryland and Virginia, 1928*[1]

State and city destination	Car-lot equivalents shipped by motor truck to cities named									
	Apples	Cantaloupes	Peaches	Strawberries	String-beans	Cucumbers	Potatoes	Sweet-potatoes	Others	Total
Connecticut:										
Bridgeport	0	2	0	0	0	0	0	0	0	2
Danbury	0	0	0	1	0	0	0	0	0	1
Hartford	1	0	0	1	0	0	0	0	0	2
New Haven	1	4	0	9	0	2	0	0	1	17
District of Columbia:										
Washington	0	0	0	12	2	0	0	2	3	19
Maryland:										
Baltimore	5	0	1	71	0	0	4	8	6	95
Hagerstown	2	0	0	0	0	0	0	0	0	2
Woodsboro	2	0	0	0	0	0	0	0	0	2
Elkton	0	0	0	0	0	0	1	0	0	1
Massachusetts:										
Boston	0	2	0	71	2	1	0	0	1	77
Springfield	0	0	0	2	0	0	0	0	0	2
New Jersey:										
Atlantic City	0	4	0	0	0	0	0	0	2	6
Elizabeth	0	1	0	0	0	0	0	0	0	1
Newark	14	84	2	227	33	19	6	31	15	431
Paterson	0	3	0	4	0	0	0	0	0	7
Trenton	0	2	0	10	0	2	0	0	0	14
Others	2	2	0	11	0	6	2	1	4	28
New York: New York	71	447	16	919	106	141	9	83	308	2,100
Pennsylvania:										
Allentown	1	3	0	13	0	0	0	6	0	23
Bethlehem	3	1	0	13	0	0	0	4	2	23
Chester	7	7	0	24	0	0	13	4	4	59
Harrisburg	0	1	0	0	0	0	0	8	0	18
Hazleton	0	1	0	11	0	0	0	0	0	12
Lancaster	0	1	1	6	0	0	0	3	1	12
Oxford	2	3	0	1	0	0	2	4	0	12
Philadelphia	50	534	11	819	177	63	163	349	191	2,437

[1] Figures are taken from reports of truckmen to the Delaware State police. Since some small towns received less than a car-lot equivalent by truck and since the fractional amounts are not included the totals in these columns for certain commodities may be less than the number of cars shipped by motor truck as shown in Tables 7 to 9. Motor-truck shipments to Wilmington and other Delaware points are not included.

TABLE 11.—*Destination of motor-truck shipments of fruits and vegetables from Delaware and the Eastern Shore of Maryland and Virginia, 1928*—Continued

State and city destination	Car-lot equivalents shipped by motor truck to cities named									
	Apples	Cantaloupes	Peaches	Strawberries	String-beans	Cucumbers	Potatoes	Sweetpotatoes	Others	Total
Pennsylvania—Contd.										
Reading	2	5	0	18	0	0	0	4	0	29
Scranton	4	5	0	9	1	4	0	0	0	23
Shamokin	0	0	0	1	0	0	0	0	0	1
West Chester	1	0	0	0	0	0	1	0	0	2
Wilkes-Barre	2	0	1	13	2	2	0	0	2	22
Williamsport	1	0	0	8	1	0	0	0	0	10
Wyoming	4	0	0	0	0	0	0	0	0	4
Others	0	10	0	28	0	1	0	1	1	41
Rhode Island: Providence	0	0	0	5	0	0	0	0	0	5
Total	175	1,122	32	2,396	384	241	201	508	541	5,600

Small cities in Pennsylvania and New Jersey received most of the shipments not going to large cities. In the case of strawberries, motor-truck shipments were reported to 21 Pennsylvania markets exclusive of Philadelphia. Some of the commodities that had a considerable distribution to the small cities in addition to strawberries include early apples, cantaloupes, potatoes, sweetpotatoes, and watermelons.

Philadelphia and other cities within a relatively short distance of the Eastern Shore received the major portion of the heavy and less perishable commodities such as potatoes and cabbage. The New York metropolitan area was the principal receiver for the motor-truck shipments of the light and the more perishable commodities such as grapes, beans, peppers, berries, and greens. Strawberries constituted the only important motor-truck movement to Boston, represented by 71 cars. Buffalo was the most distant destination—several truck loads were declared to be destined for this point.

An analysis of the daily distribution of strawberries by truck was made. The day-by-day variations in destinations to New York, Philadelphia, and Boston were very great. As a result supplies on these markets for the last few years have fluctuated violently. The Delaware Bureau of Markets in 1928 tried to correct this condition by giving a market news service free to growers and at cost to shippers. They obtained by telegram the market condition of the large markets from the Federal Market News Service, and, in addition, telephoned to the smaller markets within trucking distance.

It was found that shippers availed themselves of this service, but overdid it. Markets on which berries were scarce to-day would in many cases be oversupplied to-morrow. There were too many diversions, and there was no way to gage them.

At many points in this section, local auction blocks are in operation, particularly in the important strawberry and cantaloupe areas. Farmers bring these crops in to the auction sheds, where they are sold to local brokers. They are then loaded on motor trucks or cars to be moved to market. With such crops as apples, potatoes, and broccoli the trucks are generally loaded at the farm. In only a few

instances do truckmen send special trucks to farms to haul produce to concentration points. The majority of the motor-truck shipments are consigned to city dealers, although some sales are made on a delivered basis and a limited quantity of produce is sold at shipping point to truckmen merchants. The trend seems to be away from this latter practice.

CUMBERLAND-SHENANDOAH SECTIONS OF MARYLAND, PENNSYLVANIA, AND WEST VIRGINIA

The counties included in the Cumberland-Shenandoah sections of Maryland, Pennsylvania, and West Virginia are Allegany and Washington Counties in Maryland; Berkeley, Jefferson, and Morgan Counties in West Virginia, and Adams, Franklin, and York Counties in Pennsylvania. York County potatoes were not included in the report. Of the 1928 crops of fruits and vegetables in the area defined, 9,567 cars were shipped by rail, as compared with 1,130 cars estimated to have been shipped by truck—that is, 11 per cent of the total movement was shipped by truck. By commodities the estimated percentages moving by truck were: Apples 8, potatoes 17, and peaches 29. No pear shipments by truck were reported. (Table 12.)

TABLE 12.—*Railroad and estimated motor-truck shipments of specified fruits and vegetables from the Cumberland-Shenandoah section of Maryland, Pennsylvania, and West Virginia, 1928 crop*

State and county	Apples		Peaches		Pears		Potatoes	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
Maryland:	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Allegany	186	33	1	2	0	.....	0	.....
Washington	919	225	167	128	0	.....	0	.....
Total	1,105	258	168	130	0	.....	0	4
Pennsylvania:								
Adams	1,104	156	148	45	0	.....	13	3
Franklin	861	85	358	140	0	.....	320	61
York	44	128	63	37	0	.....	(1)	(1)
Total	2,009	369	569	222	0	.....	[1] 333	[1] 64
West Virginia:								
Berkeley	2,933	5	89	1	1	.....	0	.....
Jefferson	1,308	10	10	.....	8	.....	0	.....
Morgan	944	54	30	7	0	.....	0	.....
Total	5,245	75	129	8	9	.....	0	.....
Total three sections	8,359	702	866	360	9	.....	[1] 333	68

[1] York County potatoes were not considered.

From the part of this fruit belt located in a mountainous territory not far from coal-mining and industrial districts, motor-truck shipments were almost negligible because of river and mountain barriers; they were very large from other places that were favored by proximity to desirable markets and improved highways. (Fig. 3.)

In Berkeley, Jefferson, and Morgan Counties, W. Va., the use of the truck had not increased the selling of fruit at the farm (cider apples excepted). In Berkeley County, less than 1 per cent of the fruit was trucked to consuming markets, in Jefferson County only

1 per cent, and in Morgan County 6 per cent. Mountains, streams, and competing areas isolate most of this area on three sides, and Baltimore and Washington (90 miles away) were considered too far off for truck shipping of apples. Many growers do not consider these two the best paying markets for the fruit of this district.

The only movement of consequence by truck in West Virginia occurs from the Potomac Valley of Morgan County into the coal fields of West Virginia and Pennsylvania. Otherwise the motor-truck shipments are insignificant and show no indications of increasing.

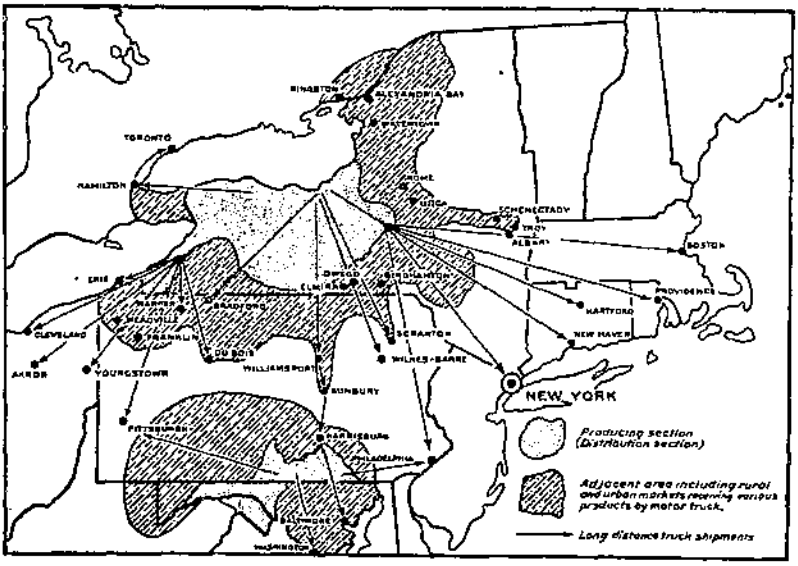

FIGURE 3.—AREAS OF FRUIT AND VEGETABLE PRODUCTION AND DISTRIBUTION BY TRUCK

The major portion of the shipments of fruits and vegetables by truck from western New York are made to points within western New York itself or the northern part of Pennsylvania. A small quantity of peas and lettuce was trucked to distant cities in 1928 and 1929. Motor-truck shipments from the Cumberland-Shenandoah fruit section were mainly to Baltimore, Washington, and west-central Pennsylvania.

In western Maryland 19 per cent of the apple shipments were estimated to have been by motor truck and 44 per cent of the peach shipments. (Table 12.) Cumberland and Hancock lie on National Highway 40, in the path of heavy traffic, and with markets within trucking range, have a heavy volume of truck distribution. From this district apples and peaches are trucked 95 miles to Altoona, 56 miles to Bedford, 102 miles to Uniontown, 122 miles to Johnstown, and 100 miles to Baltimore and Washington, as well as to other towns in a fan-shaped territory northwest and east. Considerable quantities of fruit are sold near Hancock from roadside stands. From the district east of Hagerstown, including Chewsville and Smithburg, there is a considerable movement of apples and peaches to Baltimore, Washington, and near-by towns.

No direct railroad connections exist from western Maryland to certain desirable small markets in West Virginia and Pennsylvania.

The motor truck is used to find these isolated markets in the coal belt for low-grade peaches and apples, where they sell at higher prices than the same quality brings in city markets.

Several truckmen make regular circuits up the highway from Baltimore to Cumberland and return by way of Pennsylvania points, hauling produce both ways when it is available. Two small truckman carriers operated from Chewsville to Baltimore.

A majority of the western Maryland growers expected to increase motor-truck distribution.

The estimated truck shipments of apples, peaches, and potatoes from Adams County was 14 per cent of the total shipments for the county in 1928, from Franklin County 16 per cent, and from York County (apples and peaches only) 61 per cent. The differences are accounted for by the proximity of markets and quantity of production. Because the city of York is in York County and Harrisburg, Lancaster, and Baltimore are within easy trucking distance, the percentage movement from York County by motor truck is large. Franklin County is admirably located to furnish the coal belt of central-western Pennsylvania with peaches.

The leading markets for motor-truck shipments from these three counties were Baltimore, Washington, York, Harrisburg, Altoona, Johnstown, Lancaster, Carlisle, Reading, Scranton, and Philadelphia. Distances range up to an extreme of 155 miles, but generally the movement is within 50 to 100 miles. Growers in York and Adams Counties sell a considerable quantity of fruits and vegetables on the farmers' market in Baltimore and to dealers in York, Washington, and Harrisburg.

A large producing unit in Adams County distributed apples by motor truck as a slack-time job. It was stated that trucks were necessary for orchard work, and inasmuch as it was desirable to employ a certain number of experienced men during the entire year, distribution by motor truck from cold storage during the winter was a means of keeping men and equipment busy.

About 50 per cent of the growers interviewed in this district stated that they had increased their sales at the farm as a result of motor-truck traffic.

The long-distance motor-truck movement (beyond 20 miles) in this area has largely developed since 1924. From 1928 to 1929 the increase in motor-truck distribution was about 10 per cent in Adams and York Counties and 25 per cent in Franklin County. Statements of growers and shippers indicate a slightly upward future trend.

NEW JERSEY

Not only are fruits and vegetables major factors in the agriculture of New Jersey, but large and numerous consuming markets are within the motor-truck area. Within a few hundred miles lies most of the heavily populated North Atlantic seaboard. As might be expected, therefore, the volume of New Jersey fruits and vegetables marketed by truck is very large. From the eight commercially important counties which lie, roughly, out of the market-garden areas of New York City and Philadelphia, 12,851 cars of fruits and vegetables were shipped by rail in 1928, as compared with 25,948 cars, or 67 per cent, which it is estimated were shipped by motor truck. This rep-

resents approximately the displacement of rail shipments by motor-truck shipments. (Table 13.)

TABLE 13.—*Railroad and estimated motor-truck shipments of commercially important fruits and vegetables from certain New Jersey counties, 1928* [1]

County	Apples		Asparagus		Beans, string		Berries [2]		Cabbage	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Atlantic	0	10	0	-------	4	20	0	179	4	9
Burlington	98	573	0	16	5	175	0	8	0	-------
Cumberland	73	158	34	78	98	110	186	253	33	48
Gloucester	106	249	0	400	1	288	0	-------	5	25
Mercer [3]	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Middlesex	0	-------	0	-------	0	-------	0	-------	0	-------
Monmouth	4	765	0	60	0	20	0	46	0	-------
Salem	0	20	0	70	1	48	0	50	0	-------
Total	281	1,775	34	624	109	670	186	536	42	82

County	Cantaloupes		Carrots		Celery		Cherries		Corn, green [4]	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Atlantic	0	-------	3	3	0	-------	0	-------	-------	-------
Burlington	0	10	0	-------	0	-------	0	47	-------	510
Cumberland	9	4	63	79	13	65	0	-------	-------	-------
Gloucester	4	127	1	3	0	-------	0	-------	-------	-------
Mercer [3]	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Middlesex	0	-------	0	-------	0	-------	0	-------	-------	-------
Monmouth	0	-------	1	175	0	-------	0	-------	-------	396
Salem	0	-------	0	75	0	-------	0	-------	-------	100
Total	13	141	68	335	13	65	0	47	-------	1,006

County	Cranberries		Cucumbers		Eggplant		Grapes		Lettuce	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Atlantic	44	1	287	-------	0	-------	0	1	3	3
Burlington	261	-------	0	204	0	-------	1	30	0	-------
Cumberland	2	2	25	25	0	-------	0	-------	140	250
Gloucester	0	-------	58	108	0	80	0	-------	0	-------
Mercer [3]	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Middlesex	0	-------	0	-------	0	-------	0	-------	0	-------
Monmouth	2	-------	0	-------	0	-------	0	25	0	-------
Salem	0	-------	0	-------	0	-------	0	-------	0	60
Total	309	3	370	427	0	80	1	56	143	313

[1] Exclusive of counties within wagon-haul distance, or about 20 miles, of New York and Philadelphia, and those of relatively small production.

[2] Rail shipments shown under berries are strawberries only. However, the car-lot rail movement of other berries such as blackberries and raspberries from New Jersey is probably small.

[3] Data were not available for estimates of motor-truck shipments of minor commodities.

[4] Rail shipments of green corn were not reported.

TABLE 13.—*Railroad and estimated motor-truck shipments of commercially important fruits and vegetables from certain New Jersey counties, 1928*—Con.

County	Mixed vegetables [3]		Onions		Peaches		Pears	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Atlantic	257	328	0		2	91	0	
Burlington	0	74	0		1	75	0	80
Cumberland	1,929	2,175	317	117	19	140	0	
Gloucester	442	1,396	13	35	19	331	2	33
Mercer [3]	0	160						
Middlesex	0		0		0		0	
Monmouth	28	1,228	0		0	224	0	30
Salem	137	752	0		0	15	0	
Total	2,793	6,113	330	153	41	876	2	143

County	Peas, green		Peppers		Potatoes		Spinach	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Atlantic	4	36	360	360	0		0	
Burlington	0	97	0		4	69	0	
Cumberland	28	43	206	211	458	280	41	53
Gloucester	6	62	175	241	0		0	
Mercer [3]					1,434	1,434		
Middlesex	0		0		1,013	749	0	
Monmouth	0		0		2,063	1,814	0	465
Salem	0		7	295	429	1,600	2	18
Total	38	238	748	1,107	5,401	5,926	43	536

County	Sweetpotatoes		Tomatoes		Turnips		Watermelons	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Atlantic	144	231	0		0		0	
Burlington	0		0	507	6	20	0	
Cumberland	173	338	29	80	23	23	0	
Gloucester	868	1,008	157	573	28	31	7	15
Mercer [3]			129	75				
Middlesex	0		0		0		0	
Monmouth	0	18	210	723	1		0	
Salem	100	289	1	690	0		10	75
Total	1,285	1,884	526	2,648	58	74	17	90

[3] Data were not available for estimates of motor-truck shipments of minor commodities.
[4] Shipments of mixed vegetables shown under "truck" includes some full-truck loads of various vegetables listed in table.

But if the market-garden supplies and other consignments of fruits and vegetables shipped less than 20 miles by truck are included, the figure is much larger. In 1928, it was estimated that 79.8 per cent of all New Jersey fruits and vegetables went to market by motor truck.[2]

In Camden County, adjacent to Philadelphia, and Bergen, Passaic, and other counties adjacent to the New York City metropolitan

[2] PRICE, B. M. Op. cit. (See footnote 1, Table 6.)

area, a large volume of specialty and market-garden green vegetables are produced partly for the foreign-born population and sold on the farmers' markets by gardeners. In the commercially important producing areas in the central and southern part of the State shipping by truck has grown rapidly since the war, and especially since about 1925.

Motor-truck unloads at New York City from New Jersey for the year March, 1929, to March, 1930, were 14,343 cars, while Newark received 7,989 cars in 1929 from New Jersey. These figures include market-garden receipts. Estimates of 695 New Jersey growers indicate that somewhat more than one-half of New Jersey motor-truck shipments went to these two cities. Philadelphia received the major portion of the remainder; some, however, went to Atlantic City, Baltimore, Washington, Paterson, New Haven, Boston, and smaller markets.

