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Enlarging the consuming area for Massachusetts apples

Alfred A. Brown

University of Massachusetts Amherst

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ENLARGING THE CONSUMING AREA
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Enlarging the Consuming Area for
Massachusetts Apples

by

Alfred A. Brown

Thesis submitted for the degree of
Master of Science

Massachusetts State College
Amherst, Massachusetts

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Enlarging the Consuming Area for Massachusetts Apples

I. Introduction

The Massachusetts Agricultural Experiment Station research program for the apple industry has not been rigidly set up. Attempts have been made to solve the problems as they appeared. So far as was possible and practicable, the problems were handled according to the importance which growers assigned to them. Production problems, consequently, were considered first and are even now being given much attention. Marketing problems received attention later. The investigations in this field have pertained to packaging, market preference, sources of supplies on various markets, and consumer demand. The studies were undertaken with particular reference to local or nearby markets.

Present conditions account for a study being made of factors connected with transportation of apples and with new markets. A few growers had "tried", in addition to New York City, other markets outside of New England. Factors about which they had no information made them somewhat dissatisfied with the results. They candidly confessed their lack of knowledge of shipping and of handling in the markets. Some of them wanted assistance with the problem. The trend in production also warrants the study being made at this time. Potential increases in total and commercial production without proportionate increases in home consumption stress the necessity for expanding the consuming area.

Method

Approximately 100 leading Massachusetts apple growers

were interviewed in order to secure original data. The experience of these growers in shipping their apples by various methods and under different conditions was made the basis for the study of comparative transportation costs.

Information on transportation questions was secured from local, central and off-line representatives of the railroad carriers, both originating and delivering. Data were also obtained from the various tariffs of the participating lines. Data on the markets were assembled by correspondence with railroad agents, chamber of commerce officials, federal and state marketing representatives and managers of produce terminals.

Adequacy of data

Although but 100 growers were interviewed and only 73 reports were utilized the results are adequate. These growers produced 51 per cent of the total commercial crop in Massachusetts in 1931. In Table I growers are grouped according to production. In Table II are listed the volume of the principal varieties produced by growers in each class.

The information on rail transportation is reliable. Carriers are required to publish tariffs of rates and charges for supplementary services as well as regulations covering the types of service which they can perform. Statements herein presented are correct as of February 1, 1933. Since changes occur frequently in the tariffs it is desirable that growers check currently with the railroad those parts of the bulletin which apply to their shipments.

TABLE I
APPLE GROWERS IN MASSACHUSETTS
Classified on the basis of 1931 production

Production Range in Bushels	Number of Growers
0 - 1,999	9
2,000 - 3,999	22
4,000 - 5,999	11
6,000 - 7,999	9
8,000 - 9,999	4
10,000 - 14,999	12
15,000 - 19,999	2
20,000 or over	4
Total	73

TABLE II
RELATIVE IMPORTANCE OF VARIETIES ON THE BASIS
OF VOLUME OF COMMERCIAL PRODUCTION, 1931

Group (bushels)	McIntosh (bushels) 67 reports	Baldwin (bushels) 60 reports
0 - 1,999	3,105	2,640
2,000 - 3,999	26,942	14,446
4,000 - 5,999	19,500	11,414
6,000 - 7,999	15,050	10,700
8,000 - 9,999	15,646	7,140
10,000 - 14,999	68,587	24,713
15,000 - 19,999	11,500	2,800
20,000 or over	66,516	60,500
Total	226,846	135,353

Data on the markets are not as detailed as is desired. Due to restrictions on travel, it was necessary to correspond with competent men in the markets. The usual difficulties were experienced in collecting data by mail.

Chapter I

The Relationship Between the Apple Industry and the Fruit Industry of the United States

Production of fruits in the United States

The production figures for the country are inadequate as a basis on which to make an apple marketing study. Any statement as to the average commercial production would be meaningless. The range for the ten-year period 1922-1931 was from a high of 195,595 cars in 1926 to a low of 130,085 cars in 1927. The change in production from one year to the next varied from 3,263 to 65,510 cars or from 1.9 per cent to 35 per cent. In 1931 there were but 12,153 more cars of apples grown than in 1922.

In contrast with the irregularity in apple production is the uniformity in production of several competing fruits. The range for the group is from a low of 280,292 cars in 1922 to a high of 400,578 cars in 1928. There was a drop of approximately fourteen per cent in 1929. The upward movement was resumed in 1930.

Not only is the spread in years between the low and high significant but the continuous annual increases indicate definitely the upward trend. These data are on commercial production and may reflect efficiency in growing and marketing rather than changes in productive capacity.

Receipts of fruits in principal markets

In analyzing the distribution of apples from the consumption point of view, two types of data must be considered; (1) the volume of apples moving into consumption; and (2) changes in population.

The population of the United States increased from 105,710,620 persons in 1920 to 122,775,046 in 1930; a gain of more than 17 millions. The gain was not uniformly distributed. The states north of the Ohio and east of the Mississippi accounted for 49.8 per cent of the increase. Fifteen cities in this area -- New York, Chicago, Philadelphia, Detroit, Cleveland, St. Louis, Baltimore, Boston, Pittsburgh, Buffalo, Washington, Cincinnati, Newark, Indianapolis and Columbus -- account for 19.4 per cent.

Such data as are available show no discernible increase in the volume of apples consumed in this area, the area in which Massachusetts and New England growers are particularly interested. On the basis of carlot unloads, as reported by the United States Department of Agriculture, there has actually been a definite slightly downward trend.

The inadequacy of the carlot unload reports as sole criteria of tendencies in apple consumption is shown by the volume of truck unloads reported on the Boston, New York and Philadelphia markets. For 1931 the combined volumes of truck and carlot unloads in the previously designated 15 cities indicated an apparent consumption equivalent to that of 1924, the first year for which data on apples are available in all these markets. The trend in receipts from the West Coast tends to show that consumption is practically unchanged in the market area. The unloads from this producing section present a scarcely discernible upward movement. The volume of receipts from Virginia has been irregular. For the four years immediately preceding 1930 there was a sub-

stantial gain in receipts from that section. In 1930 there was a drop of 1100 cars and in 1931 a further drop of 157 cars. What part of this decline can be attributed to hauling apples by truck is a question.

Unloads of apples from New York have dropped from an approximate normal of 12,000 cars to about 6,000 cars. The decrease in receipts from this state is not an indication of a real trend in consumption. With the state located in the heart of the consuming area and within access of major markets by truck, such changes as have taken place in receipts from New York may be assigned to this new method of transportation. Part of the truck unloads were accounted for in 1931.

Detroit is the only market to show substantial gains in consumption during the eight year period. This gain is due to the rapid development of an industrial city.

It appears that apple consumption is not keeping pace with growth in population; in fact, that it has not increased any since the beginning of the last decade.

This situation in addition to the marked increase in the use of other fruits presents a serious problem. All growers of apples might ask themselves why their product is not holding its own in the markets. Has the saturation point been reached in apple consumption? Is it indifference on the grower's part as to proper merchandising which prevents apples from meeting with favor among buyers? Are the retailers shifting consumers' demand? If it is essential that all apple growers consider the situation, it is particularly pertinent for the Massachusetts grower.

Chapter II

Special Problem Confronting Massachusetts Apple Growers

Increase in local production of apples

To aggravate a generally unfavorable situation, Massachusetts is one state in which the capacity for production is expanding. Among a total of 2,159,120 trees in 1925, ¹ 756,897 or 35 per cent were not of bearing age; 248,000 or 11.5 per cent were over 29 years of age. In the report of the United States Department of Agriculture for 1931 the total number of trees in Massachusetts is given as 1,716,000 of which 585,000 or 34 per cent are eight years or less of age. The number of trees over 30 years old varies from 11 to 14 per cent depending on the total used. There are 20 to 25 per cent of the trees from 9 to 15 years old. ²

The large percentage of young trees gives reasonable assurance that any reductions in production which result from cutting down old trees will be more than compensated by the 9 to 13 year old trees coming into full bearing. The high percentage of trees 8 years old and less furnishes a sound basis for expecting an increase of 30 per cent in total production during the next decade. If efficiency in orchard and harvesting practices continues at its high level over 75 per cent of this increase will be of commercial importance.

¹ Youngman, Statistics and Charts of the Apple Industry. P. 10.

² U.S.D.A. Yearbook 1931. P. 719.

Commercial production is further influenced by adjustments which growers have made and are making in their orchard and harvesting practices. Growth in commercial production concurrent with a larger total production will increase more than proportionately the volume of locally grown apples available for consumption.

Among the changes in methods which allow the grower to place a larger percentage of his crop on the market are the growing of fewer varieties and the production of cleaner fruit.

The ratio of varieties of bearing trees to non-bearing trees in 1925 (Table III) shows the tendency to concentrate on a few varieties. The ratio of non-bearing trees in 1925 to those planted between 1925 and 1927 indicates that the movement was holding its own and possibly gaining. Cortland is included in the new group since it was probably planted as a supplement to McIntosh.

There are not statistical data to prove the statement with reference to cleaner fruit. Among those growers who did not grade their crop, several remarked with considerable satisfaction that they were members of the "Ninety Per Cent Clean Fruit Club", and that it was not necessary to grade to satisfy their buyers.

With some growers the practice of picking, packing and shipping daily has increased their commercial production. Another practice being applied more extensively is that of picking and placing the fruit in cold storage orchard run. Both of these methods improve the keeping qualities of the fruit and increase the volume of apples which can move from storage on to the market. The following table shows the trend of commercial production in this state.

(Table IV)

TABLE III
TREES IN MASSACHUSETTS APPLE ORCHARDS,
PERCENTAGE DISTRIBUTION BY VARIETY AND AGE

Variety	1925 ¹		1925-1927 ²
	Bearing	Non-Bearing	Plantings
Baldwin	45.2	29.5	26.9
McIntosh	19.2	31.9	31.5
Wealthy	5.9	8.0	5.7
Delicious	1.5	8.9	7.3
Gravenstein	4.7	5.7	2.4
Cortland	--	--	6.5
Other	23.5	16.0	22.7
Total	100.0	100.0	100.0

¹ Yount, H. W. and Jefferson, L. P., An Economic Study of the Massachusetts Apple Industry, Exp. Sta. Bul. 228, P. 111, Table V.

² Plan for Making Apple Industry of Massachusetts More Profitable, Ext. Ser, Bul. Annex. 1932. M.S.C.

TABLE IV

TREND OF COMMERCIAL APPLE PRODUCTION IN MASSACHUSETTS,
1917-1932. (thousands of bushels)

Year	Total	Commercial	Per Cent of Total
1917 ¹	2,163	675	31.2
1918	2,430	900	36.9
1919	3,187	1,005	31.5
1920	3,575	1,125	31.4
1921	1,125	516	45.8
1922	3,010	1,383	45.9
1923	3,200	1,800	54.5
1924	3,360	2,025	60.2
1925	3,160	1,965	62.1
1926	4,100	2,640	64.3
1927	2,520	1,590	63.1
1928	2,700	1,714	63.4
1929 ²	2,440	1,557	63.8
1930	4,389	2,808	63.9
1931 ³	1,575	1,098	69.6
1932 ⁴	3,442	2,430	70.5

- ¹ Youngman, Statistics and Charts of the Apple Industry, P. 28. 1917 to 1928.
² U.S.D.A. Yearbook, 1932, P. 696. 1929-1930.
³ U.S.D.A. Crop Reporting Board, Crop Report as of September 1, 1932.
⁴ U.S.D.A. Crop Report, Annual Revisions, December 1932.

Decrease in volume consumed locally

At all events, it is to be expected that increased quantities of apples must be disposed of in city areas. At one time growers could expect to sell a portion of their crop in nearby towns. The volume which these outlets absorb is probably decreasing for two reasons: The extension of the chain store into the smaller towns; and the improvement of highways.

The effect of an expansion in the area in which the chain stores operate is felt in at least two ways. Competition with sales of apples grown in other producing regions is intensified. The chain store also helps to increase the consumption of other fruits, notably citrus fruits and bananas.

The improvements in highways and truck transportation facilities during the past decade have made it possible for produce dealers at distribution (jobbing) points to extend the zone of their operations. Jobbers in citrus fruits and bananas now include independent country or small town stores in their itinerary. More kinds of fruit have been made available to the outlying districts. From the viewpoint of the consumer it is an excellent thing. To the Massachusetts apple grower it is a serious problem.

Chapter III

Ways of Meeting the Problem

The combination of factors affecting production is of particular significance to local growers. Their orchards have been planted on the assumption that consumption would increase. Some of their practices may have been undertaken in an attempt to hold the consumer; most of them were applied as a further means of increasing production with the feeling that somehow the market would absorb their volume. Data on consumption indicate no tendency in this direction. Apple growers must either develop existing local markets or promote sales in other consuming areas.

Of the solutions suggested, enlarging the consuming area is the more desirable choice, since it can be accommodated to the needs of the individual grower. Then too the volume of apples which Massachusetts growers will send to any one market at any particular time will not be sufficient to depress the market. Factors basic to enlarging the consuming area.

An understanding of current production and marketing practices, of the rudiments of rail transportation and of terminal facilities in the markets is basic to expanding the consuming area. The practices of the growers were considered in order to eliminate the chances of the investigator's doing unnecessary work and to facilitate the analysis of the data on transportation and markets. Information on rail transportation is pertinent since this type of carrier will be extensively used in shipping into the new markets. Further, many growers are but little acquainted with the technique of shipping by rail. The data on markets pertain

chiefly to physical facilities. The method employed in the research would have minimized too greatly the value of other data. This information on terminal organization and practices fills a specific need.

Current harvesting and marketing practices of growers

There are many aspects from which these practices may be discussed. Time is one basis, the extent to which a practice is carried is another, and the necessity of it is a third. For present purposes the most satisfactory point of view is that which regards the practices as favorable or unfavorable depending on whether they aid or hinder shipping Massachusetts apples into new consuming areas.

Among the unfavorable items are the size of shipments, the frequency of shipments and the type of package.

The major volume of apples is being consigned in lots of two sizes, 100 to 125 boxes and 200 to 300 boxes. Out of sixty units on which this type of data is available 21 per cent of the growers ship in the 100 to 125 box group, 26 per cent in the 200 to 300 box, and 13 per cent in the 600 box (car lot). In part the size of the consignment is that which can be most efficiently packed out daily by the grower. There is also a definite relation between the type and capacity of the carrier and the size of consignment. In some instances the number of boxes shipped depends on the capacity of the carrier and in others the selection of the carrier depends on the volume which a shipper wishes to move.

The frequency with which shipments are made seems to affect the size. In the 100 to 125 box group, growers consigned daily. In the 200 to 300 box group, they shipped three times a week. The practice to be followed is determined by the grower's organization and the requests of the consignee.

Another practice which might prove temporarily detrimental to the interests of the grower is the use of the Massachusetts Standard Box. The package is not well known outside of New England. This feature in itself need not be a hindrance but the box has little in its favor. It is more difficult to handle than the Western box, and is not as well adapted to the display of apples.