In the New York City motor-truck territory, of 940 growers interviewed, 342 stated that all of their products were going to market by truck, 356 planned to make greater use of the truck in the future, and 242 planned to make the same or less use of truck transportation. It seems apparent that the rapid growth of motor-truck shipping in New Jersey will continue at a lesser rate of gain unless new factors arise. Improved facilities and service have been inaugurated by railroads at some New Jersey points, notably at Cedarville.

NEW YORK, HUDSON VALLEY

In Orange County, N. Y., there is extensive production of muckland vegetables, notably onions, lettuce, celery, and leafy crops. Along the banks of the Hudson from Newburgh to Albany County is an area of extensive production of fruit, berries, and some tomatoes and mushrooms. In the Catskills is an area of commercial production of cauliflower and Brussels sprouts, centering at Margaretsville.

The total rail and boat shipments from the Hudson Valley region in 1928 were 2,689 cars, as compared with 5,429 cars, or 67 per cent, shipped by truck, exclusive of local movements. Apples led the list in truck shipments with 2,337 cars, followed in order by pears, grapes, onions, lettuce, and strawberries. (Table 14.) In percentage shipped by truck, apples were lowest, and of such commodities as lettuce, celery, strawberries, and peaches a much higher percentage moved by truck. (Table 14.)

TABLE 14.—*Railroad, boat, and estimated motor-truck shipments of fruits and vegetables from important producing counties in the Hudson Valley, N. Y., 1928 crop*[1]

County	Apples		Brussels sprouts		Cauliflower		Celery		Grapes		Lettuce	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Columbia	962	504	0	-------	0	-------	0	-------	39	74	0	-------
Delaware	8	-------	13	30	54	105	0	-------	0	-------	0	-------
Dutchess	436	508	0	-------	0	-------	0	-------	6	86	0	-------
Greene	239	161	0	-------	0	-------	0	-------	0	34	0	-------
Orange	33	369	0	-------	0	-------	4	171	4	36	0	265
Ulster	157	795	0	-------	0	-------	0	-------	110	292	0	-------
Total	1,833	2,337	13	30	54	105	4	171	159	522	0	265

County	Miscellaneous		Onions		Peaches		Pears		Strawberries		Tomatoes	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Columbia	26	100	0	-------	0	19	111	335	1	40	0	-------
Delaware	2	1	0	-------	0	-------	0	-------	0	-------	0	-------
Dutchess	3	35	0	-------	0	-------	27	108	9	47	0	-------
Greene	0	5	0	-------	0	24	134	83	0	-------	0	3
Orange	1	67	141	518	2	25	5	20	0	-------	14	56
Ulster	10	73	2	0	19	49	19	170	23	105	77	116
Total	42	281	143	518	21	117	296	716	33	192	91	175

[1] Motor-truck shipments are long distance only, that is, local draying, market-garden production, and movements to canning factories are not included, except 40 cars of currants from Ulster County to jelly factories at Brooklyn. These counties constitute the main motor-truck area tributary to New York in the Hudson Valley, although some truck shipments are made from Albany to New York. Boat shipments are included under the columns headed "Rail."

The fruit belt of the Hudson is served both by boat and rail. The boat lines have tried pick-up trucks which make the rounds of farms and assemble fruit at the wharves, and the railroads have established faster service to New York City, but the relative short distances to New York City, Newark, and Albany, coupled with the high cartage charges in New York City, have resulted in constantly increasing recourse to trucks for transportation. The cities named receive nearly all of the motor-truck shipments, but in the last few years trucking to Philadelphia, and to New England cities via the Bear Mountain Bridge and northern routes has occurred in small but increasing volume. Boston has been the most distant destination. Numerous cold-storage plants in the fruit sections, many of them established in recent years, have favored carrier-trucking by prolonging the trucking season throughout the fall and winter. Intentions as to future truck shipments stated by 349 growers were as follows: 143 expected to increase their use, 120 were making full use then, and 86 expected to make the same or less use of them.

NEW YORK, LONG ISLAND

Farming in Nassau County, adjacent to Brooklyn and Queens, is devoted largely to market gardening. Production runs largely to bunch and leafy vegetables, particularly for the special demands

of racial elements, although a large quantity of cabbage, green corn, potatoes, and tomatoes are also produced. A major portion of the production is marketed on the farmers' markets, principally Harlem and Wallabout. No car-lot rail shipments were reported from this county in 1929.

In the central part of the island production is light, but on the eastern end, in Suffolk County there is heavy commercial production of potatoes, cauliflower, Brussels sprouts, and some miscellaneous items. In Suffolk County about 10 per cent of the potatoes, 85 per cent of the cauliflower and Brussels sprouts, and about 98 per cent of the other products were estimated to have been shipped to market by truck. These truck shipments of Suffolk County represent approximately the displacement of rail shipments of fruits and vegetables from Long Island.

Considering Long Island as a whole (including market-garden production), 6,418 cars were shipped by rail in 1929, and according to market receipts reported in New York City and Newark, 13,484 cars moved to market by motor truck. Miscellaneous products accounted for 5,290 cars by truck, followed by potatoes, tomatoes, green corn, cabbage, cauliflower, beets, and carrots. (Table 15.)

TABLE 15.—*Railroad and motor-truck shipment of principal fruits and vegetables from Long Island, 1929* [1]

County	Beets		Brussels sprouts		Beans, string		Carrots		Cabbage		Celery	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
Nassau and Suffolk	*Cars* 0	*Cars* 657	*Cars* 0	*Cars* 202	*Cars* 0	*Cars* 418	*Cars* 0	*Cars* 587	*Cars* 0	*Cars* 715	*Cars* 0	*Cars* 411

County	Cauliflower		Corn		Miscellaneous		Potatoes		Spinach		Tomatoes	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
Nassau and Suffolk	*Cars* 200	*Cars* 665	*Cars* 0	*Cars* 787	*Cars* 1	*Cars* 5,290	*Cars* 6,217	*Cars* 2,157	*Cars* 0	*Cars* 492	*Cars* 0	*Cars* 1,103

[1] Motor-truck shipments were calculated from receipts at New York City jobbing and farmers' markets. Market-garden supplies from Nassau County are included.

Approximately 99 per cent of the motor-truck movement from Long Island goes into the New York City metropolitan area, and about 1 per cent to Philadelphia, according to estimates of growers.

It appears from statements of growers and shippers that little further increase in motor-truck shipping from Long Island is probable except as production increases. Practically all shipments destined to New York City are made by motor truck, with the exception of potatoes from the eastern end of Long Island. Truckmen have not found the trucking of potatoes profitable from the Suffolk potato field, except for filling up part loads of other products.

NEW YORK, WESTERN

The section called New York, western, in this study embraces the 21 commercially important producing counties of western New York. The information pertains to 1928 crops and includes shipments of these crops made in the first half of 1929.

In the area and for the time defined 44,244 cars of fruits and vegetables were shipped by railroad, as compared with 10,605 car-lot equivalents, or 19 per cent, estimated to have been shipped by truck.

Over 20 fruits and vegetables are grown on a commercial scale in this section. In addition to the production for market included in the foregoing there is a large production for factory use that is not included. The estimated percentage of motor-truck movements to market of important fruits and vegetables were: Potatoes, 56; peaches, 32; grapes, 24; tomatoes, 13; apples, 11; pears, 11; onions, 10; lettuce, 9; celery, 8; cabbage, 4; and carrots, 4. Of the less important commodities the percentages moved by motor truck were: Plums and prunes, 28; cauliflower, 23; spinach, 11; strawberries, 10; beans, 8; turnips, 7; cucumbers, 6; and peas, 6. (Table 16.)

TABLE 16.—*Railroad and estimated motor-truck shipments of fruits and vegetables from principal western New York counties, 1928 crop* [1]

County	Apples		Cabbage		Carrots		Celery		Cucumbers		Grapes		Lettuce	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Allegany	0	------	0	------	0	------	0	------	0	------	0	------	0	------
Cayuga	42	8	279	------	8	3	2	1	0	------	0	------	0	------
Chautauqua	29	19	5	20	5	------	0	------	0	------	2,460	201	0	------
Cortland	1	------	558	6	0	------	0	------	0	------	0	------	0	------
Erie	1	------	2	------	0	------	0	------	50	15	126	177	0	------
Genesee	365	22	427	123	26	(2)	0	------	5	------	0	------	1,128	113
Livingston	79	14	353	7	0	------	51	92	0	------	0	------	0	------
Madison	0	------	151	4	12	2	14	------	1	------	0	------	58	66
Monroe	1,185	128	1,375	60	230	17	307	109	218	10	9	1	15	51
Niagara	2,600	381	251	26	3	------	2	------	92	5	113	135	6	------
Onondaga	0	------	1,481	16	1	------	6	------	0	------	0	------	0	------
Ontario	843	69	2,025	40	120	------	114	31	31	5	40	63	0	------
Orleans	2,904	180	469	10	44	7	11	21	308	22	10	23	86	7
Oswego	31	14	14	3	68	------	186	32	160	4	0	------	1,535	16
Schuyler	27	44	0	------	0	------	0	------	0	------	141	60	0	------
Seneca	103	39	24	(2)	0	(2)	2	------	0	------	109	41	0	------
Steuben	15	------	6	------	0	1	36	13	0	------	164	16	0	------
Tompkins	35	11	190	30	0	------	0	------	0	------	0	------	0	------
Wayne	1,722	385	617	17	934	36	3,443	71	100	------	7	4	295	51
Wyoming	248	10	2	------	0	------	0	------	0	------	0	------	0	------
Yates	243	36	167	11	9	1	0	------	0	------	302	370	0	------
Total	10,464	1,360	8,387	373	1,460	67	4,174	370	965	61	3,481	1,091	3,123	304

[1] Motor-truck shipments are to consuming markets and are exclusive of market-garden and local movements, shipments to factories and storage, and reshipments from Syracuse. Shipments of 1928 crops up to July, 1929 are included.

[2] Unknown but small.

TABLE 16.—*Railroad and estimated motor-truck shipments of fruits and vegetables from principal western New York counties, 1928 crop*—Continued

County	Onions		Peaches		Pears		Peas		Potatoes		Tomatoes		Miscellaneous	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Allegany	0	------	0	------	0	------	5	------	567	126	0	------	0	------
Cayuga	13	3	0	------	19	------	0	------	60	59	0	------	2	------
Chautauqua	0	------	4	22	9	------	13	11	0	13	768	127	1	------
Cortland	0	------	0	------	0	------	0	------	90	151	0	------	0	------
Erie	0	------	3	------	9	------	137	20	6	[2]1,211	40	10	219	44
Genesee	215	20	0	------	110	5	0	------	65	399	19	------	59	4
Livingston	8	(1)	0	------	1	------	0	------	204	412	0	------	16	------
Madison	956	45	0	------	0	------	410	7	21	48	0	------	19	------
Monroe	22	43	234	111	247	15	0	------	209	744	63	3	78	11
Niagara	10	------	890	294	197	59	0	------	1	(1)	89	7	262	75
Onondaga	28	------	0	------	0	------	0	------	122	521	0	------	14	------
Ontario	6	2	10	67	198	6	0	------	440	649	0	------	77	46
Orleans	122	31	513	91	240	16	0	------	1	28	33	1	253	7
Oswego	46	2	0	------	34	5	0	------	22	143	0	------	312	6
Schuyler	0	------	8	27	4	(1)	0	------	44	190	0	------	0	------
Seneca	0	------	8	40	22	------	0	------	0	------	0	------	0	------
Steuben	1	4	0	------	2	(1)	0	------	1,843	301	0	------	1	(1)
Tompkins	0	------	0	------	5	------	0	------	60	70	0	------	0	------
Wayne	327	45	53	158	147	31	0	------	131	248	3	6	357	14
Wyoming	0	------	0	------	6	------	0	------	263	72	0	------	0	------
Yates	0	------	0	------	61	20	0	------	12	14	0	------	9	19
Total	1,754	195	1,723	810	1,293	157	565	38	4,161	5,399	1,015	154	1,679	226

[1] Unknown but small.
[2] Estimated by comparisons with the 1925 census.

These great variations in percentages are due chiefly to the relative volume of production and the consumptive demand within the motor-truck area for the various commodities.

The outstanding development in this section is the distribution of potatoes, of which 5,399 cars of the 1928 crop were shipped by motor truck. Thus over one-half of the truck movement of fruits and vegetables consisted of potatoes—a heavy, low-freight-rate commodity, but one which the "trucker" can merchandise easily and in quantity. Excluding potatoes, a little less than 12 per cent of the total 1928 distribution of western New York fruits and vegetables to consuming markets, not considering market-garden or factory stock, was by motor truck. Including factory products moving more than 15 miles, the total truck movement in western New York was estimated as about 22 per cent of the total shipments.

The population of the 21 counties included in this study in western New York was 2,406,410, according to preliminary figures of the 1930 census. Several other populous counties lie adjacent to the producing area. The many cities and towns are so distributed over the territory that most of their needs for western New York produce can be supplied with short or intermediate hauls by motor truck, and since they are already well supplied, but little increase is possible within the territory except as population and production change.

The major portion of the motor-truck shipments of fruits and vegetables were within western New York itself and the northern part of Pennsylvania. (Fig. 3.)

Of the 1,360 cars of apples trucked to market, 445 went to Buffalo, 167 to Rochester, 217 to Syracuse, and the remainder to a great many

small markets in the southern tier of counties, northern New York, and northern Pennsylvania, according to estimates of growers and shippers. (Table 17.)

TABLE 17.—*Destinations of estimated motor-truck shipments of apples, celery, grapes, peaches, and potatoes in western New York, 1928 crop*

Destination	Apples	Celery	Grapes	Peaches	Potatoes
	Cars	*Cars*	*Cars*	*Cars*	*Cars*
Buffalo	445	170	305	239	1,723
Rochester	167	122	183	117	1,433
Syracuse	217	54	175	119	986
Binghamton	60				128
Elmira	76				208
Utica	53				134
Pennsylvania cities [1]		2	156	105	
Ohio cities [2]		0	17	39	
Watertown [3]		0	15	24	
Others [4]	342	22	240	167	757
Total	1,360	370	1,091	810	5,399

[1] Leading Pennsylvania markets are: Erie, Scranton, Sayre, Williamsport, Sunbury, Du Bois, Warren, Bradford, Towanda, Oil City, and Franklin.
[2] Principally Cleveland and Youngstown.
[3] Including Alexandria Bay and the Adirondacks.
[4] Leading markets under others are: Rome, Lockport, Oneida, Erie, Niagara Falls, Geneva, Ithaca, Corning, Hornell, Scranton, Albany, and Owego.

According to these estimates, Buffalo received 1,723 cars of potatoes by truck; Rochester, 1,433 cars; Syracuse, 986 cars; and the remaining 1,257 cars went to a large number of smaller markets, particularly down the Mohawk Valley to Albany.

Peaches had a wider truck distribution than the foregoing. Whereas, according to estimates, Buffalo received 239 cars; Rochester, 117 cars; and Syracuse, 119 cars; more distant markets in Pennsylvania received 105 cars; Ohio cities, 39 cars; Watertown, 24 cars; and other markets, 167 cars.

The distribution of grapes by truck was somewhat larger than that of peaches, but the destinations correspond rather closely.

Trucked celery went mostly to the larger cities, since it had to be trimmed and washed before being distributed to retailers. Buffalo was estimated to have received 170 cars by truck; Rochester, 122 cars; Syracuse, 54; and other markets, 24 cars.

New developments in long-distance trucking of lettuce, celery, peas, early cabbage, and tomatoes occurred in 1928 and 1929, lettuce going as far as Baltimore, peas as far as Boston, and tomatoes to Pittsburgh. Trucking of potatoes from counties relatively far from principal markets, such as Steuben, Allegany, and Wyoming Counties, reached the peak in 1927 and has declined since. Many members of the trade believe that this long-distance trucking of potatoes has not been profitable.

The average increase in motor-truck transportation of fruits and vegetables to market in western New York amounted to less than 20 per cent from 1928 to 1929, and to about 150 per cent from 1925 to 1928, according to estimates of truckmen, dealers, and growers. In 1929 the future indicated trend of 2 counties was downward, little change was indicated in 12 counties—it varied as crops and prices varied, but on an average did not increase—and an upward trend

was indicated in 8 counties. The general trend for western New York was indicated as slightly upward.

Growers were asked if they did or did not intend to make greater use of truck transportation in the future. In western New York 20 per cent expected to make greater use of trucks, whereas 80 per cent expected to make no greater use of them as a means of distribution.

CONNECTICUT AND MASSACHUSETTS

Considerable fruit and some beans and miscellaneous vegetables are produced for market in Connecticut. It is probable that Connecticut uses more apples than are produced in the State. If the crop were stored and evenly distributed over the State, there would probably be none for interstate trade. Although the bulk of the commercial apple production is consumed in Connecticut cities, estimates indicate that about 10 per cent of the commercial production is shipped out of the State.

The manner of distribution and destinations vary widely in the several sections of the State. Motor-truck movements from the northeast section go mainly to Providence, Worcester, Boston, and local markets. The Windham fruit is consumed mainly by surrounding towns. The peaches, pears, and apples of the central district go in all directions and in many ways, with the largest share taken by truck to New Haven, Hartford, and Springfield, Mass. From the several large orchards in the western part of the State, the fruit goes to New York City, Stamford, and Bridgeport, or is sold from roadside stands.

Near New Haven there is some overflow production of market-garden vegetables as well as commercial production of beans, strawberries, and green corn. The surplus is shipped by rail or truck to Boston and New York City.

Since only 2 per cent of the population of Fairfield and New Haven Counties is agricultural, 60 per cent of the production of beans and strawberries and fully 95 per cent of the production of miscellaneous vegetables is consumed near by.

Of the 1928 commercial movement of fruits and vegetables in Connecticut, 71 cars were shipped by rail, and the motor-truck movement was estimated at 788 cars, or 92 per cent. This does not take into account the production for local use, nor the great number of small apple orchards of 500 trees and less, most of which are not well cared for and do not produce fruit suitable for shipment to distant markets. (Table 18.) The apple shipments were 41 cars by rail and about 575 cars by truck, and those of peaches were 2 cars by rail and 140 cars by truck.