Among the practices which can expedite rail shipping into the potential markets are grading, time of sale and the channels of trade.

Massachusetts growers can be expected to place on the market a pack which, on a quality basis, can compare favorably with packs from other regions. Eighty-seven per cent of the growers grade their Baldwins and McIntosh, the two varieties which will comprise the larger volume of out-of-state consignments. Grading also means that only the higher priced apples will be shipped. The cost of shipping is consequently less in relation to the price received.

The period of the year when growers normally sell their apples can have a direct bearing on shipping. Its importance is further emphasized when considered in relation to the size of

consignments and the frequency with which they are made.

About 15 per cent of the growers sold all their McIntosh when picked or shortly after. Practically none sold Baldwins until January first. Most of the sales are distributed throughout the late fall and early winter. It would be possible, therefore, during the normal sales period, to pack out a large enough volume for consignment to a new market. The opportunity exists for organizing the packing force so as conveniently to load out the volume at the proper time. Since most of the sales take place after the peak of harvesting has passed, more attention could be given to satisfactory packing and shipping.

In shipping to any one of the suggested markets, the practice is to consign to a commission house or auction agent. This would involve little new for the growers. Most of them are now selling through the commission house. There may be some differences among markets as to the manner of reporting sales or the performance of supplementary services. The principal features of dealing through the commission house are well understood.

Current practices favoring the shipping to new markets seem to outweigh the detrimental ones. A good quality pack, distribution of sales, and much experience in selling through the normal channels of trade are assets. The size and frequency of consignments are not too great a hindrance. They may be adjusted. The time and distribution of sales makes this possible.

Present markets

The larger part of the Massachusetts apple crop is con-

sumed locally. Cities in Massachusetts and the city of Providence, Rhode Island, are the chief outlets. Small towns adjacent to the growers' orchards are of little importance.

New York City absorbs much of the supply from western Massachusetts, plus a small volume from other apple growing sections within the state. The number of local growers who are actually acquainted with the market is small. Frequently a small volume of local apples is shipped to Pittsburgh or Cleveland. Occasionally a car is shipped to Cincinnati. Rarely are any other cities tried. In transactions involving these cities, the usual procedure is for a buyer or dealer to promote the trade. Local growers regard making consignments to these outlets as a risky practice.

With reference to the number of markets which a grower used, it was found that 47 per cent sold in one, 18 per cent in two, and 5 per cent in three. Of the men who used but one market 75 per cent sold in Boston and 15 per cent in New York. The population centers were concentrated on as outlets for crops. Nearby towns were places in which to sell early varieties, odd varieties or odd lots.

The outlets favored by growers regardless of the number used showed that 51 per cent sold in Boston, 28 per cent in New York and 14 per cent in Springfield and Providence.

The geographical location of the apple grower has but little effect on his choice of market outside southern New England. Within this area, however, growers sold in the one of four cities - Springfield, Worcester, Boston, Providence - which was nearest to their orchards.

The data indicate that in general local growers are acquainted with few outlets and few growers are acquainted with outlets outside of New England.

Potential markets

The cities which are potential consuming areas are all population centers. Included in the group are eight of the ten which rank first according to the United States Census for 1930. ³
In addition to having an apparent capacity for absorbing apples, these cities are relatively nearby.

The markets may be arranged in groups according to the order in which they may be utilized. The classification is geographical. It is in part arbitrary although transportation considerations were influential in the selections.

The groupings are as follows:

I		
A	B	C
New York	Pittsburgh	Cleveland
Philadelphia	Cincinnati	Detroit
Baltimore	Indianapolis	
Washington		
II		
Buffalo	Chicago	Montreal
Columbus	St. Louis	

³ U. S. Census, 1930. Population. Vol. 1, P. 18.

Factors peculiar to each city account for Group II. Buffalo is adjacent to an apple growing region. Columbus is a small market. St. Louis and Chicago are probably too distant unless prices are particularly good. Montreal is unfavorable because of the tariff.

With the exception of New York, which is a potential market for some growers and a regular outlet for others, not more than 5 per cent of the growers are acquainted with the markets suggested. Pittsburgh and Cleveland are the best known.

The volume of Massachusetts apples unloaded in both groups (with the exception of New York) during the period for which figures are available varies from none in 1926 and 1928 to 119 cars in 1930. The unloads are irregular and sporadic. It is probable that buyers on these markets know as little about Massachusetts apples as growers in Massachusetts know about the markets. Data are lacking on shipments to these potential markets. Two years have elapsed since the high point was reached on consignments into this area from Massachusetts. The cities are regarded for the most part as emergency outlets.

New York City is an exception in that results for last year are available. Information on traffic to this area is adequate. Data were secured on shipments from various points in Massachusetts. The variety of charges was as numerous as would appear on reports of sales made in any other city in the area. In addition to data on rail traffic, it was possible to secure trucking charges so that a comparison of costs by kinds of carriers can also be made.

Chapter IV

Transportation of Apples

Shipping is the phase of marketing around which the study is developed. The volume of apples grown, preparatory and supplementary marketing practices, distribution among markets and marketing experience have all been considered primarily from the relationship which they bear to shipping.

This problem was studied in particular since it is basic to future expansion of apple production in Massachusetts and New England. Information was secured on the following subjects relative to the 1931 crop: Responsible agent, method of shipping, size of consignments, time in transit, destination of shipments, factors considered in selecting the carrier, damage to consignments, and costs involved.

In addition to the data pertaining to the 1931 crop, further information was collected from growers, rail carriers, chambers of commerce, and United States Department of Agriculture and state marketing officials regarding shipping to the potential markets for Massachusetts apples.

Current shipping practices

The responsibility for shipping the 1931 crop practically rested with the individual grower. Among those producers whose returns can be used, 74 per cent claimed authority for engaging the carrier and giving such instructions as seemed necessary. Eighteen per cent assigned the responsibility to the buyer. Six per cent had the function taken over by their agents, one of whom was a commission house.

Trucks carried 95.2 per cent of the 1931 apple crop of these growers. The railroads got 4.8 per cent of the traffic. Fifty-six per cent of the growers trucked for themselves. Thirty per cent used local truckmen ⁴ and 14 per cent hired commercial truckmen. Most of those in the last group came out from the markets and hauled the loads in. One made a return trip to a market daily past the orchard of a grower; the truck was empty and the operator was glad to get the return haul. There are also a few selling agents who furnish the trucks or who hire the trucking done.

Among the growers who do their own trucking, 41 per cent also hire some done. A noticeable practice is the engaging of a commercial truckman for the long-distance jobs. Occasionally this supplementary service is used at the peak of the picking season when the grower's truck can not handle the volume or is being used in the orchard.

As a measure of the distance to which apples are shipped by truck, time in transit for the truck was considered the best unit. It is the total time which elapses, after the grower leaves the packing house until he returns, that determines whether or not he will make the haul himself. Seventy per cent of the trucks make the round trip in less than six hours. This figure corresponds closely with the number of growers who do their own trucking. It is on the nearby hauls, where the grower can get into the market and back home again in a half-day or less, that he does most of his own trucking.

Fifteen per cent of the trucks were on the road from

⁴ Resident in the same or an adjacent town.

six to twelve hours. Some of these were grower operated and some were hired. Fourteen per cent of the trucks made overnight trips one way. In all instances these trucks were hired.

The growers were questioned as to why one kind of carrier was used in preference to another. Although in a few instances answers were made with much feeling there was not the antagonistic attitude towards trucking which is commonly supposed to prevail. The bases for selection were sound.

The matter of handling is the important consideration. Statistically this factor does not stand in first place but ranks second. Some growers neglected to suggest careful handling as a factor to be considered when choosing a carrier. This oversight occurred since they probably assumed that care in this respect was an accepted principle. In addition to handling apples carefully most of the growers try to reduce the amount of it which is necessary. With the truckmen picking up the apples at the packing house and delivering them to the door of the commission house, ordinarily at least one handling is eliminated and perhaps two. Trucks are also supposed to carry the apples with less jarring. This is subject to argument. For the bruising which the fruit may receive when a car is added to or out of a train there is a corresponding amount of bruising which the apples may get as the trucks drive over unevenly surfaced roads.

It is possible to assign responsibility when the truck is the carrier. At the loading point this raises no difficulty even if the railroad be the carrier. The shipper (grower) is on hand to insure proper care in loading in both instances. It is when the

consignment is delivered that neglect may be present. If a rail shipment is badly bruised - but no packages broken - and there has been, in addition, cartage to a commission house from the delivery track, the possibility of placing the responsibility is nil. If the same lot were bruised on a through carriage by truck, the operator could be charged with carelessness. The personal relationship between the grower and the truckman is favorable to shipping by truck. This tie is particularly effective when a local truck operator is concerned.

The highest percentage of growers favor the truck to the "reefer" car, because it gives them the lowest charge. For the size of the units shipped this is probably true. These lots would, on a rail shipment, take an L.C.L. rate which would be sometimes a few cents more or less than the truck rate per box. The carlot rate is substantially lower than the truck rate. In this comparison no allowance is made for additional items such as loading, ice, unloading, switching, carting, etc. The problem of shipping charges will be considered later.

With reference to cost of shipping as between hiring the trucking or hauling in their own trucks, some growers are undecided. On long hauls, the general opinion is that commercial truckmen do the service for much less than the grower can do it. On the short hauls, so far as real cost 5 is concerned, a few growers are of the opinion that they can hire the trucking for less than

5 Cash plus depreciation, time, etc.

they can do it themselves. They are, however, going into the markets with other products, or else they do the trucking when they have nothing else to do. The fact of owning a truck was occasionally sufficient reason for doing their own hauling.

Growers shipped by rail for the following reasons: The service was good, distance to the market necessitated it, the receiver requested a rail shipment, and a long distance shipment could be more cheaply made by rail.

Shipments are chiefly in lots of two sizes; the small lot ranging from 50 to 125 boxes and the larger from 200 to 300 boxes. Thirty-four per cent of the growers are in the first group and 26 per cent in the second. In addition 13 per cent of the apples are shipped in carlot sizes (600 to 800 boxes).

The small lots are carried usually in grower- owned trucks if the transit time is less than six hours. Otherwise the small lots are carried in hired trucks. A few of the larger lots are hauled in grower- owned trucks but the rule is to hire the trucking done, since only a few growers own trucks large enough to carry 300 boxes of apples. Here also the time element partly determines whether the grower will use his own truck or not.

Trucking charges

Data on truck charges paid in 1931 and 1932 were collected. The figures for 1931 were secured at an interview; those for 1932 were obtained through correspondence with the growers. In 1931 the rate per box from points in Massachusetts to Boston varied from less than 5 cents to 12½ cents. A ten cent rate commonly applied regardless of distance. Some apples were carried

for that rate from as far west as the Connecticut River. In general, however, few growers west of Worcester shipped to Boston. In the eastern apple growing section a few growers paid 12 cents a box, one 8 and one less than 5 for having apples trucked to Boston. On baskets only one figure was secured and that was from a grower west of Worcester. He paid a 15 cent shipping charge to Boston.

Truck rates to Providence showed much more variation than those to Boston. They seemed to bear some relationship to distance. Unfortunately the cases from which data were secured are few. The extremes on rates per box were 5 cents and 17½ cents. The shipper who was farthest from Providence paid the highest rate and the one nearest paid the lowest. Other growers also paid rates which were approximately commensurate with the distance at which each was located from Providence. The producers who paid 12 cents per box were farther from the market than those who paid 10 cents.

Truck rates to Springfield ranged from 6 cents to 12 cents per box. The lower rates are hardly indicative of a typical haul since they are in reality part of a through rate to New York.

In the fall of 1931, the usual rate per box from points in Massachusetts to New York City was 20 cents. It was fairly uniform over the entire state. As would be expected, higher than normal rates were charged on lots from out of the way places and on small lots.

On the 1932 crop two general rates applied. A 20 cent rate per box was paid by growers in the eastern part of the state and in the northern section of the western part. The rate from

towns bordering the Worcester-Springfield highway and in the southern part of Hampshire County was 15 cents per box. Sixty-six per cent of the growers paid 20 cents per box; 24 per cent paid 15 cents; 5 per cent, 22½ cents; and 5 per cent, 25 cents per box for trucking to New York. The rates applying from various points in Massachusetts to New York are listed in Table V.

There was ordinarily but one charge (rate per box times the number of boxes) when the apples were carried by truck. Exceptions applied on lots which were placed in cold storage. When fruit was stored at Springfield prior to selling in New York two trucking charges were assessed; one from the farm to Springfield, the other from Springfield to New York. A slightly different arrangement governed lots held in cold storage at Boston. On going into storage the usual charge which applied from the farm to Boston was levied. If the lots at the time of sale were carted from cold storage to the commission man's sales room a cartage fee of 5 cents per box was assessed. If the lots, as frequently happened, were sold in cold storage the cartage fee was not directly paid by the grower.

Rail charges

Forty-four reports on sales of rail shipments were available and were analyzed in determining the accuracy of transportation charges levied. Several returns which were gathered could not be used because of incomplete data.

The charges made and the number of accounts on which

TABLE V

RATES QUOTED BY RAILROAD AND BY TRUCK COMPANIES
FROM POINTS IN MASSACHUSETTS TO NEW YORK CITY
(cents)

From	Railroad	Truck		
	(per cwt) ¹	1931	1932	
	1931 & 1932	(per box)	(per box)	(cwt basis)
Ipswich	32	--	20	44
Groton	30	20	20	44
Westford	30	--	25	55
Ayer	29	20	20	44
Stow (West Acton)	30	--	20	44
Gleasondale	30	--	20	44
Sterling Junction	29	20	20	44
Warren	27	--	20	44
Brookfield	27	--	15	33
Belchertown	25	20	15	33
Amherst	26	26	15	33
Williamsburg	24 ²	--	15	33
Greenfield	27	--	20	44
Shelburne Falls	27	--	20	44
Charlemont	27	28	20	44
Pittsfield	28 ²	--	20	44
Williamstown	26	35	22.5	49.5

¹ C.L. rate to Barclay Street.

² Does not apply to Barclay Street.

the charge appeared are shown below:

Charge	Number of Accounts
Freight	All
Terminal Freight	11
Storage in Transit	4
Reconsignment	9
Lighterage	9
Bunker	9
Cartage	1
Insurance	14
Assorting	20
Auction Labor	18
Other	5

Returns indicated that the "freight charge" might include freight only or the sum total of charges, except commission, deducted by the selling agent. Of the accounts which included freight only, 17 were considered correct. Ten of these accounts were erroneous in that a rate of 25 cents instead of 26 cents per hundredweight was charged. The other 7 showed slight errors between the correct and the actual charge, which could be accounted for if a box or a barrel was two pounds above or below the average weight. In tabulating data from which to analyze the charges, these 17 accounts were omitted.

On the remaining 27 accounts, the total value of overcharges and undercharges amounted to \$520.64. Twenty-four accounts showed freight overcharges to growers totaling \$488.78. Three accounts showed undercharges to the railroads of \$31.86. The apparent net freight overcharge to apple growers was \$456.92. The range on the twenty-four accounts was from \$3.74 to \$63.96 per car. The average was \$19.03. The undercharges showed a narrower range, \$8.78 to \$12.24 with an average of \$10.62.