TABLE 18.—*Railroad and estimated motor-truck shipments of principal fruits and vegetables from commercial producing counties in Connecticut and western Massachusetts, 1928*[1]

State and county	Apples		Beans		Mixed vegetables and miscellaneous		Onions		Peaches		Pears	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
Connecticut:	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Fairfield	0	100	0	------	0	------	0	------	0	30	0	------
Hartford	0	120	0	------	0	------	0	------	0	45	0	------
Litchfield	10	40	0	------	0	------	0	------	0	------	0	------
Middlesex	0	125	0	------	0	------	0	------	1	10	0	------
New Haven	11	90	12	12	16	36	0	------	1	50	0	25
Windham	20	100	0	------	0	------	0	------	0	5	0	------
Total	41	575	12	12	16	36	0	------	2	140	0	25
Western Massachusetts:												
Franklin	274	16	0	------	------	------	847	21	0	------	0	------
Hampshire	39	53	0	------	------	------	1,015	73	0	------	0	------
Total	313	69	0	------	------	------	1,862	94	0	------	0	------

[1] Local consumption and shipments to near-by points (less than 20 miles) are not included. Practically all of the motor-truck shipments in western Massachusetts are to cities within the section on intermediate hauls.

There are practically no motor-truck shipments from western Massachusetts to New York City, and few to Boston.

Onions and apples in the Connecticut Valley of Massachusetts move entirely by rail except to near-by cities. Springfield wholesalers take loads of merchandise into the area and return with a truckload of onions for their trade. Small dealers from Hartford, Worcester, and other industrial towns cart onions about, jobbing to retailers and restaurants. The motor-truck movement from the onion area is about 10 per cent from the southern part, 5 per cent from the central, and practically nothing from the northern part. Nearly all of the onions are shipped by country dealers who do not take kindly to the motor-truck method.

In 1928 the shipments of apples and onions from Franklin and Hampshire Counties were: Rail 2,175 cars, truck 163 cars (estimated), or 7 per cent. (Table 18.)

A new enterprise in growing asparagus and certain other crops for the Boston market for transportation by truck was noted.

SOUTHEASTERN PENNSYLVANIA

Mushroom growing is a major endeavor in the parts of Chester County centering at Kennett Square. In this county, and in outposts of the industry in Delaware County, and in adjacent counties of Maryland, Delaware, and New Jersey are produced the major part of the mushrooms grown under cultivation in the United States.

Shipments of mushrooms from Chester and Delaware Counties in 1928 consisted of 204 equivalent cars by express and parcel post as compared with 1,160 cars, or 85 per cent, by truck. (Table 19.)

TABLE 19.—*Railroad and estimated motor-truck shipments of mushrooms, southeastern Pennsylvania, 1928*

Origin	Rail [1]	Truck
	Cars	*Cars*
Chester and Delaware Counties	204	1,160

[1] Largely by express and parcel post.

The distribution of these truck shipments in percentage was approximately as follows: New York City, 78; Philadelphia, 15; Baltimore, 4; and Newark, 3.

Four truckman-carrier companies operated 50 trucks for this trade, 26 of them light trucks for pick-up service from the mushroom houses scattered over the section, and 24 larger trucks for movement to city markets. Express rates were reduced on mushrooms to figures below the truck rates without much success in recouping the traffic because the growers were satisfied with the truck pick-up service. Winter is the busy season in this trade. In other seasons tomatoes, potatoes, and cut flowers furnish some tonnage for trucks.

SOUTHERN INDIANA AND SOUTHERN ILLINOIS

All important shipping points south of a line between Quincy, Ill., and Richmond, Ind., were visited in collecting information on truck shipments. In this section originate all of the Indiana rail shipments of cantaloupes, watermelons, peaches, strawberries, fresh tomatoes, and sweetpotatoes, and all of the Illinois rail shipments of apples, cantaloupes, peaches, strawberries, watermelons, peppers, sweetpotatoes, and spinach, and a large portion of some other crops.

Personal contacts were made with leading growers, dealers, and truckmen. At each shipping point these men were asked to estimate the volume of motor-truck shipments for their community. Estimates were thus obtained for the territory in which originated 83 per cent of the total railroad shipments of the 1928 crops under consideration in the two States. Records of the actual shipments by rail and truck were obtained from growers and shippers who shipped 30 per cent of the rail movement of the fruits and vegetables under consideration in the two States as reported to the United States Department of Agriculture by railroads. Actual shipments were checked against estimates as to the percentage moving by rail and motor truck.

Production of fruits and vegetables for market in southern Indiana is only about one-third as large as the production in southern Illinois. Indiana production is in closer proximity to consuming centers. In view of these facts it is not surprising that the percentage moved by truck in Indiana is much higher than in Illinois. Along the Wabash River from Terre Haute to Evansville lies the heaviest producing territory in Indiana. Production is more widespread in southern Illinois. (Figs. 4 to 7.)

Illinois has a close network of concrete State roads leading to all principal markets. Indiana has a network of such roads leading to Indianapolis and other markets with the exception of Cincinnati.

County roads throughout the territory studied were, as a rule, unimproved or rough.

Motor-truck transportation (beyond 20 miles) in southern Illinois and southern Indiana has developed chiefly since 1925. A characteristic of the use of the truck in this section was the supplying of rural and small-city trade by wholesale and retail peddling. Long-distance trucking of 75 miles or farther to primary markets is

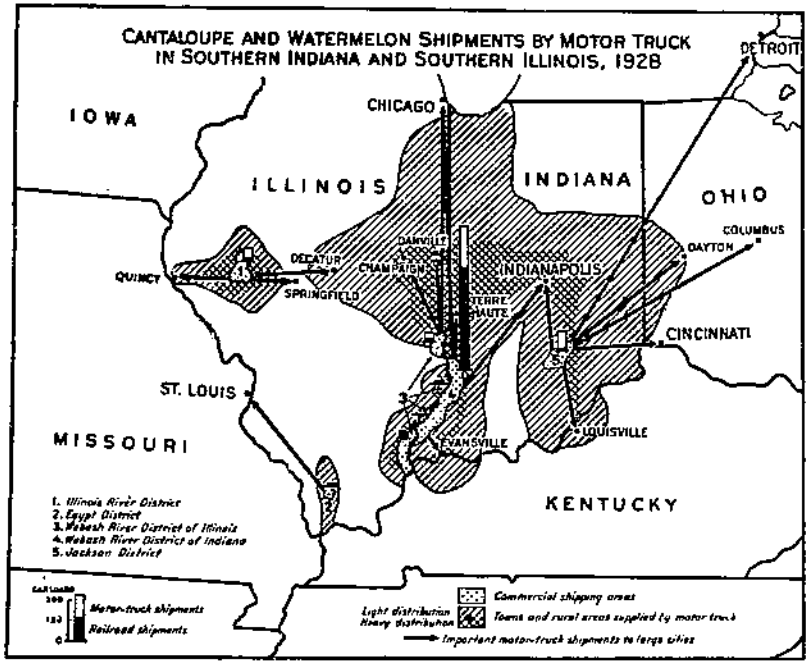

FIGURE 4.—A large part of the cantaloupes and watermelons distributed by truck in southern Indiana and southern Illinois were peddled by truckmen merchants near the producing fields and in the central and northern parts of these two States, as well as to large cities within several hundred miles

in the first, or experimental stage, in this territory, with a few notable exceptions.

In southern Indiana the estimates show that 37 per cent of the 1928 crops of fruits and vegetables, aside from those used by canners, was distributed by truck, or a quantity equivalent to 1,298 carloads, as compared with 2,198 cars actually moved by rail. By commodities, the percentages marketed by truck were: Apples, 44; cantaloupes, 36; peaches, 40; pears, 0; strawberries, 6; watermelons, 36; cucumbers, 9; sweetpotatoes, 15; tomatoes, 83; and turnips, 36. The area included shipped 94 per cent of the entire Indiana railroad movement of the commodities named. (Table 20.)

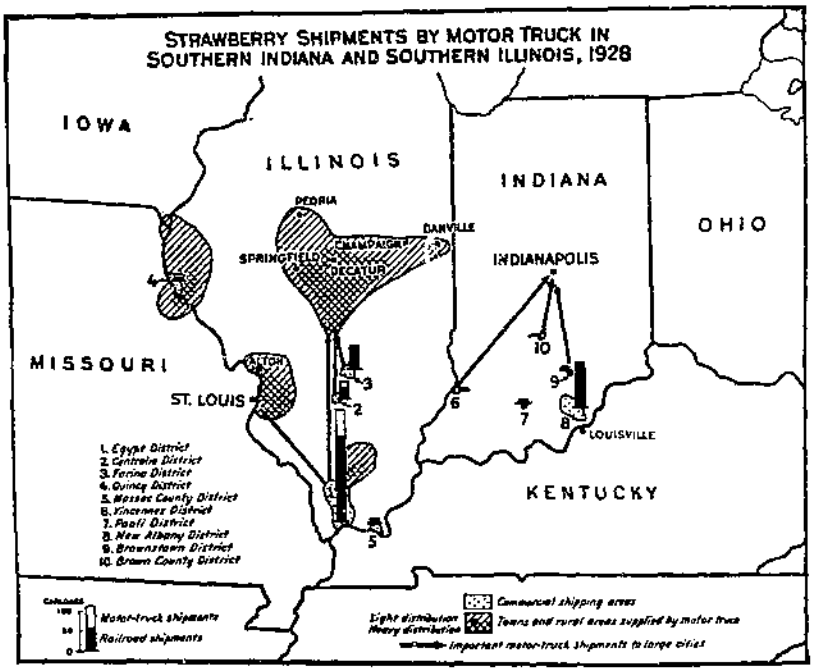

FIGURE 5.—The only important strawberry shipments by truck in southern Illinois in 1928 were to St. Louis and central Illinois cities. A few truck shipments were made to Indianapolis from small and new producing areas in southern Indiana

TABLE 20.—*Railroad and estimated motor-truck shipments of fruits and vegetables from principal southern Indiana counties, 1928 crop*[2]

County	Apples		Cantaloupes		Cucumbers		Miscellaneous and mixed vegetables		Peaches		Pears	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Brown	24	4	0		0		0		0	18	0	
Clark	1		0		0		0		0		0	
Daviess	6		4	1	0		0		1		0	
Floyd	0		0		0		0		0		0	
Franklin	15	78	0		0		0		0		0	
Gibson	2		98	33	0		0		2	9	13	0
Jackson [1]	1		6	63	0		0		0		0	
Knox	191	145	252	70	0		0		288	165	0	
Lawrence	106	34	0		0		0		17	2	0	
Orange	196	98	0		0		0		0	18	0	
Posey	0	5	77	16	0		0		50	23	13	0
Sullivan	0		28	78	0		0		0	12	0	
Vigo	5		0		124	12	28	122	0		0	
Washington	23	12	0		0		0		0		0	
Others	0		6		0		0		0		0	
Total	480	374	465	261	124	12	28	122	367	[3]247	26	0

[1] Shipments over 20 miles. Shipments to canneries are not included with the exception of tomatoes for canning, which are shown separately from tomatoes marketed fresh.
[2] Rail movement from Jackson County was over electric railways.

TABLE 20.—*Railroad and estimated motor-truck shipments of fruits and vegetables from principal southern Indiana counties, 1928 crop*—Continued

County	Strawberries		Sweet potatoes		Tomatoes, fresh		Tomatoes, canning		Watermelons		Turnips	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Brown	0	3	0	-------	0	-------	0	-------	0	-------	0	-------
Clark	44	0	0	-------	0	-------	19	2	0	-------	0	-------
Daviess	0	-------	6	1	0	-------	03	0	35	4	0	-------
Floyd	40	0	0	-------	0	-------	0	-------	0	-------	0	-------
Franklin	0	-------	0	-------	0	-------	0	-------	0	-------	0	-------
Gibson	0	-------	35	1	0	-------	0	-------	30	21	0	-------
Jackson [1]	2	5	0	-------	5	5	0	-------	8	67	0	-------
Knox	0	-------	182	36	10	37	0	-------	181	60	7	4
Lawrence	0	-------	0	-------	0	-------	0	-------	0	-------	0	-------
Orange	8	0	0	-------	0	-------	0	-------	0	-------	0	-------
Posey	0	-------	4	1	0	-------	0	-------	30	6	0	-------
Sullivan	0	-------	3	1	2	4	47	0	44	20	0	-------
Vigo	0	-------	0	-------	0	-------	41	-------	0	-------	0	-------
Washington	23	0	0	-------	0	-------	28	0	0	-------	0	-------
Others	0	-------	0	-------	0	-------	419	3,037	0	-------	0	-------
Total	126	8	230	40	17	46	617	3,039	328	184	7	4

[1] Rail movement from Jackson County was over electric railways.

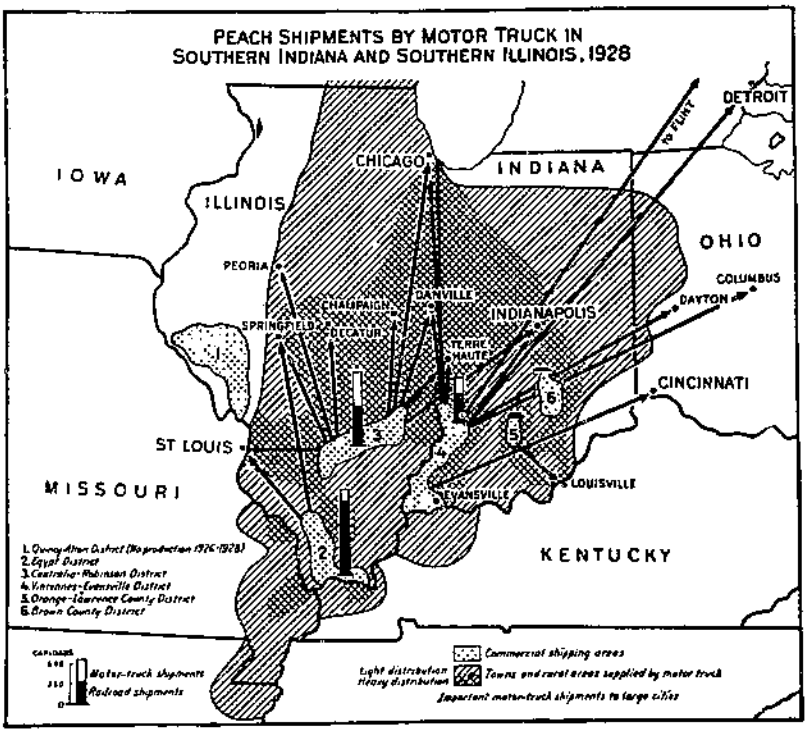

FIGURE 6.—The main truck movement of peaches is north in Illinois and Indiana to small markets. Small rural distribution occurs in southeast Missouri, Kentucky, and Ohio. Limited truck shipments go to St. Louis, Chicago, Flint, Detroit, and Ohio cities

If tomatoes and green beans for canning are included in the estimates, 66 per cent of the southern Indiana movement of the products named was by truck, instead of the 37 per cent previously mentioned.

In southern Illinois 21 per cent of the commercial movement of the 1928 fruit and vegetable crops was estimated to have been shipped by truck, or 2,305 cars, compared with 8,613 cars shipped by rail and

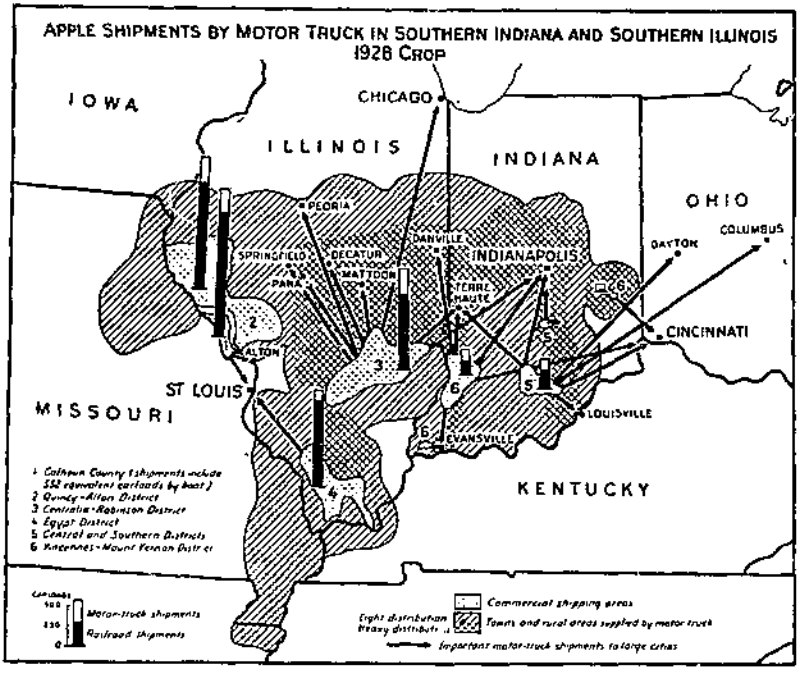

FIGURE 7.—Truck shipments of apples reach an extreme distance of about 125 miles. Over one-half of them go to small cities and rural districts. The southern two-thirds of Illinois and Indiana were supplied in part by truck, and important shipments went by truck into eastern Missouri, and smaller quantities into Iowa, Kentucky, and Ohio

boat combined. The latter figure represents 70 per cent of the total Illinois rail and boat movement of the products enumerated.

The percentage movements of the various commodities by truck from southern Illinois were: Apples, 18; cantaloupes, 75; peaches, 24; pears, 3; strawberries, 23; watermelons, 69; mixed vegetables, 2; potatoes, 83; sweetpotatoes, 4; and tomatoes, 13. Less than 1 per cent of asparagus, cabbage, cucumbers, peppers, and spinach moved by truck. (Table 21.)