Further analysis reveals that the apple grower was not as grossly mischarged as would appear. Nine accounts included lighterage and reconsignment and possible bunker charges under freight. In order to secure deliveries by the carrier indicated, reconsignment and lighterage were necessary. Since other deliveries by the same carrier had included bunker charges and taking into consideration the date of shipment, this charge might rightly be made. Deducting the average bunker charge and applying the correct lighterage and reconsignment charges, the overcharges are reduced to \$306.32.

Terminal freight as an accounting classification is also indefinite as to what it includes. Eleven receipts listed "terminal freight" charges which totaled \$178.07 or an average of \$17.09 per car. Ten of these charges were for or included reconsignment. Four charges resulted from moving cars to and from storage at a storage-in-transit point. Deducting the sum of these charges leaves but \$40 chargeable to terminal freight.

All other carrier charges are definitely allocated. Readjustments to them could be made only through a change in shipping procedure. The remaining charges are marketing costs which can apply regardless of the carrier.

The practice of reporting all charges as freight or terminal freight is to be criticised. It gives the grower an exaggerated idea of the freight cost. It hinders his knowing for what service he is paying. It prevents his being able to make changes in his shipping orders since he has no notion as to what might be eliminated or changed.

Such criticisms of rail shipments as the growers have made pertain to (1) extra charges; (2) variations in charges. Extra charges may be of two kinds; those incident to shipping or transportation, and those incident to selling or supplementary services.

Charges made by the railroad are in payment for services ordered performed. The railroad does not move a car to or from storage, does not reconsign a car, does not give a car second placings, or perform other additional services except when asked to do so by the shipper or his appointed agent.

Those costs which apply to selling or performing supplementary functions are added at the behest of the commission man or other sales agent. Most of the growers give their sales agents practically full power as to how the fruit shall be handled.

Variations in charges for equal volumes shipped from

the same point to the same destination may arise from several causes. In the first place, there may be slight differences in weight per box or per barrel. A small amount per package can make a noticeable difference in the weight of a car containing 600 to 800 boxes. There may be errors in rate quotations. If a grower keeps his freight bill this can be checked. The principal source of variation is "errors in commission", i.e., improper allocation of charges by the sales agent. It should be apparent that similar shipments made under similar conditions to the same destination should move at the same charge. If one sales report lists each charge by items and the second report groups several items under freight or terminal freight it is natural that the grower should wonder why his freight charge is higher.

Opportunity for dissatisfaction is also afforded by the manner in which the sales agent makes his report. On it are listed the payments made to various agencies with no accompanying vouchers. The result of this practice is to stimulate the grower's distrust for the carriers and the sales agents.

Only on shipments to the New York market can a fair comparison between truck and rail rates be made. In order to get the actual trucking rate paid the data were obtained from the growers. No attempt was made to secure rates from trucking companies against which to base the charges secured from growers. It is conceded that truck operators quote charges to fit the situation, hence any figures given by them would be of little value in this study.

Rail vs. trucking rates

Certain differences in practice must be recognized before a reasonably sound comparison between charges assessed by railroads and by trucks can be made.

First, the unit on which the charge is based. Railroads quote rates in cents per hundred pounds: - viz., Amherst, Mass. to Barclay Street, New York City, 26 cents per hundred pounds. ⁶ Truck operators quote rates in cents per box or package: - viz., Amherst, Mass. to New York, 15 cents per box. A box of apples, however, weighs approximately 45 pounds. ⁷ To compare the two charges it is necessary to adjust the weights. Two and a fifth boxes weigh 100 pounds. Multiplying the truck operator's rate by this unit converts it to a figure comparable to the railroad rate: - viz., the truck rate from Amherst to New York is 33 cents per hundred. The last column of Table V shows the converted truck rates.

This railroad rate is effective only when apples are shipped in car lots with a minimum weight of 24,000 pounds, or about 540 boxes. The railroad rate on less than car lots is approximately twice the carlot rate, for example, from Amherst to Barclay Street is 52 cents per hundred pounds. The rate by truck ordinarily does not vary with the size of the lot, except when there are only a few packages.

⁶ Boston and Maine origin.

⁷ Corbett, R. B. and Christopher, E. P., "A Study of Apple Containers." Rhode Island Exp. Sta. Bul. 227.

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Another difference which must be considered pertains to the application of the rates. Rail rates apply from definite points in Massachusetts to definite destinations in New York City. The groupings of towns which the railroads use in establishing rates are few. For the most part rates are established on a point to point basis. On the contrary, truck operators evidently had but one group of towns from which to develop rates in 1931 and but two groups for 1932. It would seem that the boundaries of the region vary to meet the situation.

The computed savings (derived from Table VI) per car on shipments by rail are net. Barclay Street deliveries are given overnight service. Apples can be shipped in ventilator cars without ice provided they are not out of storage. Except in particularly inclement weather even apples out of storage may be loaded in ventilator cars and arrive in good condition. There is then no bunker or ice charge. Neither should there be any charges for unloading or loading. At Barclay Street the unloading service is performed by railroad employees at no cost to the shipper.

Whether or not a grower can charge himself \$5 or \$8 for loading a car is questionable. There are situations in which a car can be loaded at practically no direct cash outlay. This basis is the only sound one on which to consider the costs.

There are many factors which determine whether or not the grower can regard the cost of loading as a cash expense. Among them are:

1. Whether or not additional labor must be hired if shipments go via rail.
2. The efficiency with which the day's work can be organized if the regular crew is to load the cars.
3. The grading -- amount, place, etc.; and type of package used.
4. The distance of the shipping point from the farm.
5. The season of the year.

The charges collected for moving 600 boxes of apples by rail from points in Massachusetts to the various stations in New York are given in Table VI. The cost of shipping an equal volume by truck is also included.

Factors to be considered when shipping by rail

It has been noted that factors necessitating or encouraging the utilization of additional markets are: (1) the prospective annual increases in production for the next decade; (2) the inability or failure of growers in Massachusetts to promote increased local consumption of local stocks; (3) the apparently regular recurrence of light crops in other growing areas when the Massachusetts crop is heavy, and the desirability of taking advantage of whatever favorable conditions emerge in that situation.

The enlargement of the consuming area involves two general problems, one physical, the other human. Some knowledge of the mechanics of distribution and the effective demand in any given market is essential to profitable selling on that market.

TABLE VI

CHARGE FROM STATIONS IN MASSACHUSETTS TO STATIONS IN NEW YORK CITY
(600-box lots)

From	To Barclay Street			By Rail			To Pier 27, 28, 29		
	Total	Freight	Recon- signment	Light- erage	Total	Freight	Recon- signment	Light- erage	
Ipswich	\$86.40	\$86.40	None	None	\$108.90	\$86.40	\$ 6.30	\$16.20	
Groton	81.00	81.00	"	"	103.50	81.00	6.30	16.20	
Westford	81.00	81.00	"	"	103.50	81.00	6.30	16.20	
Ayer	78.30	78.30	"	"	100.80	78.30	6.30	16.20	
Stow	81.00	81.00	"	"	103.50	81.00	6.30	16.20	
Gleasondale	81.00	81.00	"	"	103.50	81.00	6.30	16.20	
Sterling Junction	78.30	78.30	"	"	100.80	78.30	6.30	16.20	
Warren	72.90	72.90	"	"	95.40	72.90	6.30	16.20	
Brookfield	72.90	72.90	"	"	95.40	72.90	6.30	16.20	
Belcherstown	67.50	67.50	"	"	90.00	67.50	6.30	16.20	
Amherst	70.20	70.20	"	"	92.70	70.20	6.30	16.20	
Williamsburg	64.80	64.80	"	"	87.30	64.80	6.30	16.20	
Greenfield	72.90	72.90	"	"	95.40	72.90	6.30	16.20	
Shelburne Falls	72.90	72.90	"	"	95.40	72.90	6.30	16.20	
Charlemont	72.90	72.90	"	"	95.40	72.90	6.30	16.20	
Pittsfield	75.60	75.60	"	"	98.10	75.60	6.30	16.20	
Williamstown	70.20	70.20	"	"	92.70	70.20	6.30	16.20	
Littleton	81.00	81.00	"	"	103.50	81.00	6.30	16.20	
Boston	81.00	81.00	"	"	103.50	81.00	6.30	16.20	

TABLE VI (cont.)
 CHARGE FROM STATIONS IN MASSACHUSETTS TO STATIONS IN NEW YORK CITY
 (600-box lots)

From	By Rail			By Truck	
	Total	To Duane Street, Pier 20 Freight	Recon- signment	Light- erage	Total
Ipswich	\$127.80	\$86.40	6.30	\$35.10	\$120.00
Groton	122.40	81.00	6.30	35.10	120.00
Westford	122.40	81.00	6.30	35.10	150.00
Ayer	119.70	78.30	6.30	35.10	120.00
Stow	122.40	81.00	6.30	35.10	120.00
Gleasondale	122.40	81.00	6.30	35.10	120.00
Sterling Junction	119.70	78.30	6.30	35.10	120.00
Warren	114.30	72.90	6.30	35.10	120.00
Brookfield	114.30	72.90	6.30	35.10	90.00
Belchertown	108.90	67.50	6.30	35.10	90.00
Amherst	111.60	70.20	6.30	35.10	90.00
Williamsburg	106.20	64.80	6.30	35.10	90.00
Greenfield	114.30	72.90	6.30	35.10	120.00
Shelburne Falls	114.30	72.90	6.30	35.10	120.00
Charlemont	114.30	72.90	6.30	35.10	120.00
Pittsfield	117.00	75.60	6.30	35.10	120.00
Williamstown	111.60	70.20	6.30	35.10	135.00
Littleton	122.40	81.00	6.30	35.10	120.00
Boston	122.40	81.00	6.30	35.10	---

Massachusetts apple growing sections are served by four railroads. Some parts of the areas receive service from more than one railroad although certain carriers seem to be better located to satisfy the shipping needs of particular sections. In the Nashoba belt and the northern part of Worcester County shippers are served by both the Boston and Maine and the New Haven. The former road covers a somewhat wider area than the latter. In Essex County shippers are served exclusively by the Boston and Maine, whereas in Plymouth County they are served solely by the New Haven. In the southern part of Worcester County the New Haven is the principal carrier, with a few growers receiving service from a branch of the Boston and Albany.

The growers in "apple valley" in Franklin County are served by the Boston and Maine, as are those in Williamstown.

In Hampshire County the New Haven, the Boston and Maine and the Central Vermont serve growers and shippers.

To go into great detail as to the towns which are being served by specific roads is unnecessary. Growers know what railroad runs through their particular towns. They are not certain that it serves them. In general, the carriers are in two groups; those moving east and west traffic and those moving north and south. The Boston and Maine and the Boston and Albany compose the former and the New Haven and the Central Vermont the latter group. Most of the growers have easy access to a rail carrier.

The carriers serving the markets will be considered at greater length under the section devoted to market facilities. The principal railroads, however, which would handle the traffic are the New York Central, the Baltimore and Ohio, the Pennsylvania, the Erie, the Nickel Plate and possibly the Canadian National. Consignments to Philadelphia, Baltimore, Washington, Pittsburgh or Cincinnati could readily move over either the Baltimore and Ohio or the Pennsylvania. Lots destined for Cleveland, Detroit or Chicago might easily be handled by the New York Central, the New York, Chicago and St. Louis or the Erie. In addition to these roads there are various combinations of routes which would give other lines a haul.

Apples take a fifth class rate $\frac{8}{8}$ in C.L. lots with a minimum weight of 24,000 pounds. This class applies to either package or bulk stock. The joint rates between points in Massachusetts and New York are governed by the New England Freight Association's, "Joint Class Rate Tariff, applying in either direction between stations in New England and New York."

The joint rates between points in Massachusetts and trunk line territory and Central Freight Association territory are each governed by a New England Freight Association joint tariff of class rates. The rates as published in these tariffs apply only when shipments are made in accordance with the exceptions specified in the tariffs of the participating carriers and in accordance with routing instructions as given in the routing guide of the originating carrier.

On apples shipped in barrels, the weight to be used in computing the freight charge is 160 pounds. ⁹ Apples shipped in boxes take the actual weight.

Cider apples, ¹⁰ in bulk, originating on the Boston and Maine, take a minimum weight of 36,000 pounds and go sixth class from stations in territory A to stations in C and D. (Also to stations on the New Haven). These are the only exceptions applicable as of April 1, 1933 in the tariffs of the Boston and Maine and the New Haven railroads.

Adherence to routes as published in routing guides of originating carriers is necessary if shipments are to move under the protection of through rates.

It is desirable for the shipper to designate the delivering carrier so that the railroad on which the shipment originates can give it the fastest route. There are literally dozens of routes a shipment may follow to some of the markets in the western part of Trunk line or in C.F.A. territory.

Relative advantages among producing areas

The difference in freight charges between producing areas and certain markets is the basis on which advantages have been established. Of the costs incident to the actual handling of apples

⁹ Exceptions to O.C. B. & M., I.C.C., A2677, p. 27, rule 205.

Weight applies regardless of true weight.

Exceptions to O.C. N.H., I.C.C., F3270, p. 27, rule 220.

¹⁰ B. & M., I.C.C., A2677 supplement 22, p. 14, item 3.

this item is the largest and reflects most markedly the favorable position which growers in one region have over those in another. "Reefer" charges are an appreciable item particularly on lots from the West. Shipments from this area usually move under standard refrigerator service for which the charges are higher than for "icing". The latter practice is quite likely to be followed on the movement of apples from the other shipping points considered. Except when comparing the West with northeastern points differences in refrigerating costs are negligible. Some variations in costs of loading, packages and packaging, may also be found. These margins are relatively small and subject to local conditions. If an attempt were made to construct a total marketing cost, exclusive of commissions, items would be introduced which would make the comparison of questionable value. The freight charge, however, as a basis of comparison is sound. It is relatively stable; it can be accurately determined; it lends itself well to this type of work, particularly when the distances between areas are large enough so that points of origin and destinations are grouped.

In determining the advantages of producing areas in certain markets, freight charges computed on the cost of shipping a car of 600 boxes, western type, were used. This volume is approximately the smallest which can be shipped within this territory 11

11 Official.

under protection of the carlot rate. 12

The advantage of lower freight charges which Massachusetts growers enjoy as a result of being near the consuming areas is wider in its application than is normally appreciated. Large savings accrue from lower freight charges on shipments not only to Boston or New York, but also to many other markets in the Northeast.

A comparison of the charges from local points to certain markets with the charge from the West Coast to the same destination emphasizes the advantageous location of Massachusetts growers. To nearby points such as New York, local growers pay \$250 to \$272 less freight charges per car than California, Oregon or Washington growers pay. To more distant points, e.g., Cleveland, the difference in favor of Massachusetts growers varies from \$221 to \$232.

12 Shipments from the West Coast move under a commodity rate.

The minimum volumes which can be shipped to take this rate are roughly 700 or 800 boxes, depending on the size of the "reefer" car.