TABLE 21.—*Railroad, boat, and estimated motor-truck shipments of fruits and vegetables from principal southern Illinois counties, 1928 crop*[1]

County	Apples		Asparagus		Cantaloupes		Miscellaneous		Mixed vegetables		Peaches	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Adams	184	180	0		0		107	0	4		0	
Alexander	0		0		0		9	0	0		6	
Brown	19	9	0		0		0		0		0	
Calhoun[2]	1,041	301	0		0		0		0		0	
Cass	0		0		0	31	0		0		0	
Clark	0		0		0		0		0		0	
Clay	170	57	0		0		0		0		26	16
Crawford	26	7	0		0	8	0		0		0	
Cumberland	29	0	0		0		0		0		0	
Effingham	31	1	0		0		0		0		0	
Fayette	0		0		0		0		0		0	
Greene	770	58	0		0		0		0		0	
Jackson	122	39	31	0	0		0		2		58	22
Jasper	139	40	0		0		0		0		76	105
Jefferson	22	33	0		0		1		0		41	7
Jersey	179	55	0		0		0		0		0	
Johnson	450	38	0		0		0		0		168	
Lawrence	0		0		11	3	0		0		14	
Madison	0		62	0	0		0		0		0	
Marion	327	123	0		0		2	1	0		310	266
Massac	5	1	0		0		0		0		51	8
Morgan	0		0		0	6	0		0		0	
Pike	494	15	0		0		0		0		0	
Pulaski	19	2	16		0		29	1	51	1	199	30
Richland	240	55	0		0		0		0		62	24
Schuyler	0	14	0		0		0		0		0	
St. Clair	0		0		0		0		0		0	
Union	770	54	71	1	8	8	66	0	189	3	761	77
Wabash	0		0		0		0		0		11	
Washington	46	12	0		0		0		0		49	27
Total	5,083	1,094	180	1	19	56	214	2	246	4	1,839	582

County	Pears		Potatoes		Strawberries		Sweetpotatoes		Tomatoes		Watermelons	
	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck	Rail	Truck
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Adams	0		0		6	9	0		18	0	0	
Alexander	0		10	1	7		1		0		0	
Brown	0		0		0		0		0		0	
Calhoun	0		0		0		0		0		0	
Cass	0		0		0		0		0		13	34
Clark	0		0		0		0		0		10	15
Clay	60	0	0		0		0		0		0	
Crawford	0		0		0		0		0		0	26
Cumberland	0		0		0		0		0		0	
Effingham	6		0		0		0		0		0	
Fayette	21	0	0		52	4	0		0		0	
Greene	0		0		0		0		0		0	
Jackson	1	0	5		0		0		0		0	
Jasper	0		0		0		0		0		0	
Jefferson	1		0		0		0		0		0	
Jersey	0		0		0		0		0		0	
Johnson	0		0		0		0		0		0	
Lawrence	0		0		0		0		0		1	
Madison	4		29	301	0		0		0		0	
Marion	241	11	0		26	15	0		0		0	
Massac	0		0		16	0	0		0		0	
Morgan	0		0		0		0		0		11	11
Pike	0		0		0		0		0		0	
Pulaski	5		0		152	27	3		0		0	
Richland	0		0		0		0		0		0	
Schuyler	0		0		0		0		0		0	
St. Clair	0		21	42	0		0		4		0	
Union	2	0	0		65	40	83	4	144	25	0	
Wabash	0		0		0		0		0		5	1
Washington	3		0		0		0		0		0	
Total	344	11	71	344	324	95	87	4	166	25	40	87

[1] Exclusive of hauls less than 20 miles.

[2] Calhoun County railroad shipments of apples were loaded at Peruque, Mo., Clarksville, Mo., East Hardin, Ill., and Grafton, Ill. According to the Illinois Experiment Station 100 cars of the 260 loaded at Grafton were from Calhoun County. Boat shipments from Calhoun County are shown under the "Rail" column.

Excepting cantaloupes and watermelons, which were usually peddled in Illinois, and potatoes, which were produced in and near the St. Louis market-garden area, about 18 per cent of the commodities were moved by truck. Since culls and low-grade apples and peaches, however, constituted over one-half of the motor-truck shipments, it is probable that in southern Illinois motor-truck shipments displaced about 10 per cent of the rail shipments.

Southern Indiana has an important canning industry. Peas and beans used for canning have for years been transported to the factories over the highways. Of the canning tomatoes reported, 3,039 cars were estimated to have been transported by truck as compared with 617 cars by railroad in 1928, or 83 per cent by truck. There was a decided decrease in the transportation of canning tomatoes by rail as compared with motor-truck movements until 1929, when some reversal to rail shipping occurred.

A characteristic of motor-truck shipments in this territory is the major distribution to small cities in the corn and the coal belts and in rural trade. Less than 50 per cent of the motor-truck movement is to large city markets. Peaches were trucked into Wisconsin as far as Milwaukee in 1928, early apples into Michigan in 1930, and various products into Ohio, eastern Missouri, northern Kentucky, and southeastern Iowa. (Figs. 4 to 7.)

Long-distance motor-truck movements in Indiana developed largely between 1924 and 1928 and have developed in Illinois largely since 1926. At some places a beginning was not made until 1927 or 1928, and in the strawberry fields of southern Indiana the first long-distance trucking occurred in 1929. Throughout the more accessible sections the movement of apples, peaches, berries, fresh tomatoes, and sweetpotatoes by motor truck practically doubled in each of the three years 1926 to 1928, and indications point to still further growth, although some producing points had apparently reached the limit.

In 1928 truck shipping of fruit was important and of large volume at only a few Illinois points: Olney, Flora, Centralia, Newton, Salem, Hillview, Anna, and Cobden. At many points motor-truck movements consisted only of culls and low-grade produce peddled in near-by territory. Yet the business of peddling to rural sections in Illinois and neighboring consuming areas has already attained large volume, and the demand is fairly well supplied with low-grade fruit.

Fifty-six per cent of the 139 farmers interviewed stated that they intended to make greater use of the truck for shipping fruits and vegetables, 25 per cent expected to make the same or less use, 14 per cent were then making full use of the truck (that is, completely supplying the available trade); and 5 per cent were uncertain. On the whole, it seems that there will be an increase in distribution by truckmen merchants, and an increase in the area served by them.

SOUTHWESTERN MICHIGAN

Nearly all the shippers, cooperatives, and motor-truck companies, and some growers and "truckers" in Berrien and Van Buren Counties, Mich., were interviewed in regard to trucking of fruits and vegetables to ascertain the volume of such shipments and their destina-

tions and the effects upon production, transportation, and merchandising. The statistics on truck shipments from this area are based largely on estimates obtained from those judged best able to give them, supplemented by some actual records. The quantity moving by truck from the Benton Harbor market was obtained by the Michigan Department of Agriculture from daily compilations.

The practical beginning of the shipping of fruits and vegetables by motor truck from the Benton Harbor area occurred in 1919, and the volume hauled has steadily increased. The first motor-truck shipments of note were to Chicago, caused partly by damaging congestion in boat and rail shipping. Later Detroit was added as a motor-truck market, and in 1924 the first load was trucked to Indianapolis. In 1928 a few truck loads went to St. Louis, and in 1929 Louisville was added as a motor-truck market, and occasional loads

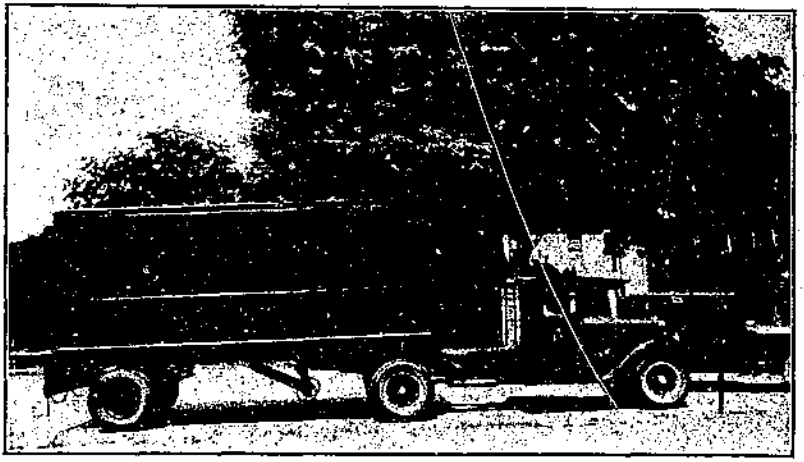

FIGURE 8.—The tractor and semitrailer as used at Paw Paw, Mich., has been found economical for certain purposes

went as far as Cincinnati, Ohio; Lexington, Ky.; Memphis, Tenn.; Dubuque, Iowa; and Green Bay, Wis.

The volume moving by truck became commercially important in 1925 and is estimated to have trebled since then. Motor-truck shipments vary in comparison with boat and rail shipments, and in actual quantity, as crop and price conditions vary from year to year.

The radius of distribution of motor-truck shipments has increased from year to year. From a 60-mile haul to Chicago the radius has pushed out until in 1929 practically all shipments up to 250 miles were made by motor truck except some boat movement to Chicago and Milwaukee. Tentative plans of chain stores and trucking companies indicate that this circle will be further widened. (Fig. 8.)

The estimates for the 1929 crops in Berrien County show a movement of fruits and vegetables to consuming markets by motor truck equal to 5,605 cars, or 89 per cent, as compared with 725 cars shipped by boat and rail, exclusive of local consumption and products used in

processing plants. Corresponding figures for Van Buren County were 1,996 cars, or 49 per cent, by truck, as compared with 2,095 cars sent by rail and boat. (Table 22.)

TABLE 22.—*Rail, boat, and estimated motor-truck shipments of fruit and vegetables from Berrien and Van Buren Counties, Mich., 1929* [1]

Commodity	Berrien County			Van Buren County		
	Rail and boat [2]	Motor truck	Percentage by truck	Rail and boat	Motor truck	Percentage by truck
	Cars	*Cars*		*Cars*	*Cars*	
Apples	111	728	87	385	245	39
Asparagus	0	0	0	0	27	100
Cabbage	7	30	81	15	9	33
Cantaloupes	2	212	99	0	0	0
Celery	[3] 10	67	87	[3] 344	698	67
Cherries	0	50	100	5	2	29
Dewberries	0	194	100	0	0	0
Grapes	356	2,332	88	1,121	706	39
Miscellaneous vegetables [4]	1	326	100	0	0	0
Onions	0	6	100	126	6	5
Peaches	255	695	73	20	128	86
Pears	14	70	83	27	17	39
Plums	0	4	100	0	0	0
Potatoes	0	0	0	60	124	67
Quinces	0	0	0	0	1	100
Raspberries	0	422	100	0	0	0
Strawberries	5	469	99	2	33	94
Total and percentage	725	5,605	89	2,095	1,996	49

[1] Exclusive of local consumption, and products used in local canning and processing plants.
[2] Boat shipments of celery originating in the Kalamazoo district not included.
[3] Includes 30 cars, less-than-carload express.
[4] Largely tomatoes.

Percentages of important crops moving by truck in Berrien County were: Cherries, dewberries, and raspberries, 100; cantaloupes and strawberries, 99; apples, 87; grapes, 88; peaches, 73; and pears, 83.

From Berrien County the rail shipments of fruits and vegetables are insignificant except in the case of apples, grapes, and peaches, of which the production is large. Boat shipments are made from Benton Harbor and South Haven to Chicago and Milwaukee, but they have dwindled rapidly in recent years.

Motor-truck shipments from Benton Harbor amounted to 2,776 car-lot equivalents in 1929, and 2,829 car-lot equivalents were shipped by truck from the remainder of the county, or 50 per cent direct from farms, associations, and country dealers. (Table 23.) During the berry season of 1930 a much higher percentage passed through the new and improved Benton Harbor market.

TABLE 23.—*Destination of motor-truck shipments of fruits and vegetables from Berrien and Van Buren Counties, Mich., 1929 crop* [1]

Destination	Motor-truck shipments from Benton Harbor market, Berrien County	Other motor-truck shipments from Berrien County	Motor-truck shipments from Van Buren County	Total	Percentage of total shipments
	Cars	*Cars*	*Cars*	*Cars*	
Chicago, Ill.	1,872	1,841	567	4,280	56.3
Detroit, Mich.	361	364	540	1,265	16.6
Indianapolis, Ind.	125	99	157	381	5.0
Milwaukee, Wis.	221	94	3	318	4.2
Toledo, Ohio	18	17	69	104	1.4
Cleveland, Ohio	12	16	21	49	.6
Louisville, Ky.	19	3	31	53	.7
Flint, Mich.	26	10	7	43	.6
Grand Rapids, Mich.	20	9	18	47	.6
Cities listed below [2]	44	76	164	284	3.7
Other cities and villages [3]	58	300	419	777	10.3
Total	2,776	2,829	1,996	7,601	

[1] Estimated.
[2] Dayton, Cincinnati, and Columbus, Ohio; South Bend and Fort Wayne, Ind.; St. Louis, Mo.; Pontiac, Mich.; Memphis, Tenn.; Dubuque, Iowa.
[3] Other cities and villages in Michigan, Wisconsin, Illinois, Iowa, Indiana, Ohio, Kentucky, Tennessee, and Canada.

Of the important crops in Van Buren County the percentages moving by truck were estimated as: Apples, 39; grapes, 39; celery, 67; peaches, 86; potatoes, 67; and onions, 5. Most of the potatoes moving by truck went to southern Michigan towns on short and intermediate hauls (less than 75 miles), and of the apples trucked from Van Buren County most were low grades and odd varieties.

The outstanding development in this area is the Benton Harbor market with its facilities for concentration and redistribution by motor truck. On a big day in 1929 over 1,000 farm loads were brought to this market, and 157 truck loads left it for distant points.

Berries are now handled almost exclusively by motor truck. From Berrien County the motor-truck shipments of dewberries were estimated at 194 cars, rail, 0; of raspberries, 422 cars, rail, 0; and strawberries, 469 cars, rail and boat, 5 cars.

From Van Buren County 344 cars of celery were shipped by rail and 698 cars, or 67 per cent, by truck. This large motor-truck movement, originating largely near Decatur, was distributed as rough celery to large cities and as washed and stripped celery to retailers and jobbers in smaller cities and towns over regular motor-truck routes. A celery packing plant at this village receives Florida celery in car lots and, after stripping and washing, redistributes it largely by truck to Michigan, Indiana, and Illinois markets.

Chicago receives a major portion of the motor-truck shipments of this area, but receives less, relatively, than when shipments were entirely by rail and boat. Chicago received 67 per cent of the motor-truck shipments from the Benton Harbor market, 65 per cent from the remainder of Berrien County, and 28 per cent from Van Buren County, or about 56 per cent of the total motor-truck shipments from the two counties. Detroit was second, receiving 17 per cent of the total motor-truck shipments, Indianapolis third, with 5 per

cent, and Milwaukee fourth, with 4 per cent. The remaining 18 per cent was distributed to a large number of towns and cities in Michigan, Indiana, Illinois, Wisconsin, Ohio, Iowa, Kentucky, Tennessee, and one load went to Canada. (Table 23.) The longest distances were occasional and exceptional hauls to Paducah, Ky.; St. Louis, Mo.; Memphis, Tenn. (over 500 miles); and Des Moines, Iowa.

NORTH CAROLINA

Although no detailed study of the volume of motor-truck shipments from North Carolina is available, the Federal Market News Service representatives at shipping points in the State gathered some general information on the subject.

The motor-truck movement of peaches and other commodities from the Sand Hill section of North Carolina covers an important phase of distribution and is of two types: Hauls to towns in North Carolina, Virginia, and West Virginia, taking mainly off-grade stock and miscellaneous products; and long hauls of the better grades of peaches to terminal markets.

"Truckers" who have regular connections in cities come in and gather up loads of fancy peaches for terminal-market delivery. In this way a considerable long-haul business has grown up to Richmond, Washington, Baltimore, and points farther north. The truck-hauling to Washington is so heavy that shippers hesitate to place car lots there, and no attempt at car-lot business is made to Richmond, Norfolk, Greensboro, and Winston-Salem. The truckers are supplying these cities so fully that it is dangerous, financially, to place a car in one of them.

Local shippers estimate that 25 to 50 per cent of the total peach crop of the Sand Hill section of North Carolina is moved to consuming markets by truck.

Potatoes in the Elizabeth City section, both white and sweet, are conveyed to consuming points almost wholly by rail. An unusual movement was initiated by some of the farmers on Currituck Point, however, who hauled their potatoes all the way to Norfolk (50 to 60 miles) to take advantage of a cheaper rail rate from that point. Factors in Elizabeth City estimated that probably 200 or more cars of potatoes moved in this way in 1929.

Data have been compiled on the motor-truck movement of strawberries from the Chadbourn and Wallace sections for several years past, and show a rapid conversion to shipping by truck. (Table 24.)

TABLE 24.—*Rail and reported motor-truck shipments of strawberries from the Chadbourn and Wallace sections of North Carolina, 1928–30*

Year	Rail	Motor truck	Estimate of relation which reported motor-truck shipments bear to total motor-truck shipments
	Cars	*Cars*	
1928	2,151	136	Probably 70 per cent complete.
1929	1,483	401	Probably 80 per cent complete.
1930	765	468	Nearly 100 per cent complete

Thus the motor-truck shipments of strawberries have increased from around 8 per cent of the total shipments in 1928 to about 38 per cent in 1930. This motor-truck movement has been almost entirely long hauls into the large markets, principally to Washington, Philadelphia, Baltimore, Newark, and New York. Receipts by truck from North Carolina as reported by dealers in New York City were 64 cars of strawberries in 1929 and 34 cars in 1930.

Most of the fruits and vegetables from the Mount Olive section are sold over a farmers' auction block. This is a convenient arrangement for motor-truck owners in buying and loading and is advantageous for the seller. The assembly of trucks furnishes the buyer who purchases stock an added means of transportation.

Long-distance motor-truck shipments of beans, cucumbers, squash, dewberries, strawberries, huckleberries, green corn, and lima beans have grown up largely during the last two or three years. The percentage of highly perishable fruits and vegetables hauled by truck has increased steadily in each of these seasons, amounting in 1929, according to estimates, to between 25 and 35 per cent of the miscellaneous fruit and vegetable movement (exclusive of potatoes, which move by rail). The long-haul motor-truck shipments are destined principally for Washington, Philadelphia, Baltimore, Newark, Jersey City, and New York.

TEXAS

No data on the volume of motor-truck shipments in Texas are available, but according to reports of field agents of the Federal Market News Service, rather a large quantity of fruits and vegetables moves by truck from the Lower Rio Grande Valley, which is an important winter-vegetable and citrus-fruit section. During 1929 and 1930 car-lot shipments from this area to Texas markets decreased materially on account of the motor-truck method of transportation. Not a small amount is shipped by truck to points in Oklahoma and Louisiana. Trucks leave the valley usually around 6 p. m., which permits them to arrive in San Antonio and Houston, somewhat over 300 miles distant, in time for the next morning's market, and deliveries are made to Fort Worth and Dallas, somewhat over 600 miles, and to Tulsa and Oklahoma City, nearly 800 miles away. During the colder weather no icing is required for these vegetables. It is reported that wholesalers in these cities have a favorable attitude toward motor-truck transportation.

With reference to the tomato movement from east Texas, "pink" stock is now distributed almost entirely by trucks to near-by markets. Only "green wraps" are shipped in car lots, and they go mostly to distant cities.

MOTOR-TRUCK UNLOADS IN CERTAIN CITIES

BOSTON

Motor-truck unloads at Boston in 1929 from beyond the market-garden area were the smallest of any city studied, representing only 2 per cent of total long-distance truck and rail unloads. However,

the equivalent of 7,731 cars were reported by the Massachusetts Department of Agriculture as unloaded by truck and wagon from the market-garden area within 25 miles of Boston.

State marketing investigators stated that no appreciable increase occurred in trucking from the near-by area between 1927 and 1930, but there was some increase in long-distance trucking. For a number of commodities the near-by motor-truck receipts replace rail receipts during the local season of production. This is true with strawberries, asparagus, and greens. For other commodities, such as lettuce and cucumbers, there is competition between local and shipped-in stock, depending upon the relative supply of each. The market-garden production is mainly sold on farmers' markets, and long-distance motor-truck receipts are sold largely through jobbers.