Boxes	Minimum weight	Size of car
700	31,000 lb.	32 ft. 9 in. or under
800	35,000 lb.	32 ft. 9 in. or over

If a grower has 800 boxes to ship, it makes little difference whether he loads out 600 or 800 boxes. The difficulty arises when he must load out 800 boxes rather than 600 in order to ship at the commodity rate.

These savings are based on differences in freight charges for shipping a car of 600 boxes of apples from the different producing sections to the same market.

Table VII lists the savings arising from lower freight charges which Massachusetts growers enjoy over West Coast growers.

A comparison of freight charges from points in Massachusetts with those from the Shenandoah area to certain markets indicates that what slight advantages do exist favor Shenandoah. The freight charge to New York is the only exception. Table VIII lists the differences in freight charges attributable to location.

A comparison of charges from Massachusetts with those from New York State shows the advantages of situation to be about evenly divided. The savings (Table IX) which accrue to New York growers are somewhat larger than those to Massachusetts.

The comparison of charges from the different producing areas to the specified markets indicates that freight costs of Massachusetts growers are practically the same as those of growers in New York State and the Shenandoah. They are decidedly advantageous as compared with those of western growers.

Among apple growers within the state, the influence of location on relative advantage is dependent on the market to which a car is consigned. The nearer the market is to Massachusetts, the wider is the spread between freight charges from the points taking the highest and lowest rate. Further, under the same situation, the greater is the number of shipping points from which charges can be computed.

TABLE VII

DIFFERENCES AT CERTAIN MARKETS IN FREIGHT
CHARGES OF WEST COAST AND MASSACHUSETTS GROWERS

Market	Range of Savings from Massachusetts Points	
	High	Low
New York (Barclay St.)	\$272.70	\$251.10
Philadelphia	259.20	245.70
Baltimore	245.70	234.90
Washington	243.00	232.20
Pittsburgh	240.30	213.30
Cincinnati	207.90	197.10
Cleveland	232.20	221.40
Detroit	224.10	213.30
Chicago	202.50	186.23
St. Louis	180.90	159.30

TABLE VIII

DIFFERENCES AT CERTAIN MARKETS IN FREIGHT CHARGES FROM
SELECTED SHENANDOAH AND MASSACHUSETTS POINTS

Market	Amounts Accruing to			
	Massachusetts		Shenandoah	
	High	Low	High	Low
New York	\$ 16.20	\$ 13.50	\$ 8.10	\$ 5.40
Philadelphia	---	---	21.60	5.40
Washington	---	---	56.70	43.20
Pittsburgh	---	---	51.20	21.60
Detroit	---	---	24.30	13.50
Cincinnati	---	---	40.50	29.70

TABLE IX
DIFFERENCES IN FREIGHT CHARGES BETWEEN CERTAIN
MARKETS AND POINTS IN NEW YORK AND MASSACHUSETTS

Market	Savings Accruing to					
	Massachusetts			New York		
	High	Low	High	Low		
New York City	\$ 27.00	\$ 5.40	---	---		
Philadelphia	16.20	2.70	\$ 21.60	\$ 8.10		
Washington	2.70	2.70	18.90	8.10		
Pittsburgh	---	---	37.80	4.60		
Detroit	10.80	10.80	45.90	6.40		
Cincinnati	2.70	2.70	47.25	8.10		

From points in Massachusetts to New York, the nearest of the markets considered, the spread is \$21.60. To St. Louis, the most distant, the spread is but \$8.10. To most of the markets in C.F.A. territory the spread is \$10.80. These spreads in freight charge mean that that grower in Massachusetts who is most favorably located with regard to New York has a saving in freight charges of 3.6 cents per box over against the grower who has the least favorable location. On shipments to Cleveland, Cincinnati and other C.F.A. points the most advantageously located Massachusetts grower can save but 1.8 cents against his least favorably located competitor.

Table X gives a detailed picture of the charges applying from particular groups and the number of towns in the group.

TABLE X

NUMBER OF TOWNS IN GROUPS HAVING SAME FLIGHT
CHARGE TO DESTINATION

Destination	Charge	Number in Group	Charge	Number in Group	Charge	Number in Group	Charge	Number in Group
New York	\$ 64.80	1	\$ 67.50	1	\$ 70.20	2	\$ 72.90	5
Philadelphia	78.30	1	81.00	5	83.70	4	84.10	2
Baltimore	91.80	3	94.50	7	97.20	7	102.60	1
Washington	94.50	5	97.20	4	99.90	3	102.60	5
Pittsburgh	97.20	1	96.55	1	110.70	4	116.10	2
Indianapolis	132.30	1	137.70	4	140.40	2	143.10	11
Cincinnati	125.60	1	122.30	3	135.00	3	140.40	11
Cleveland	105.30	2	---	---	110.70	4	116.10	12
Detroit	113.40	2	118.80	5	124.20	11	---	---
Chicago	135.00	2	143.10	5	145.80	11	---	---
St. Louis	166.60	2	162.00	5	164.70	11	---	---

TABLE X (cont.)
 NUMBER OF TOWNS IN GROUPS HAVING SAME FLIGHT CHARGE
 TO DESTINATION

Destination	Charge	Number in Group	Charge	Number in Group	Charge	Number in Group
New York	\$ 78.30	2	\$ 81.00	5	\$ 86.40	1
Philadelphia	86.40	5	91.80	1	---	--
Washington	105.30	1	---	--	---	--
Pittsburgh	113.80	5	121.60	3	124.20	2

Chapter V
Conclusions

Although the data here presented have been collected for the purpose of assisting the individual grower to find new markets for his crop, they may also be utilized in solving the problem of marketing Massachusetts, New Hampshire or Maine grown apples. Any solution which is to bring order into the marketing of apples from these states must be based on centralized distributing units. The cooperative assembling or bringing together of the crops of several growers before definitely selecting a market already exists in some areas. New England apple growers in their present practices of consigning to commission men or selling to country buyers acknowledge the necessity of centralizing a supply. They realize that their crops are probably more satisfactorily merchandised if handled together than if handled individually. Some growers are of the opinion, however, that the person who acts as selling agent is not necessarily best qualified to assemble their supplies. Nor is he always able to act in the best interests of all his patrons.

In addition to personal considerations, there is the physical factor. Growers, market men, and market officials deplore the uncertainties, the irregularities which are attendant upon assembling in a hit and miss fashion the apples of various growers. Market men have little idea what volume to expect each succeeding day. Growers are at a loss to know how much should be consigned.

Some assembling will always have to be performed by market men in order to supply the varying demands of their trade. For the most part, however, the function of assembling should be performed by the growers themselves.

The type of ownership which shall prevail in the associations will depend on the sincerity of the growers in their efforts to improve their own lot. It will be determined by the strength of their opinions that the desire to straighten out their problems must first come from them.

The units may be of two general types: (1) Packing and shipping; (2) shipping.

Either type would fulfill the present need. It would be desirable if both could be grouped around a cold storage plant. To do this would simplify the question of regulating the volume moving into the market. The success, however, of a shipping unit would not be prevented even though it were not centered on a storage plant.

In addition to introducing orderliness, associations would help fulfill other needs. Growers collectively could meet the buyers' demands as to volume, grade and size specifications. They would also be placed on a more nearly competitive bargaining basis with commission men, buyers or other agents. This would help remove the complaint among growers that selling or buying agents are in a too advantageous position.

For some years many growers have thought it desirable to combine their crops in order to merchandise them effectively.

The low prices and large crops during the last two years have practically forced all growers to recognize the need of working out a common solution. Where cooperative marketing may once have been considered desirable it now becomes a necessity.