The leading receipts by truck from long distances are huckleberries and other berries from North Carolina, berries from the Eastern Shore and New Jersey, grapes and berries from the Hudson River section of New York, peas from western New York, strawberries, lima beans, and green corn from the New Haven section of Connecticut, and miscellaneous items from Rhode Island, Hillsboro County, N. H., and Maine, and asparagus from the Connecticut Valley of Massachusetts.

Some dealers at Boston seemed reluctant to handle berries by truck from the Eastern Shore and North Carolina, stating that the berries often arrive in poor condition during hot weather and have sold at low prices. Early in the season truck loads of North Carolina blackberries arrive but are later displaced by rail shipments. A period of hot weather occurring near the height of the trucking season has caused almost entire suspension of very long-distance motor-truck shipments of berries for the remainder of the season, according to Boston dealers.

The leading commodity in motor-truck receipts in 1929 was apples, with the equivalent of 1,364 cars from Massachusetts, New Hampshire, Vermont, Maine, and Connecticut. (Table 25.) Other commodities in order of importance in motor-truck receipts were: Lettuce, with the equivalent of 985 cars; spinach, 732 cars; carrots, 492 cars; green corn, 484 cars; tomatoes, 446 cars; and cabbage, 440 cars. These figures include supplies from short distances.

TABLE 25.—*Comparison of motor-truck receipts with rail and boat unloads of fruits and vegetables at Boston and Cincinnati, 1929* [1]

Commodity	Boston			
	State of origin of motor-truck receipts	Motor-truck unloads	Rail and boat unloads from—	
			State in which motor-truck shipments originated	All sources
		Cars	*Cars*	*Cars*
Apples	Massachusetts, New Hampshire, Vermont, Maine, Connecticut.	1,364	92	1,315
Asparagus	Massachusetts	120	2	264
Beans [2]	Massachusetts, Maryland, Virginia, Connecticut.	370	194	612
Beets	Massachusetts	378	0	252
Blueberries	Massachusetts, New Hampshire, North Carolina.	15	45	157
Cabbage	Massachusetts, Maine, New Hampshire	440	18	1,398
Cantaloupes [3]		0	0	1,961
Carrots	Massachusetts, New Hampshire	492	0	915
Cauliflower	Massachusetts, Rhode Island, Maine, New Hampshire.	182	0	360
Celery	Massachusetts	324	0	923
Corn, green	Massachusetts, New Hampshire, Connecticut	464	13	23
Cranberries	Massachusetts	107	100	100
Cucumbers	Massachusetts, Virginia, Maryland	322	109	366
Eggplant	Massachusetts	22	0	63
Escarole	do	98	0	113
Grapes	Massachusetts, New York	4	230	4,500
Kale	Massachusetts	35	0	50
Lettuce	Massachusetts, New Hampshire, Rhode Island.	985	0	1,832
Onions	Massachusetts	50	406	2,126
Parsnips	do	134	0	5
Peaches	Massachusetts, Rhode Island, Connecticut	25	1	1,013
Pears	Massachusetts, New Hampshire	36	0	626
Peas	Massachusetts, Maine, New Hampshire, New York.	21	20	361
Peppers	Massachusetts	105	0	511
Potatoes	Massachusetts, New Hampshire	61	27	9,828
Radishes	Massachusetts	230	0	14
Raspberries	Massachusetts, New Jersey, New York	1	2	11
Rhubarb	Massachusetts, New Hampshire, Connecticut.	114	1	40
Spinach	Massachusetts, New Hampshire	732	0	1,088
Squash	Massachusetts, New Hampshire, Vermont, Maine.	393	25	95
Strawberries	Massachusetts, Virginia, Maryland, New Jersey.	105	426	1,084
Sweetpotatoes		0		923
Tomatoes	Massachusetts, New Hampshire	448	0	1,699
Turnips	Massachusetts, Maine, New Hampshire	33	40	613
Watermelons		0	0	833
Others	Massachusetts	296	0	[4] 8,657
Total		8,590	1,811	44,728

[1] Includes market-garden receipts.
[2] All beans other than dry.
[3] Includes miscellaneous melons.
[4] Exclusive of bananas.

TABLE 25.—*Comparison of motor-truck receipts with rail and boat unloads of fruits and vegetables at Boston and Cincinnati, 1929*—Continued

Commodity	Cincinnati			
	State of origin of motor-truck receipts	Motor-truck unloads	Rail and boat unloads from—	
			State in which motor-truck shipments originated	All sources
		Cars	*Cars*	*Cars*
Apples	Kentucky, Ohio, Indiana	77	47	1,371
Asparagus	Kentucky, Ohio	6	0	4
Beans [1]	Kentucky Indiana, Ohio	197	0	336
Beets	Kentucky, Ohio	112	0	7
Blueberries		0	0	1
Cabbage	Kentucky, Ohio, Indiana	149	21	735
Cantaloupes [2]	Ohio, Indiana, Kentucky	20	35	672
Carrots	do	110	4	160
Cauliflower	Ohio, Kentucky	6	0	218
Celery	Ohio, Kentucky, Michigan	8	64	410
Corn, green	Kentucky, Ohio, Indiana	563	0	115
Cranberries		0	0	40
Cucumbers	Kentucky, Ohio, Indiana	62	7	45
Eggplant	Kentucky, Ohio	7	4	7
Grapes	Ohio, Michigan	2	186	549
Kale	Ohio, Kentucky	53	0	86
Lettuce	do	260	28	624
Onions	Ohio, Kentucky, Indiana	57	172	430
Parsnips		2	0	1
Peaches	Ohio, Kentucky	86	11	648
Pears	Ohio, Indiana, Kentucky	53	2	96
Peas	Ohio, Kentucky	36	3	100
Peppers	do	60	17	31
Potatoes	do	187	115	2,935
Radishes	Kentucky, Ohio	26	2	11
Raspberries	Kentucky, Ohio, Indiana	16	0	0
Rhubarb	do	39	0	3
Spinach	do	136	0	163
Squash	Kentucky, Ohio	6	4	5
Strawberries	Ohio, Kentucky, Indiana	74	15	573
Sweetpotatoes	Kentucky, Ohio, Indiana	8	30	583
Tomatoes	Kentucky, Tennessee	453	49	456
Turnips	Kentucky, Ohio, Indiana	15	2	113
Watermelons	Ohio, Kentucky, Indiana	3	0	840
Others	Ohio, Tennessee, Kentucky, Indiana	123	26	[3] 2,806
Total		3,012	850	15,184

[1] All beans other than dry. [2] Includes miscellaneous melons. [3] Exclusive of bananas.

CINCINNATI

Cincinnati received the equivalent of 3,012 cars by truck in 1929, of which 740 cars were estimated to have come from beyond the market-garden area. The long-distance motor-truck arrivals represent 5 per cent of the long-distance truck and rail receipts. Total motor-truck unloads were 78 per cent of rail and truck receipts from the States in the motor-truck area (from Kentucky, Ohio, Indiana, Tennessee, and Michigan). (Tables 3 and 25.) It is estimated that between 85 and 90 per cent of the motor-truck receipts were from Ohio and Kentucky. Indiana ranked next, and Tennessee and Michigan, were relatively insignificant in motor-truck shipments to Cincinnati.

Green corn led in motor-truck unloads at Cincinnati in 1929, with the equivalent of 563 cars, followed by tomatoes, 453 cars; lettuce, 260 cars; beans, 197 cars; potatoes, 187 cars; and cabbage, 149 cars. (Table 25.)

DENVER

Denver received 2,944 cars by truck in 1929, all from Colorado, as compared with 1,627 cars by rail from Colorado, and total rail receipts of 6,074 cars. Thus from Colorado 64 per cent of the unloads at Denver were by truck, and 33 per cent of total unloads were by truck. Of unloads from beyond the market-garden area, Denver received 28 per cent, or 2,326 car equivalents by truck. (Table 26.)

Of the 64 cars of apples received by truck about 25 came from northern Colorado and the Canon City district. Of the cantaloupes about 75 of the 107 cars shipped by truck came from outside the local market-garden area, mostly from the Rocky Ford district and from northern Colorado. Around 100 cars of lettuce came by truck from the mountain districts. About 75 cars of onions were trucked from Arkansas Valley and northern Colorado points. About 25 cars of peas and 5 cars of rhubarb came by truck from the Canon City and Pueblo districts, and 300 of the 388 cars of potatoes received by truck came from northern Colorado. These were the principal long-distance motor-truck movements into Denver.

The longest trip made regularly by trucks is that from the Rocky Ford district, which is about 185 miles from Denver. Occasional truck loads of sweetpotatoes come from Kansas points about 300 miles distant. There is practically no motor-truck movement to Denver from the apple, potato, and lettuce section on the western slope and the San Luis Valley.

NEW YORK CITY

Since July, 1928, the Bureau of Agricultural Economics has ascertained daily the volume of motor-truck receipts arriving on the wholesale markets in New York City. During 1929 the commissioner of markets of the city of New York reported daily the receipts on the municipal farmers' markets. Thus much detailed information on motor-truck arrivals is available for New York City. (Fig. 9.)

Sixteen per cent of New York City supplies of fruits and vegetables, exclusive of bananas, in 1929, arrived by truck. Of the supplies from beyond the market-garden area, the motor-truck receipts represented 8 per cent. (Table 3.)

Receipts by truck as reported on the New York jobbing markets amounted to 16,374 cars in 1929, arriving principally in the Washington Street district. These represented approximately the displacement of rail and boat shipments at New York City. The receipts on the Wallabout farmers' market in Brooklyn from April, 1929, to April, 1930, were 10,973 car-lot equivalents, and those at the Ganse-voort farmers' market in Manhattan 3,723 car-lot equivalents as reported by the New York City Department of Public Markets. Receipts at the Harlem farmers' market were not reported, but were estimated on the basis of number of truck loads to be about one-half

the receipts on the Wallabout market. Produce sold on these farmers' markets comes from the market-garden area, in the main, and consists in large part of bunch and leafy vegetables, unusual vegetables for the foreign born, green corn, potatoes, and tomatoes. Little fruit is received on the farmers' markets. (Table 26.)

TABLE 26.—*Comparison of motor-truck receipts with rail and boat unloads of fruits and vegetables at Denver and New York City, 1929*

Commodity	Denver			
	State of origin of motor-truck receipts [2]	Motor-truck unloads	Rail unloads [1] from—	
			States in which motor-truck shipments originated	All sources
		Cars	*Cars*	*Cars*
Apples	Colorado	64	177	407
Asparagus	do	23	0	18
Beans [3]	do	93	2	40
Beets	do	106	0	0
Blackberries	do	4	0	8
Brussels sprouts	do	0	0	1
Broccoli	do	0	0	0
Cabbage	do	101	7	123
Cantaloupes [4]	do	107	76	343
Carrots	do	101	0	36
Cauliflower	do	129	2	75
Celery	do	245	3	65
Cherries	do	15	7	26
Corn	do	177	0	22
Cucumbers	do	93	0	13
Currants	do	5	0	0
Eggplant	do	37	0	1
Grapes	do	0	0	317
Huckleberries	do	0	0	0
Lettuce	do	182	201	586
Mushrooms	do	2	0	0
Onions	do	149	17	86
Parsley	do	13	0	0
Parsnips	do	30	0	0
Peaches	do	0	195	277
Pears	do	0	110	128
Peas	do	64	18	43
Peppers	do	140	0	28
Potatoes	do	388	675	921
Radishes	do	59	0	1
Rhubarb	do	21	0	2
Spinach	do	79	0	88
Squash	do	44	0	3
Strawberries	do	48	0	177
Sweet potatoes	do	0	0	175
Tomatoes	do	95	5	302
Turnips	do	169	0	2
Watermelons	do	13	5	311
Others	do	47	37	[5] 1,349
Total		2,944	1,627	6,074

[1] Express and l. c. l. receipts included under rail unloads at Denver and New York.
[2] Colorado rail receipts come largely from outside the practical motor-truck area. Market-garden receipts are included.
[3] All beans other than dry.
[4] Includes miscellaneous melons.
[5] Exclusive of bananas.

TABLE 26.—*Comparison of motor-truck receipts with rail and boat unloads of fruits and vegetables at Denver and New York City, 1929*—Continued

Commodity	New York City			
	State of origin of motor-truck receipts	Motor-truck unloads[6]	Rail and boat unloads from—	
			States in which motor-truck shipments originated	All sources
		Cars	*Cars*	*Cars*
Apples	Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania.	1,309	3,508	11,597
Asparagus	Delaware, Maryland, New Jersey, New York, Pennsylvania.	494	59	601
Beans[2]	Connecticut, Delaware, New Jersey, New York, North Carolina, Rhode Island, Virginia, Maryland.	1,566	1,379	5,275
Beets	New Jersey, New York, Pennsylvania	921	48	840
Blackberries	Delaware, Maryland, New Jersey, New York, North Carolina.	233	43	51
Brussels sprouts	New York	194	3	26
Broccoli	Delaware, Maryland, New Jersey, New York, Virginia.	642	237	507
Cabbage	Delaware, New Jersey, New York, Virginia	909	3,412	6,085
Cantaloupes[4]	Delaware, Maryland, New Jersey	342	215	9,821
Carrots	New Jersey, New York	873	700	3,975
Cauliflower	do	864	121	2,951
Celery	New Jersey, New York, Pennsylvania	1,207	1,016	4,519
Cherries	New Jersey, New York	30	10	653
Corn	New Jersey, New York, Pennsylvania	1,786	11	739
Cucumbers	Delaware, Maryland, New Jersey, New York	457	539	2,750
Currants	New Jersey, New York	39	8	8
Eggplant	do	155	21	620
Grapes	Delaware, Maryland, New Jersey, New York	218	131	14,374
Huckleberries	Delaware, Maryland, New Jersey, New York, Pennsylvania, North Carolina.	74	83	166
Lettuce	New Jersey, New York, North Carolina, Pennsylvania.	1,225	2,619	9,992
Mushrooms	Delaware, Maryland, New Jersey, New York, Pennsylvania.	900	52	52
Onions	New Jersey, New York	656	1,078	8,536
Parsley	do	230	40	247
Parsnips	do	219	0	27
Peaches	Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, North Carolina.	1,613	1,248	3,784
Pears	Delaware, Maryland, New Jersey, New York	52	218	4,987
Peas	Maryland, New Jersey, New York, North Carolina, Virginia.	377	1,165	3,570
Peppers	Delaware, Maryland, New Jersey, New York, North Carolina, Virginia.	765	720	2,428
Potatoes	New Jersey, New York	2,336	3,702	24,407
Radishes	do	507	25	284
Rhubarb	New Jersey, New York, Pennsylvania	259	23	160
Spinach	do	1,014	34	3,469
Squash	New York, New Jersey	438	89	240
Strawberries	Connecticut, Delaware, Massachusetts, Maryland, New Jersey, New York, North Carolina, Virginia.	1,165	1,148	2,095
Sweetpotatoes	Delaware, Maryland, New Jersey, Virginia	849	1,903	2,125
Tomatoes	Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania.	1,819	829	7,851
Turnips	New York, New Jersey	420	27	1,104
Watermelons	Delaware	1	24	4,251
Others		3,752	1,319	[5]41,101
Total		31,300	27,957	186,288

[2] All beans other than dry.
[4] Includes miscellaneous melons.
[5] Exclusive of bananas.
[6] Harlem farmers' market is not included. Its receipts probably approximated 5,000 cars by truck for the year. Receipts at Wallabout and Gansevoort farmers' markets, as well as at the New York City jobbing markets, are included. The receipts at the 2 farmers' markets are estimated for the first 3 months of 1929 based on 1930 receipts.

On the jobbing markets deciduous fruits and berries are the most important items in motor-truck receipts, together with beans, mushrooms, sweetpotatoes, and tomatoes.

Most of the arrivals by truck at New York City as reported by dealers were from New Jersey and New York State. New Jersey supplied the equivalent of 13,091 cars, and New York State 12,200

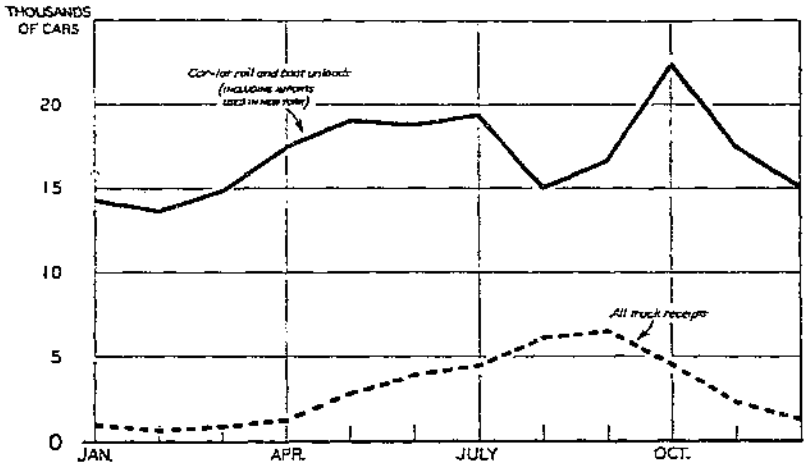

FIGURE 9.—FRUITS AND VEGETABLES: UNLOADS BY RAIL AND BOAT, AND TRUCK RECEIPTS AT NEW YORK, 1929

Motor-truck receipts of fruits and vegetables at New York City increased from February to August, after which they fell off. Rail and boat receipts fell off sharply in August and increased again in October.

FIGURE 10.—Motor-traffic congestion in New York City on Washington Street which is only 30 feet wide, yet is the principal market for fruits and vegetables in the city

cars. Maryland was third, with 1,347 cars, while Pennsylvania supplied 1,167 cars, most of which were mushrooms. There were 166 carload equivalents, mostly berries, hauled from North Carolina.

Some products are trucked from a distance to the farmers' markets, and some market-garden products are sold on the jobbing markets. Arrivals on the Wallabout farmers' market were equivalent to 6,917 cars from Long Island, 715 from other New York State points, 58 from Connecticut, and 1 from Rhode Island. At the Gansevoort farmers' market 1,877 car-lot equivalents came from New Jersey, 944 from Long Island, 615 from other parts of New York State, and 54 from Connecticut. Probably less than 5 per cent of this stock came from beyond the market-garden area of a 40-mile circle from the center of the city. Formerly much of the produce from this area was hauled in rigs which were conveyed part of the distance on ferries or flat cars.

The jobbing markets received all of the motor-truck supplies arriving from Maryland, North Carolina, and Pennsylvania and, in addition, 57 car-lot equivalents from Connecticut, 660 cars from Delaware, 1,760 cars from Long Island, 4 cars from Massachusetts, 8,711 cars from New Jersey, 2,199 cars from upper New York State, 1 car from Rhode Island, and 302 cars from Virginia.

In a rough way the motor-truck area of New York City extends from Albany on the north through western Massachusetts to Rhode Island, and west to points in the eastern part of Pennsylvania. New Jersey and the Eastern Shore section are included in the area, and some motor-truck receipts come from the Carolinas. In addition a few truck loads of lettuce and peas come from western New York, and a few truck loads from Boston. From the States included in this area 56 per cent of the receipts were by motor truck, exclusive of market-garden supplies.

Motor-truck receipts as well as total receipts were shown to be lightest in February, and heaviest in August and September, at which time rail receipts were somewhat lighter than in the period from April to July and in October. (Fig. 9.)

Severe street congestion in the Washington Street jobbing market has resulted in difficulties between incoming truckmen and the market truckmen, as well as a lack of enthusiasm on the part of some dealers toward motor-truck receipts. After considerable controversy regulations were established requiring trucks bringing produce to the market to arrive by 10 o'clock in the evening, and barring from the streets trucks measuring more than 30 feet, from 9 p. m. to 9 a. m. Formerly trucks measuring 30 to 35 feet, and some longer, of the trailer type, caused traffic tangles in Washington Street which is only 30 feet wide, and in side streets which are only 32 feet wide on an average. (Fig. 10.)

LOS ANGELES

Motor-truck receipts predominate at Los Angeles. In 1929 there were 34,351-car equivalents reported by truck compared with 20,065 cars by rail and boat, or 63 per cent by truck. Of the motor-truck receipts it is estimated that 26,448 cars came from outside the market-garden area of 20 miles from the city. This was 57 per cent of the combined long-distance motor truck, rail, and boat receipts.

Practically all of the motor-truck receipts at Los Angeles came from California except some beans from Mexico and lettuce from Arizona.

Oranges lead the commodities in truck arrivals at Los Angeles, with the equivalent of 3,258 cars, followed by celery, lettuce, carrots, and tomatoes, each with more than 2,000 cars shipped by truck. (Table 27.)

TABLE 27.—*Comparison of motor-truck receipts with rail and boat unloads of fruits and vegetables at Los Angeles and Salt Lake City, 1929* [1]

Commodity	Los Angeles			
	State of origin of motor-truck receipts	Motor-truck unloads	Rail and boat unloads from—	
			States in motor-truck area	All sources
		Cars	*Cars*	*Cars*
Apples	California	183	1,822	3,110
Apricots	do	223	245	245
Artichokes	do	93	122	122
Asparagus	do	136	513	513
Beans [2]	Mexico, California	1,155	35	51
Beets	California	797	0	0
Blackberries	do	106	8	8
Cabbage	do	1,099	50	163
Cantaloupes [3]	do	1,837	800	818
Carrots	do	2,137	23	23
Cauliflower	do	1,173	12	12
Celery	do	2,558	150	151
Cherries	do	48	131	137
Corn, green	do	1,016	0	2
Cucumbers	do	423	4	4
Eggplant	do	108	3	9
Figs	do	73	21	22
Grapes	do	1,370	34	36
Grapefruit	do	603	33	168
Lemons	do	525	0	0
Lettuce	Arizona, California	2,526	1,700	1,701
Nectarines	California	39	42	42
Onions	do	756	484	680
Oranges	do	3,258	46	46
Parsley	do	167	0	0
Parsnips	do	93	0	0
Peas	do	634	411	518
Pears	do	279	425	428
Peaches	do	1,010	313	352
Peppers	do	400	5	29
Plums and prunes	do	268	7	29
Potatoes	do	1,123	3,772	6,830
Radishes	do	251	0	0
Rhubarb	do	208	9	15
Raspberries	do	158	9	13
Spinach	do	1,134	29	29
Squash	do	642	21	22
Sweetpotatoes	do	373	147	324
Strawberries	do	771	54	55
Tangerines	do	36	2	2
Tomatoes	do	2,127	48	725
Turnips	do	765	1	40
Watermelons	do	871	2,201	2,206
Others	do	788	325	[4]385
Total		34,351	14,112	20,065

[1] Includes market-garden receipts.
[2] All beans other than dry.
[3] Casabas, honeydews, and other melons are included with cantaloupes.
[4] Exclusive of bananas.

TABLE 27.—*Comparison of motor-truck receipts with rail and boat unloads of fruits and vegetables at Los Angeles and Salt Lake City, 1929*—Con.

Commodity	Salt Lake City			
	State of origin of motor-truck receipts	Motor-truck unloads	Rail unloads from—	
			States in motor-truck area	All sources
		Cars	*Cars*	*Cars*
Apples	Utah	112	7	21
Apricots	do	38	0	0
Artichokes	do	0	0	1
Asparagus	do	18	0	8
Beans [2]	do	40	0	1
Beets	do	44	0	0
Blackberries	do	7	0	0
Cabbage	do	64	9	65
Cantaloupes [3]	do	179	0	117
Carrots	Nevada, Utah	113	2	16
Cauliflower	Utah	27	2	4
Celery	do	82	0	3
Cherries	do	27	0	2
Corn, green	do	105	0	0
Cucumbers	do	54	0	8
Eggplant	do	13	0	0
Figs	do	0	0	1
Grapes	do	15	0	95
Grapefruit	do	0	0	74
Lemons	do	0	0	45
Lettuce	do	90	0	238
Nectarines	do	0	0	0
Onions	do	104	93	125
Oranges	California	1	299	299
Parsley	Utah	8	0	0
Parsnips	do	23	0	0
Peas	do	44	0	6
Pears	do	26	0	1
Peaches	do	94	3	3
Peppers	do	31	0	3
Plums and prunes	do	21	0	1
Potatoes	Idaho, Utah	527	126	179
Radishes	Utah	29	0	1
Rhubarb	do	10	0	7
Raspberries	do	57	0	0
Spinach	do	49	0	44
Squash	do	35	1	1
Sweetpotatoes	do	0	0	55
Strawberries	do	92	0	34
Tangerines	do	0	0	0
Tomatoes	do	162	0	77
Turnips	do	48	0	1
Watermelons	do	48	0	182
Others	do	27	1	[4] 127
Total		2,404	543	1,845

[1] All beans other than dry.
[3] Casabas, honeydews, and other melons are included with cantaloupes.
[4] Exclusive of bananas.

Practically every commodity grown in southern California is brought into Los Angeles by truck. Green vegetables are nearly all received in this way with the exception of lettuce from the Salinas district, which is considered too far away for motor-truck hauling. Imperial Valley ships much lettuce, and many cantaloupes and other commodities a distance of 225 miles to Los Angeles by truck. Few watermelons are trucked since they can not be piled high in a truck, and the freight revenue from them is low. (Fig. 11.)

During 1929 the equivalent of 1,936 cars, consisting mostly of lettuce and peas, came by truck from the Central Coast district, an

average distance of about 200 miles. Motor-truck receipts from the San Joaquin Valley amounted to 1,516 carloads, mostly grapes, apricots, and peaches, coming from points 160 to 300 miles distant. Some 950 cars were received by truck from San Diego County, 100 or more miles distant, and a comparatively small quantity came from Sacramento, over 400 miles away. A few truck loads have been received from Portland, Oreg., and Salt Lake City, over 800 miles away.

Motor-truck receipts during the first seven months of 1930 totaled 18,851 carloads, an increase of 1,224 carloads, or 6.9 per cent over

FIGURE 11.—A busy day on the Los Angeles market

the corresponding period of 1929. Some increase is attributable to an earlier season, but this is offset by a lighter crop of citrus fruits.

In the spring of 1930 a tabulation of motor-truck receipts was made by bureau representatives which showed that 57 per cent went to wholesale houses, 42 per cent to the farmers' market, and about 1 per cent to miscellaneous factors, principally directly to chain stores. The quantity trucked to independent retail stores and consumers was negligible.

SALT LAKE CITY

Salt Lake City received 1,845 cars by rail, as compared with 1,232 cars by truck, from outside the market-garden area in 1929, or 40 per cent by truck, according to daily reports of dealers to Federal Market News Service representatives. Including local produce, 2,464 cars were received by truck, or 57 per cent of the total receipts of fruits and vegetables.

All of the motor-truck receipts came from Utah with the exception of some carrots from Nevada, 1 car of oranges from California, and some potatoes from Idaho. Practically all fruits and vegetables received from Utah and Nevada came by truck.

Potatoes led in motor-truck receipts, with 527 cars, followed by cantaloupes, tomatoes, carrots, apples, green corn, and onions, each with more than 100 cars by truck. (Table 27.)

The use of trucks has made Salt Lake City a marketing center for the surrounding territory within a radius of 250 to 350 miles. The volume of produce sold over the growers' market is increasing each year, though the number of trucks is decreasing because of the use of larger trucks by truckmen-merchants and the organization of motor-truck cooperatives among farmers.

Practically all trucked-in produce is sold over the growers' wholesale market, which is owned and controlled by farmers themselves. Such retailing as is done is carried on by peddlers and small jobbers near the market. Over 90 per cent of the sales on the growers' market were estimated to be in unbroken packages.

Under this system of marketing home-grown produce, the chain-store buyer, the corner groceryman, the fruit-stand operator, representatives of wholesale houses, and restaurant owners visit the growers' market early in the morning and buy their supplies for the day.

Irrigated areas within a distance of 15 miles of each side of Salt Lake City produce a large percentage of the fruits and vegetables for the local market. The principal commodities hauled by truck from a distance are potatoes from Pocatello, Idaho, a distance of 200 miles, and from Moapa Valley, Nev., 475 miles distant, comes a considerable volume of bunched vegetables, cantaloupes, and watermelons. In the latter section growers are reverting to mixed cars by rail as a cheaper method of transportation. Loads of fruit are obtained by trucks at Los Angeles, a distance of 740 miles, and peddled along the way; the remnants are unloaded at Salt Lake City. A few trucks make the trip periodically throughout the year hauling loads both ways.

There is little dissatisfaction among the wholesalers regarding the system of marketing trucked-in produce in Salt Lake City. Wholesalers are usually able to buy slightly under the price paid by retail stores and handle considerable local produce, principally for redistribution to outlying towns.

ST. LOUIS

Estimates of long-distance receipts arriving by truck were obtained from dealers in St. Louis, and estimates of shipments by motor truck to St. Louis were obtained from growers and shippers in southern Illinois. These estimates, although slightly incomplete and including about 400 carload equivalents of potatoes grown near by, along the edge of the market-garden area, accounted for a motor-truck movement of 847 cars to St. Louis in 1928. Market-garden supplies other than the potatoes mentioned were not included. The 847 cars mentioned were 41 per cent of the total receipts from Illinois, Missouri, Michigan, and Tennessee, and 5 per cent of the total receipts from all sections. (Table 28.)

The principal long-distance motor-truck receipts were apples from Calhoun County, Ill., and strawberries from widely scattered points in southern Illinois, Tennessee, and Missouri. Thirty-one cars of peaches were trucked in from the Centralia and Egypt districts of Illinois, and a few truck loads of peaches, cherries, and berries were received from Michigan. Eight car-lot equivalents of cantaloupes were trucked up from southern Illinois, together with a few truck loads of asparagus. (Table 28.)

Most of the motor-truck receipts at St. Louis go through the wholesale market channels. Calhoun County apples arriving by truck are largely sold on commission. The trucked-in stock of potatoes is largely sold and delivered to jobbers and retailers by farmers.

INDIANAPOLIS

Long-distance motor-truck receipts of fruits and vegetables at Indianapolis in 1928 were estimated at 266 cars, which is probably slightly incomplete. These receipts were from Illinois, Indiana, Tennessee, and Michigan and represented 51 per cent of the rail and motor-truck receipts from these States and 4 per cent of total Indianapolis receipts, excluding market-garden production. (Table 28.)

TABLE 28.—*Comparison of motor-truck with rail and boat unloads of important fruits and vegetables at St. Louis and Indianapolis, 1928* [1]

Commodity	St. Louis [2]			
	State of origin of motor-truck receipts	Motor truck, estimated	Rail and boat	
			States in motor-truck area	All sources
		Cars	*Cars*	*Cars*
Apples	Illinois., Missouri	363	615	1,325
Cantaloupes	Illinois	8	0	710
Peaches	Michigan, Illinois	31	204	816
Potatoes	Illinois, Missouri	400	320	3,647
Strawberries	Illinois, Missouri, Tennessee	44	65	330
Tomatoes				527
Watermelons				1,001
Others [3]	Illinois	1		7,243
Total		847	1,204	15,599

[1] These estimates of motor-truck receipts are based upon interviews with growers and shippers in the main producing areas near these markets, and with dealers in the markets. They do not include market-garden supplies which have always moved to market by road vehicles, and are not quite complete for motor-truck receipts from a distance.

[2] Potatoes received by motor truck are grown within 30 miles of St. Louis. Otherwise market-garden produce, though important at St. Louis, is excluded. In addition to these figures some grapes, cherries, and berries came from Michigan by motor truck.

[3] Asparagus at St. Louis and mixed vegetables, cucumbers, and sweetpotatoes at Indianapolis.

TABLE 28.—*Comparison of motor-truck with rail and boat unloads of important fruits and vegetables at St. Louis and Indianapolis, 1928*—Continued

Commodity	Indianapolis [1]			
	State of origin of motor-truck receipts	Motor truck, estimated	Rail	
			States in motor-truck area	All sources
		Cars	*Cars*	*Cars*
Apples	Illinois, Indiana, Tennessee, Michigan	81	156	725
Cantaloupes	Indiana	38	23	222
Peaches	Indiana, Illinois, Michigan	55	47	412
Strawberries	Indiana	10	2	263
Tomatoes	do	11	0	133
Watermelons	do	38	19	449
Others [2]	do	33	8	4,831
Total		266	255	7,035

[1] Asparagus at St. Louis and mixed vegetables, cucumbers, and sweetpotatoes at Indianapolis.
[2] Production within 20 miles of Indianapolis, which is excluded, is rather large in fruits and vegetables, including greenhouse production and canning tomatoes. In summer and fall there is considerable additional movement by truck from Michigan of lettuce, peaches, grapes, celery, and berries.

Apples led in estimated motor-truck receipts with 81 cars, followed by peaches with 55 cars, and cantaloupes and watermelons with 38 cars each. Most of the apples came from Knox and Orange Counties, Ind., although there were a few truckloads from Illinois, Michigan, and Tennessee. (Table 28.)

Of the peaches it is estimated that 52 cars came by truck from Knox County, Ind., and 2 cars from Illinois. A few truckloads came from Michigan late in the season.

The equivalent of about 23 carloads of cantaloupes and watermelons was trucked from Jackson County, and 53 carloads from Knox County and adjacent areas during 1928.

The equivalent of 12 cars of hothouse cucumbers and 6 cars of mixed vegetables were transported from producers near Terre Haute to Indianapolis by truckmen carriers.

All of the Indiana tomatoes used at Indianapolis for fresh consumption arrived by truck, except small l. c. l. lots. Of the trucked tomatoes about 11 cars came from Knox County district and the remainder from nearer localities. Fifteen cars of sweetpotatoes came by truck from the Knox County district.

The market-garden area near Indianapolis supplies a large quantity of produce, both field and greenhouse, which is brought in by vehicles. The long-distance receipts increased moderately at Indianapolis during several years preceding 1928 and increased sharply in 1929. A striking phase of this increase is the receipts of berries apples, peaches, grapes, celery, and other products from Michigan. This fruit leaves the Benton Harbor and Kalamazoo districts in the evening and is delivered in Indianapolis for the early morning trade.

BUFFALO, ROCHESTER, AND SYRACUSE

A comparison of estimated motor-truck and reported rail unloads of 12 important fruits and vegetables at these three cities in 1928 is shown in Table 29. Estimates of the trade show that 3,343 car equivalents of these items were received in Buffalo by truck, excluding market-garden supplies. This was 38 per cent of all receipts of these commodities at Buffalo, and 90 per cent of the receipts from New York State, excluding market-garden supplies. Rochester received 2,264 cars by truck, from beyond the market-garden area, or 50 per cent of rail and long-distance motor-truck receipts of the 12 important fruits and vegetables considered and 93 per cent of all receipts from New York State, excluding market-garden receipts. Syracuse received 1,715 cars, or 51 per cent by truck, of the receipts of the 12 items considered, and 96 per cent of the receipts of these items from New York State. (Table 29.)

TABLE 29.—*Comparison of motor-truck and rail unloads of 12 important fruits and vegetables at Buffalo, Rochester, and Syracuse, 1928*[1]

Commodity	Buffalo			Rochester			Syracuse		
	Motor truck, estimated	Rail		Motor truck, estimated	Rail		Motor truck, estimated	Rail	
		New York State	All sources		New York State	All sources		New York State	All sources
	Cars	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*	*Cars*
Apples	445	21	298	167	35	184	217	10	58
Cabbage	158	18	246	89	0	83	39	0	43
Celery	170	168	459	122	15	131	54	28	92
Grapes	305	0	898	183	0	650	175	0	470
Lettuce	120	0	645	0	59	246	36	1	186
Onions	33	84	292	86	40	154	55	18	63
Peaches	239	0	410	117	0	174	119	0	126
Pears	63	0	131	35	0	16	24	1	33
Plums and prunes	49	0	48	24	0	1	8	0	8
Potatoes	1,723	91	1,257	1,433	12	424	986	17	328
Strawberries	0	0	415	0	1	142	1	1	144
Tomatoes	47	0	346	8	0	79	1	0	108
Total	3,343	382	5,545	2,264	162	2,293	1,715	76	1,659

[1] The motor-truck receipts are estimated from destination reports from the 21 principal producing counties in western New York. Market-garden supplies—that is, products grown within 15 miles from each of these cities—are excluded. Within this market-garden area at Rochester a large quantity of fruit and many kinds of vegetables are produced. Within the market-garden areas near Buffalo and Syracuse vegetables constitute the main production. Buffalo obtains relatively small additional receipts by motor truck from Canada and Ohio and Syracuse from several other western New York counties.

It is apparent that motor-truck shipments supply such a large part of the needs of these cities with products available in western New York that much increase is contingent upon a wider radius from which supplies are drawn, an increase in population or in the area of redistribution, or new production.

The products that lead in motor-truck receipts at these markets in order of importance are: Potatoes, apples, grapes, peaches, celery, and cabbage. Rail receipts from western New York are made up chiefly of celery, onions, potatoes, apples and lettuce. Some increase in truck shipments of celery and lettuce was noted in 1929, but there was slightly less activity in potatoes and onions.

OTHER CITIES[3]

Pittsburgh received only 417 (estimated) cars by truck on the wholesale market compared with 29,279 cars by rail in 1929. Considerable additional supplies came from near-by market-garden farms and were sold direct to retail stores or consumers. The principal areas supplying Pittsburgh by truck are eastern and northeastern Ohio, Chautauqua County, N. Y., and a few points in northwestern Pennsylvania. The principal commodities from Ohio were cucumbers, lettuce, radishes, tomatoes, green corn, and berries. Mushrooms were brought from Pennsylvania points. Grapes and tomatoes came from Chatauqua County, N. Y. A few truck loads of North Carolina and Virginia berries arrived on the market in 1929, but were not satisfactory. The most distant points from which supplies are trucked to Pittsburgh are not more than 150 miles, and the volume is so small that the effects on the market are inconsequential.

Chicago motor-truck receipts are relatively small—they were estimated by the Federal Market News reporters in 1929 at 5 per cent of the total receipts and of this quantity 60 per cent was estimated to have originated in the market-garden area. It was further estimated that about 20 per cent of the motor-truck receipts was delivered to the wholesale market, 70 per cent sold on farmers' and motor-truck jobbing markets, and about 10 per cent sold to retailers and consumers. Tree fruits, berries, celery, cucumbers, tomatoes, cantaloupes, lettuce, and onions are trucked from southwestern Michigan; tree fruits, cantaloupes, tomatoes, and strawberries from Indiana; vegetables of many kinds and cherries from northern Illinois; and strawberries, cabbage, onions, cherries, and tomatoes from southeastern Wisconsin. Maximum distances of origin reported for certain commodities were: Tomatoes 110 miles, cabbage 75 miles, strawberries 85 miles, onions 110 miles, peaches 150 miles, cantaloupes 110 miles, and apples 125 miles. During 1927 and 1928 the increase in motor-truck receipts was believed to have been from 15 to 20 per cent for each year, but the increase was negligible in 1929.

Minneapolis motor-truck receipts on the wholesale market are not of great importance except as they refer to local vegetable crops. A few watermelons and tomatoes are occasionally trucked from the Muscatine section. Receipts by truck on the wholesale and farmers' markets from the area which formerly hauled to market by wagon comprise about 25 per cent of the total motor-truck receipts. The farmers' market, when originally built, was designed for the section that could be served by wagons, but in the last few years the increase in motor-truck receipts has been so great that the market is far too small to accommodate well those who wish to sell in this way. Practically all of the cabbage received by truck is from within a radius of about 50 miles, although some early lots come as far as 150 miles. The principal commodities trucked in are cabbage, potatoes from as far as Pine County to the north and Stearns County to the west, and onions from near by and some from the Hollendale section.

[3] Estimates furnished by Federal Market News reporters in their respective markets.

At Baltimore motor-truck receipts have been gradually supplanting express shipments from North Carolina, Virginia, Pennsylvania, western Maryland, New Jersey, and the Eastern Shore. Notable and extreme long-distance shipments received at Baltimore during 1929–30 were: From Georgia, tomatoes; from North Carolina and South Carolina, peaches, strawberries, dewberries, blackberries, beans, peas, cabbage, cucumbers, and squash; from Maryland, Delaware, Virginia, and Pennsylvania, apples, berries, peaches, and various vegetables; from New Jersey, beets and various vegetables; from western New York, lettuce and celery.

At Kansas City trucks occasionally arrive from Arkansas and southwest Missouri with apples, cantaloupes, peaches, grapes, radishes, and sweetpotatoes; and from Oklahoma with radishes, from distances up to 200 and 300 miles. But 85 to 90 per cent of the trucked-in stock is from the market-garden area within 25 to 30 miles of the city. For instance, trucked-in lettuce supplies the market for about 2 weeks, cantaloupes for 3 weeks, potatoes for 6 to 9 weeks, and sweetpotatoes and many other products for 2 months or longer. From 1927 to 1929 the annual increase in motor-truck receipts was estimated at 33⅓ per cent.

New Orleans motor-truck receipts come, for the most part, from the market-garden area, and, it is estimated, furnish about 25 per cent of the fruit and vegetable supply coming to the city. In 1930 an occasional truck loaded with Texas tomatoes arrived in New Orleans from a distance of 400 miles. Trucks are now hauling a large part of the produce which came to New Orleans by boat previous to 1930. About 200 trucks, owned by farmers, operate in this movement. Aside from this displacement of boat business, the total quantity of stock trucked into New Orleans has not changed much in the last three years. The total motor-truck receipts of the 18 leading commodities in 1929 were estimated at 2,700 cars, as compared with 5,885 cars shipped by rail and boat. According to the estimates, about 5 per cent of the trucked-in stock is handled on the wholesale market, 90 per cent is handled on the farmers' market, and 5 per cent is sold direct to retail stores and consumers. The trucked-in stock consisted of strawberries and a great variety of vegetables and came mainly from within a radius of 70 miles of the city and mostly from within 10 to 15 miles.

At Atlanta motor-truck receipts of fruits and vegetables practically supply the city during June, July, and August with many items and are important during certain other seasons. Possibly one-fourth to one-third of the motor-truck receipts come from the market-garden area. From Florida large volumes of green beans, cabbage, cucumbers, and squash arrive by truck. South Carolina motor-truck receipts consist principally of asparagus, cabbage, and green beans. Strawberries in fairly large volume come from Alabama and Tennessee. Georgia supplies a great variety of vegetables and deciduous and small fruits. There has been a steady growth in the volume of motor-truck receipts during the last three years, supplies of this kind probably doubling during that time. Trucks loaded with produce gather in large numbers on a few streets early each morning where the fruits and vegetables are jobbed out, and a large number of farmers also sell direct to retail stores throughout the city.

At Seattle the geographical situation restricts the movement of produce over any great distance. The principal area from which truckmen draw their trade is to the north and south and among the Puget Sound Islands. Much of the motor-truck receipts consists of various garden vegetables, together with berries and potatoes. There is a considerable business in reshipping these items from Seattle in car lots. Probably between 75 and 85 per cent of the motor-truck receipts are from the market-garden area. In addition, asparagus, apples, melons, grapes, peaches, and other soft fruits are hauled from the Yakima Valley in season. String beans, green peas, and other early garden vegetables are hauled from The Dalles, Ore., via Portland. During the winter months there is practically no motor-truck hauling over the Cascades because of the impassable condition of the roads.

Most of the motor-truck receipts at Portland, Ore., variously estimated at from 50 to 65 per cent, originate within 25 miles of the city. During 1929 it was estimated that 901 cars arrived at the east Alder Street market by truck, and this probably represents about one-third of the city's motor-truck receipts. A considerable volume of fruits and vegetables comes from Walla Walla and Yakima, Wash., and from Roseburg, Ore., about 300 miles distant, as well as from intermediate points. A few trucks are operated at about weekly intervals from Sacramento and Los Angeles to Portland. These California lines mostly distribute to southern and central Willamette Valley towns, completing their unloading at Portland, where they buy a return load of deciduous fruit. Long-distance truck transportation has been increasing steadily. Prior to 1930 apples were received from Washington and eastern Oregon almost entirely by rail. From February to May, 1930, only 2 cars were received from these regions by rail and about 30 cars by truck.

REDISTRIBUTION BY MOTOR TRUCK FROM LARGE CITY MARKETS

BALTIMORE

To ascertain the extent to which the motor truck is used in transporting products from a major market to its surrounding trade territory, and the effects of this movement upon the trade, 35 wholesale dealers were interviewed in Baltimore in the spring of 1930.

From these interviews it was estimated that 24 per cent of the wholesale trade in fruits and vegetables at Baltimore left the city by motor truck, as against 4 per cent by express, l. c. l., and mixed cars, and 72 per cent consumed in Baltimore.

The limit of this motor-truck movement out of Baltimore to the north was Williamsport (175 miles), at which point Baltimore came into competition with Rochester on motor-truck trade. To the west the practical limit was Cumberland (140 miles), at which point trucks occasionally arrived laden with fruits and vegetables from Pittsburgh. A considerable volume also went to Winchester, Va., Martinsburg, W. Va., and surrounding area. From the south, motor trucks came from as far as Farmville, Richmond, and Norfolk, Va. (250 miles). Philadelphia trade restricts the motor-truck movement out of Baltimore to the east to about Elkton, Md. (40 miles), and to a little business on the Eastern Shore and in Wilmington, Del. Some

intercity motor-truck shipments occur from Baltimore to New York City, Philadelphia, Scranton, and Washington, D. C.

Long-distance motor-truck reshipments (beyond 20 miles) began at Baltimore during the World War. The growth of this movement was slow until about 1925, when trucking began to be an important factor in the out-bound movement. Dealers estimate that the volume doubled in the three years 1926–1929 and increased 25 per cent during 1929. The shipments of mixed cars from the pier into surrounding towns were reported as 30 to 35 a week 10 years ago, but were only 3 to 5 a week in the spring of 1930.

The consensus of opinion was that the volume of business moving out of Baltimore by truck was still increasing and would continue to increase.

In the area from Baltimore to Harrisburg, Pa.; Hagerstown, Md.; Martinsburg, W. Va.; and Winchester, Va., the receipts from Baltimore are in large volume and are mainly by motor truck. Hagerstown, York, and Annapolis are chiefly supplied from Baltimore by motor truck, except for cars of potatoes, cabbage, and watermelons bought direct from growing areas. Redistribution from Baltimore to Washington, D. C., has been lessened during recent years. Washington has become a major car-lot receiving market and is a slight competitor of Baltimore for redistribution in a radius of 15 to 20 miles.

The motor-truck movement south and east from Baltimore is small, but the volume going into south-central Pennsylvania, up the Susquehanna Valley, and westward in the Cumberland-Shenandoah Valleys of Maryland, West Virginia, and Virginia is rather large.

Several Baltimore dealers trucked to near-by towns, and several others utilized truckman-carrier companies to deliver orders out of the city. It was estimated that about one-twelfth of the out-bound motor-truck movement was in Baltimore dealers' trucks and by truckmen carriers. The remainder of the motor-truck movement was by retailers, peddlers, truckmen merchants, and wholesalers who came into Baltimore from surrounding towns and bought in Bolton yards and in the jobbing section. The largest volume continued to be hauled by wholesalers from out of town, but the truckman-merchant method has been growing. The trade in York County, Pa., is mainly supplied from Baltimore by numerous small truckmen merchants, many of whom are farmers. Farmers come into the wholesale market in the spring from some distance to truck out seed potatoes.

The rail reshipping of fruits and vegetables out of Baltimore to its trade territory is limited to mixed cars into the outer area and to express and l. c. l. emergency shipments. For instance, some dealer in an outlying town may need some item on days when his truck does not go to market; or his requirements may be less than a truck load, so that he prefers to express the small lots rather than send his truck to market. Again, he may buy more than he can load on his truck and may ship the surplus by l. c. l. freight or express. Several dealers at Baltimore supply their trade by boat at near-by coastal towns such as Norfolk and Newport News.

There is overnight service by truckmen carriers from Baltimore to New York, Philadelphia, and Washington. When the Baltimore

market is oversupplied and prices are lower than in other large city markets near by, wholesale dealers hire these truckmen to transport produce to these cities and occasionally to Scranton, Wilkes-Barre, and Richmond.

These intercity movements may serve as a stabilizing influence, frequently relieving a market of a burdensome surplus and preventing price demoralization. Thus Baltimore County strawberries may be trucked to New York City, enabling local dealers to maintain prices. Growers sometimes complain that the strawberries sold thus in New York City do not net them so much as those sold in Baltimore. They overlook the fact that but for the relief of the pressure the Baltimore market would have been demoralized.

Some jobbers stated that sales to truckmen at the wharf store or car door saves the crating of some products, as bananas and cabbage, and saves the marking, hauling, and billing necessary when shipment is by mixed cars. Troubles on account of delayed and damaged deliveries encountered in rail shipping are avoided. The purchaser sees the merchandise he buys, loads it on his truck, and may pay cash at once.

PITTSBURGH

In the study of redistribution from large city markets, 42 dealers were interviewed in Pittsburgh in the spring of 1930.

Fifty per cent of the total car-lot unloads of fruits and vegetables at Pittsburgh, it was estimated, left the city by motor truck as against 12 per cent by express, l. c. l., mixed cars and by boat in 1930, and 38 per cent was consumed in the city proper. The motor-truck movement out of Pittsburgh is not closely restricted by competing markets except toward Cleveland and to a slight degree toward Columbus. Pittsburgh's motor-truck trade territory meets that of Buffalo to the north and that of Baltimore to the southeast, but the motor-truck movement to these competing limits of the trade areas is greatly restricted by distance and mountains. (Fig. 12.)

The population within the motor-truck trade territory of Pittsburgh (Fig. 12) was nearly 4,000,000, according to the census of 1930. With such a populous district that is largely nonproducing in regard to fruits and vegetables, it is not surprising that reshipments from Pittsburgh are so large.

The approximate practical limit of motor-truck reshipments from Pittsburgh were Altoona and Bellefonte, Pa.; to the east, Cumberland, Md., and Clarksburg, W. Va., to the south; Cambridge and Canton, Ohio, to the west; and Meadville and Warren, Pa., to the north.

The large railroad produce terminal was opened in Pittsburgh in 1928. This lent impetus to the outbound motor-truck movement, which about doubled in the two years after the terminal was opened. The long-distance outbound motor-truck movement became an important marketing factor during 1925 and 1926. An indication of the change lies in a railroad report that 10 years ago the average weekly shipments of mixed cars to surrounding towns were from 150 to 200 cars a week, and in the spring of 1930 were only from 25 to 50 cars a week. Thus the rail redistribution is only about

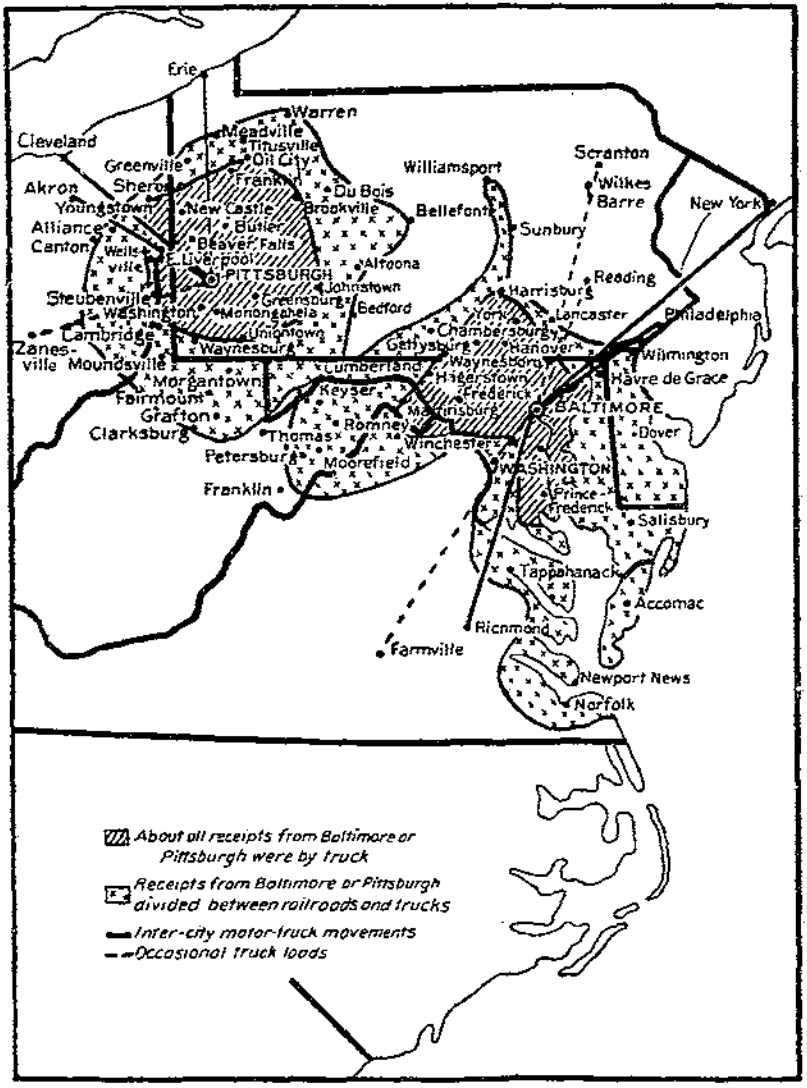

FIGURE 12.—REDISTRIBUTION OF FRUITS AND VEGETABLES FROM BALTIMORE AND PITTSBURGH BY MOTOR TRUCK, 1930

The motor-truck movements out of Pittsburgh and Baltimore largely supply the trade territories with fruits and vegetables up to 60 miles from these cities and extend to 140 miles and sometimes farther.

25 per cent of its former volume, whereas the total redistribution from Pittsburgh has increased.

The almost unanimous opinion of the trade at Pittsburgh was that the motor-truck trade has been increasing rapidly, but apparently future expansion is largely dependent on increase in population.

The area within 60 miles of Pittsburgh received by motor truck about all the fruit and vegetables coming from Pittsburgh except emergency express shipments. Some of the towns within this area are: Washington, Monongahela, Uniontown, Greensburg, Johnstown, Beaver Falls, Butler, Newcastle, Franklin, Oil City, and Sharon, Pa.; Youngstown, East Liverpool, Wellsville, and Steubenville, Ohio; and Wheeling, W. Va. The practical limit of motor-truck redistribution from Pittsburgh is 100 to 125 miles. In the outer 40 to 65 mile zone, rail shipments from Pittsburgh compete with the motor-truck movement, and more cars are brought direct from growing areas.

None of the wholesale dealers or jobbers at Pittsburgh own trucks for delivery to surrounding towns, and few of them have trucks even for city delivery. The entire outbound motor-truck movement is conveyed in trucks coming in from these outlying towns. Usually the dealer from these smaller markets drives his own truck to market, and buys and loads his supplies. Most of them are jobbers and wholesalers, but retailers come from towns for some distance around and make their purchases directly on the jobbing market. There are as yet but few truckmen-merchants operating out of Pittsburgh. Coincident with the coming of the truck method of redistribution the number of small dealers in outlying towns increased. By dividing the purchasing power these small dealers in small cities are unable to buy in straight car lots, even those items which the town can use in quantity.

Several dealers at Pittsburgh supply their trade at Wheeling by boat.

Intercity truck shipments occur from Pittsburgh to Erie and Cleveland.

OTHER CITIES

The field force of the Federal Market News Service was asked to make special studies of redistribution in their respective markets. The following information is based upon their reports.

In nine cities in various parts of the country it was estimated that on an average 36 per cent of the motor-truck shipments out of these cities were in trucks owned by dealers in small cities, 30 per cent by truckmen carriers hauling as common carriers, 21 per cent by truckmen merchants, 3 per cent by farmers returning from the city, and 10 per cent by city dealers delivering in their own trucks. (Table 30.) Many wholesale dealers in the smaller of the primary city markets deliver over their trade territory in their own trucks, but such is not the case in the larger markets, where wholesalers often do not even own trucks for city delivery. In some cities, as St. Louis and New Orleans, growers who bring produce into the city buy loads to haul back to their communities.

TABLE 30.—*Importance of various types of truckmen in redistribution of fruits and vegetables from certain city markets, 1929* [1]

City	Hauled in trucks owned by dealers in small cities	Hauled by truckmen carriers acting as common carriers	Hauled by truckmen merchants and peddlers	Hauled by farmers	Hauled by city wholesale dealers in own trucks
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Atlanta	0	50	25	0	25
Boston	50	40	10	0	0
Chicago	20	70	10	0	0
Indianapolis	40	20	20	0	20
Kansas City	27	57	16	0	0
Los Angeles	60	30	10	0	0
Minneapolis	50	0	50	0	0
New Orleans	75	0	0	25	0
Salt Lake City	5	5	45	0	45
Average	36	30	21	3	10

[1] Estimates were made by Federal Market News Service reporters from interviews and daily contact in the respective markets.

Whereas some members of the wholesale trade have been somewhat antagonistic because of some conditions they have had to face owing to the expansion of motor-truck receipts, their attitude is changing toward this type of business, as they feel they must adjust themselves to the inevitable. Most of the dealers did not oppose outbound motor-truck movements.

Boston's trade area for fruits and vegetables has increased since the opening of the Boston Market Terminal in 1927. This has resulted in lessening the number of cars received by smaller cities in New England, although such cities still receive commodities used in large quantities in straight car lots. Cities within a radius of 50 miles from Boston receive much of their supply by truck from Boston. Such cities as Providence, Worcester, Lowell, Lawrence, Haverhill, Nashua, Manchester, and Portland receive a large quantity of produce by truck from Boston, depending upon price, supplies, and perishability. Some trucking is done to such points as Lewiston and Bangor, Me., and Laconia, N. H., and even Springfield, Mass., but these cities are largely supplied by car-lot or l. c. l. shipments.

Before the advent of the motor truck it was customary for two or three cars to be shipped daily from Cincinnati by rail up the Miami Valley to Dayton and waypoints. Now all this traffic is carried by motor trucks. Cities receiving motor-truck shipments in volume from Cincinnati are Dayton, Lima, Hamilton, Middletown, Washington Court House, Wilmington, Columbus, Portsmouth, Parkersburg, and Huntington.

Atlanta motor-truck reshipments have probably increased as much during the last three years as motor-truck receipts have increased. In 1930 trucks were operating out of Atlanta in all directions up to 75 or 100 miles.

Chicago supplies the area within a radius of about 40 miles from the city almost entirely by truck. From that circle to 75 miles, probably 65 per cent of the fruits and vegetables obtained from Chicago are by truck, and from a distance of 75 to 100 miles about 15 to 35 per cent are sent by truck.

From Kansas City redistribution by truck to surrounding towns and small cities has been increasing. Shipments to points within 100 to 125 miles of the city are practically all by truck. Within this radius there are several cities that are less important distributing centers. Towns as far away as 200 miles into Kansas, 100 miles east in Missouri, 200 miles north into Iowa and Nebraska, and 300 miles south into Arkansas and Oklahoma are partially supplied from Kansas City by truck.

Denver supplies by truck a large quantity of the stock used in the eastern half of Colorado, southern Wyoming, and western Nebraska. Some trucks make regular trips from Denver to Nebraska points with fruits and vegetables on the outhaul and eggs and poultry on the return trip. Several of the wholesale firms maintain regular truck service to northern Colorado points, reaching out as far as 100 miles. Such movements include both local products and reshipments of rail receipts, mostly of the latter.

At Los Angeles some of the business within the trucking area has been taken by truckmen merchants who operate direct from growing areas. Most of the outgoing business is handled by out-of-town dealers, who send their own trucks and buyers into Los Angeles. This has displaced much of the express and mixed-car shipments to points within trucking distance. About all shipments of fruits and vegetables to points within a radius of 175 miles go out by truck. The area from this distance to 300 miles is partially supplied by truck. Motor-truck reshipments probably constitute less than 10 per cent of the business at Los Angeles.

Within a radius of 75 miles of Minneapolis practically all of the trade in fruits and vegetables is supplied by truck, and shipments are made by truck to points as much as 250 to 300 miles away. It has always been a problem at Minneapolis in the winter months to move perishable commodities without loss through freezing. Railroads have been reluctant to accept shipments when temperatures are much below zero. The result has been that many of the communities which depended upon the Twin Cities for their fresh fruits and vegetables during the winter have at times been forced to go without them. During the last few years a few dealers and truckmen carriers have made provisions for heating their trucks during the extremely cold weather. Fruits and vegetables are now shipped a distance of 125 miles during the most severe weather, and stock is arriving in good shape.

Redistribution from New Orleans by truck is very light. A few wholesale grocers in near-by towns use their own trucks in obtaining fruits and vegetables at New Orleans, and some of the farmers who bring in produce haul back a load of shipped-in stock for some small distributor.

The Seattle wholesale market has a heavy motor-truck movement as far north as Everett and as far south as Tacoma. On minor items the motor-truck movement is important, but on such items as potatoes and apples, which can be used in car lots, the motor-truck shipments to points over 40 miles distant are negligible. Trucks completely serve the territory within a radius of 30 to 40 miles of Seattle. Yakima, 160 miles away, is the farthest point to which truck shipments are sent.

The area contiguous to Portland, Oreg., which is partially supplied by truck from Portland, approximates that from which trucking to Portland is practicable. Most trucks try to obtain back hauls from Portland consisting of commodities not produced locally. Most of this 2-way trucking is done by regular bonded trucking companies, operating on schedules, with standardized tariffs. Several fleets of large trucks and trailers leave Portland each evening. Part of their mixed loads consists of fruit and vegetables. They travel during the night, stopping for partial unloading until the ends of their runs are reached in the early morning or forenoon. Similarly, the other halves of the fleets arrive in Portland in time to unload their straight loads of fruits and vegetables at the morning market. One large distributor with about 100 branches in cities and smaller towns of the Northwest, also sends his own fleet out from Portland with branch house supplies daily. Other types of truckmen are present but of minor importance.

EFFECT OF REDISTRIBUTION ON THE TRADE

It is doubtful if the use of the motor truck has resulted in greater redistribution from Baltimore and Pittsburgh, although consumption of fresh fruits and vegetables has greatly increased during recent years in their trade territory partly as a result of better distribution and partly because of changing food habits. However, there has been a corresponding increase in car-lot unloads direct from producing areas at such cities as Altoona, Pa., and Cumberland, Md., and other cities more than 60 miles from a primary market. Sunbury, Pa., for instance, received 60 per cent of its supplies in car lots direct from growing areas in 1928, whereas it was formerly supplied entirely from larger markets. Increased consumption in Sunbury, coupled with a trade territory with a 40-mile radius, made possible by motor-truck deliveries, has created a volume of business of sufficient size to make car-lot receipts of most items practicable.

Dealers in towns within 60 miles of primary city markets have increased their purchases from these city markets because of regular daily supply. Where formerly they bought one or two cars of fruits and vegetables a week, now they take a truck load or more daily, and sometimes the trucks are loaded both ways.

With the spread of chain stores in small cities and villages, trucking concerns have entered into contracts to give these stores regular daily-delivery service from the central market, or the chain system may operate its own trucks for this service.

Large markets are so situated in the northeastern industrial area of the United States that with the exception of a few remote mountainous sections and the northern parts of New York and the New England States, practically the whole territory is within trucking range of large terminal markets, as trucking is now conducted.

The cost of trucking is greater than rail transportation for low-freight-rate items on hauls of 50 to 60 miles, more or less. But when shipping the highly perishable, light, and expensive items many dealers asserted that reshipments by truck from city markets were

more satisfactory for hauls up to 125 miles and, in exceptional cases, farther.

From the viewpoint of the consumer, especially in rural and miners' villages, the motor-truck redistribution from city markets has resulted in a fresher supply of fruits and vegetables often at less cost than under the old method.

No objections to the motor truck as a means of redistribution to near-by towns was voiced at Baltimore save as it shifted business from one dealer to another. At Pittsburgh dealers were generally sympathetic with the motor-truck traffic, except for the complaint that it had been accompanied by the advent of a great many small dealers and peddlers who were without credit and some of whom employed unethical methods. Small jobbers generally complain that buyers of truck loads of produce go around them to the car-lot receivers, and the large car-lot receivers complain that incoming produce goes around them to small jobbers. Thus the use of the truck has tended to dispense with the jobber and broker services for outgoing movements and to go around the broker and wholesaler on the incoming movement.

RELATION OF MOTOR-TRUCK TRANSPORTATION TO COLD-STORAGE AND PROCESSING PLANTS

Cold storage aids motor-truck shipping by prolonging the season, which is highly important in securing cheap truck transportation. Some areas that have many cold-storage plants and a varied production, such as Wayne and Monroe Counties, N. Y., furnish a year-around supply of fruits and vegetables for truckmen-merchants. In the summer a supply of peaches, pears, and apples is kept in storage. In the fall, apples, pears, celery, and many other items are available in storage. During the winter and spring, onions, cabbage, potatoes, apples, celery, and other items are available.

The leading benefits of motor-truck transportation to storage and processing plants, according to managers, is direct hauling from points having no direct rail connections, less loss in handling, and the occasional savings of cartage. (Fig. 13.)

Storage operators stated that apples hauled into storage from the near-by districts arrived in a few hours, whereas rail or boat delivery took 24 to 48 hours and sometimes longer. Apples that are rushed into storage after harvesting keep measurably longer than those delayed in warm temperature. Speed in delivering to the cold storage after picking is therefore important. If the apples lie at the orchard or in the packing house during several warm days before being hauled, little or nothing is gained by use of the truck. Some of the larger growers have waiting trucks backed up to the packing shed to insure quick movement into storage.

Of about 65,000 barrels of apples stored at Hannibal, Mo., in 1928, 13,750 barrels were received by motor truck. Of 18,699 barrels stored at Quincy, Ill., all but 1,650 barrels arrived by truck. Only about 5 per cent of the truck movement of apples from Calhoun County to St. Louis in 1928 went into storage. The bulk of the 20,000 bushels stored at Salem, Ill., and 15,000 stored at Newton, Ill., were hauled into storage by motor truck.

At Quincy, redistribution of the apples from storage was made as follows: 45 cars by rail and 61 cars by motor truck. Most of these apples were stored by wholesale produce dealers of Quincy who distributed them by truck locally and to towns as far as 100 miles away. At Salem, 20 per cent of the apples stored were distributed by truck throughout the winter. About 50 per cent of the apples stored at Newton were distributed by motor truck.

Both storage plants and canning factories are numerous in the western New York fruit and vegetable belt. There may be several at a shipping point, and the shipping points may be only 5 to 10 miles apart. Kraut is made on a large scale in Ontario County, and throughout the belt the canning of apples, peas, pears, tomatoes, carrots, beets, raspberries, cherries, plums, and many other products,

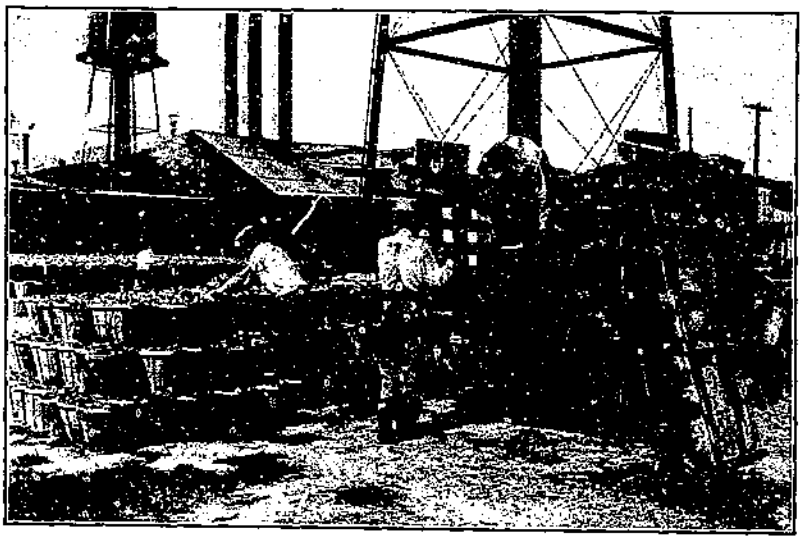

FIGURE 13.—Delivering vegetables to a Virginia cannery by truck

is done on an extensive scale. Juice plants and bonded wineries take a large quantity of grapes. Rough celery is moved to washing plants.

The more important interdistrict movements of these products amounted to 1,397 carload equivalents in 1928. Grapes, pears, apples, and celery were the most important products transported. The distance covered in this movement ranges from 7 to 50 miles. Since factories normally draw from a radius of 15 miles for their home-station supply, probably less than one-half of this volume would be subject to shipment by railroad in the absence of motor trucks.

Nominally everything within about 15 miles comes to storage plants and canneries by truck, and beyond that by railroad, except for such movements as noted. Resales of fresh fruit by canneries to truckers amount to 10 per cent of the volume of some representative canners in western New York, and nothing in West Virginia. Frequently factories canning small fruits and vegetables ship the first receipts

of the season to market by truck when prices for the fresh article are high. The ability to move canning and storage products from one district to another by truck has tended in western New York toward the centralization of such plants in larger units and the reallocation of production to some extent.

At various points in western New York cold-storage operators supply truckmen merchants throughout the storage season. In some cases the storage operator owns products which he sells on his own account, but more frequently farmers set a price on their products, and give the storage operator the right to sell, or the farmer may be called by telephone and make sales over the wire. In a few cases truckmen merchants store large quantities of fruit on their own account.

In the Hudson Valley many cold-storage plants have been built during recent years, and the vogue has changed from storage in the New York City metropolitan area to storage in producing areas, whence supplies are trucked to the city as needed.

Railroad shipments of tomatoes for canning in the southern part of Indiana in 1928 totaled 617 cars, and those by motor truck were estimated at 3,039 cars. The large production of canning peas moved entirely by road vehicles. Beans and peas for canning have always been hauled to the factories by highway vehicles.

In recent years a larger part of the canning tomato crop than formerly has been moved by truck. This has resulted in shifts in production from districts as distant as 50 miles from the canning factories to districts within 20 miles of the factories.

In most instances the canning companies have found it advantageous to haul the early and late tomatoes by truck from "rail stations" when full cars were not available. Several large companies assert that tomatoes are transported more quickly by motor truck and are in better condition on arrival. Trucking rates for 15 to 25 miles were usually $2 to $2.50 per ton, whereas rail rates were about $1.80 per ton for the same distance. Twenty-five miles seems to have been the practical trucking limit for canning tomatoes in 1928. Some plants still received all of their tomatoes by railroads or electric lines except such as are hauled to the cannery by growers.

Several large factories are so located that all the tomatoes can be grown within 20 miles of the factory and trucked in.

Reasons given for preference of the motor truck are as follows: On occasions a car is not filled in time for the daily train and remains over at the country station for 24 hours. In switching, the crates are sometimes shifted and fall down or are crushed, with serious loss. Tomatoes arriving by truck maybe graded as received and payment made according to quality. By bringing tomatoes quickly to the factory in trucks without much bruising, it is possible to pick them riper, when they are in a more desirable stage of maturity for canning purposes.

Reasons given against the use of the truck by some managers of canneries are that from some producing points there are no improved roads and the cost by truck is greater for distances greater than 20 to 25 miles.

SUMMARY

This survey covered motor-truck shipments to market from Connecticut and Delaware and parts of Illinois, Indiana, Maryland, Massachusetts, Michigan, New Jersey, New York, Pennsylvania, Virginia, and West Virginia. Motor-truck receipts at a number of cities are considered, and redistribution from city markets by motor truck.

In the areas named, 136,509 cars of fruits and vegetables were shipped by rail and boat, as compared with estimated motor-truck shipments equivalent to 77,102 cars which moved over 20 miles to market during the one composite crop year, 1928 and 1929.

It is believed, judging from these sample studies, that between 150,000 and 200,000 cars were trucked to market 20 miles or more in the United States during 1929, as compared with 1,068,745 cars reported shipped by rail and boat.

Receipts at 11 cities for which comparable records are available were 306,315 cars of fruits and vegetables by rail and boat, as compared with 56,414 cars by motor truck from beyond the market-garden area in the composite year 1928 and 1929.

Truckmen merchants (those who buy and sell the products they haul) predominate in the middle-western areas studied. Truckmen carriers (those who haul for hire) predominate on the Atlantic seaboard. Most of the trucking to market done by farmers covered distances of less than 40 miles.

Trucks have expedited transportation on short hauls, causing increased production of highly perishable products at points advantageous to desirable markets, and have made the distribution of highly perishable products more direct and less wasteful under certain conditions.

Regional motor-truck jobbing markets, where products from a considerable area are concentrated and redistributed, and wholesale roadside stands, are increasing in number to serve the motor-truck trade.

Products most suited to long-distance transportation by motor truck are the light, quickly perishable fruits and vegetables, or those that yield a high freight revenue and require expeditious movement to market.

Distances covered by truck have increased; highly perishable products are now being hauled regularly as much as 400 miles, and even greater distances in some areas.

Of the areas surveyed, the following had the highest percentages of motor-truck shipments: Connecticut, 92; southeastern Pennsylvania, 85; southwestern Michigan, 73; Long Island, 68; the Hudson Valley and parts of New Jersey, 67. Areas that had the lowest percentage of shipments by motor truck were: Western New York, 19; south-central Pennsylvania, 18; western Massachusetts, 7; Eastern Shore of Virginia, 3; and the Cumberland-Shenandoah Valley of West Virginia, 2.

The relation that motor-truck shipments of important commodities from all areas included in the study bore to the total shipments was, in terms of percentage, as follows: Spinach, 96; snap beans, 89; mushrooms, 85; asparagus, 76; tomatoes, 64; strawberries, 58; canta-

loupes, 49; grapes, 48; peaches, 43. Commodities, a smaller volume of which moved by truck showed the following percentages: Potatoes, 25; apples, 24; lettuce, 21, sweetpotatoes, 19; onions, 18; and cabbage, 12.

The truck unloads of fruits and vegetables at the 11 cities studied (excluding market garden receipts) were of greatest relative importance at Los Angeles, where they constituted 57 per cent of total unloads for the city, and of least relative importance at Boston, where they constituted only 2 per cent of the total unloads.

Redistribution from city markets to surrounding trade territories has grown in volume and in distance. Except for local supplies, the area within 50 miles is now usually supplied with fruits and vegetables by truck from the large city market. In the outer rim of the trade territory, up to 150 miles and sometimes farther, trucks compete with mixed cars and express shipments from the large city and with straight cars shipped direct from producing areas.

It was estimated that 50 per cent of the total receipts on the wholesale markets at Pittsburgh was trucked out of the metropolitan area in the spring of 1930, and at Baltimore 24 per cent was so trucked.

Country cold-storage plants aid motor-truck transportation by prolonging the trucking season. The use of the truck facilitates quick movement of apples into storage after packing, which is a decided advantage. Canning-plant managers are using trucks to obtain more soft fruits and tomatoes of desirable maturity and to extend the area from which supplies are received.

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