Appendix A

Terminal Facilities

A limited number of markets was studied intensively. To have done otherwise would have required devoting individual attention to the problems of each grower or shipper. The object was to consider enough markets so that one could become acquainted with the variety of factors which must be considered and also the different sources from which information of various kinds might be secured.

The markets which have been selected as illustrations are not necessarily typical; probably there is no such thing as a typical market. They are selected because a few growers have already shipped to some of them and also because they can handle carlot consignments. It is hoped that the information gathered may assist growers in making more satisfactory shipments. The group includes those markets which will probably be utilized first in expanding the consuming area for Massachusetts apples. The list is as follows:

Market	Page
New York	54
Philadelphia	59
Washington	61
Pittsburgh	63
Cincinnati	66
Cleveland	68
Detroit	70

New York

Among the heavy consuming areas to which Massachusetts growers are shipping and to which they may expect to ship increasing amounts is New York City. Characteristics which tend to make it a favorable consignment point are its capacity to absorb volume, its relative nearness to local producing areas, and the exceptionally good highways which encourage shipping by truck.

From the viewpoint of adequate facilities for handling rail shipments, this market ranks among the best. There are several produce terminals, all owned by the railroads. The Barclay Street station of the New York Central is the only one in the Washington wholesale and jobbing market district to which Massachusetts growers may ship under protection of the through rate. ¹³ Other stations in New York to which a through rate applies from points in Massachusetts are the 33d Street terminal for New York Central Railroad delivery of lots originating B. & M. or B. & A.; Pier 29, East River for lots originating on the C. V.; and the Bronx Produce House and Pier 37, East River for shipments originating on the New Haven.

The principal produce terminals, Pier 20 on the Erie and Pier 27, 28 and 29 on the Pennsylvania, do not receive shipments from Massachusetts under the through rate. The additional cost for consigning to these stations is discussed elsewhere. ¹⁴

¹³ Car must originate B. & M. or B. & A.

¹⁴ Table VI, Pp. 26 and 37.

The choice of stations is dependent primarily on the railroad which serves the shipper. Occasionally, if prices warrant, the location of the consignee's place of business may be the factor governing destination.

It is important to note the necessity of consigning cars to a receiver at a definite point in New York; viz., Lindsey & Company, Barclay Street, and not just Lindsey & Company, New York. The following excerpt is from P.R.R. Tariff 1426A, I.C.C. 940, p. 4, note 1.

"There are no stations known as New York or Brooklyn and by reference to k. 25 of this tariff you will note C.L. traffic for which shipping order or Bill of Lading does not show a specific station must be receipted and carded and billed to Greenville Piers or Manhattan Piers, N. J., permitting proper delivery to be made by the agent in charge."

This note is of particular application to shipments taking Pennsylvania Railroad delivery at New York. It emphasizes the need for exercising judgment and care in consigning to this market.

A part of New York has been designated as the New York Harbor Lighterage limits. Handling of traffic within this area is done under provisions in the New York harbor tariffs of the several carriers. The tariffs ¹⁵ specify that "Fruits, fresh" shall not be

¹⁵ N.Y.C. I.C.C. 15379 P. 66, rule L.75
P.R.R. I.C.C. 940 P. 15, item 170, rule 25
Erie I.C.C. 18800 P. 31, rule A 25
W.S. I.C.C. 5967 P. 66, rule L.75

contracted lighterage free. Regulations governing substitution of float service for lighterage are provided as are also exceptions which may apply. The local shipper need not be concerned over the multiplicity of regulations applying in this area. For the most part they will not concern him except when he has stored apples at Jersey City to be sold later at one of the points in the market area.

There are no reciprocal switching arrangements in the New York terminal district. The rates for performing the service vary, depending on which carrier performs it. Between Weehawken and New York City points over W.S. or N.Y.C. ¹⁶ facilities it is $3\frac{1}{2}$ cents per hundredweight or 76 cents per ton net or gross as rated. From Jersey City to Pier 20 for Erie delivery the rate is 13 cents per hundredweight. This charge also applies for traffic carried by the Erie for delivery in the New York terminal area by the New York Central. ¹⁷ From Jersey City to Pier 27, 28 and 29 over Pennsylvania Railroad facilities the rate is 6 cents per hundredweight. In addition to each of the charges there is a reconsigning charge of \$6.30 per car. Whether or not charges will be made for unloading depends on the delivering carrier and the receiver. At Barclay Street the receiver unloads the car. He may or may not directly charge for the service. At Pier 27, 28 and 29 the Pennsylvania unloads the cars free. In unloading for auction, however, the consignments are assorted according to marks, sizes, etc. For

¹⁶ I.C.C. N.Y.C. 15379 P. 62, rule L. 40

¹⁷ Correspondence with Erie.

this grouping into lots there is a charge of \$2.35 per car. ¹⁸ On sales reports received by Massachusetts shippers there was listed an "auction labor" charge of \$2.50. Probably the unloading charge was included in that sum. The difference may have been paid to "directors" who are employed by the auction company for directing the stacking.

At the Erie pier the arrangement is similar to that at the Pennsylvania. When the cars are unloaded and the packages placed in one stack there is no charge. For separating the packages into grades, sizes and marks the railroad charges \$2.35 per car. ¹⁹

¹⁸ Correspondence, P.R.R.

¹⁹ Correspondence, Erie R.R.

Routings

Routings to New York are very simple once the station is designated. The following arrangements are illustrative:

A. Barclay Street delivery or 33d Street delivery.

B&M origin

B&M:NYC
B&M:WS

B&A origin

B&A:NYC
B&A:WS

B. Bronx Produce House delivery.

- (1) NH
- (2) B&M:NH

B-1 Pier 37 ER

- (1) NH
- (2) B&M:NH

C. Pier 29 ER

- (1) CV

Philadelphia

The facilities in Philadelphia are relatively new and should expedite the distribution of produce. There are two produce terminals both owned by railroads. Only one of them, the Pennsylvania, is used for apples. The B. & O.-Reading terminal is used principally in the distributing of California and Florida citrus fruits. With the exception of these citrus fruits, it is estimated that most of the fruits and vegetables consigned to Philadelphia are received at the Pennsylvania terminal.

The Pennsylvania terminal offers practically any type of service the shipper desires. It is essentially a three unit plant; an auction building, two private sales buildings, and a cold storage plant.

In addition there is a set of team tracks provided with platforms which are used for display and inspection. There are overhead canopies so that weather conditions do not interfere with business.

The arrangement of buildings is exceptionally favorable for shippers who desire to hold their apples in cold storage. The cars are placed on the tracks of the cold storage plant immediately on arrival. The apples are unloaded at no additional cost to the shipper. When the packages are later moved from cold storage to the sales rooms there is a small charge. At the time of writing, this fee was one cent for boxes and bushels and 3 cents for barrels. Movement at this rate was allowed one way only.

Routings

Routing of shipments to Philadelphia is a relatively simple procedure. In any combination one might expect the Pennsylvania to be the delivering carrier.

B&M origin

B&M:NH:PRR
B&M:D&H:PRR
B&M:NH:CRRNJ:Reading
B&M:D&H:CRRNJ:Reading

B&A origin

B&A:WS:CRRNJ:Reading
B&A:D&H:PRR
B&A:WS:D&H:PRR

NH origin

NH:PRR
NH:CRRNJ:Reading

Time in transit

Shipments from Massachusetts will receive second morning delivery in Philadelphia.

Switching

There is no special problem with regard to switching. One free movement can be made within switching limits to private sidings. Additional switching will be done under the provisions of the switching tariff applying at the time the service is performed.

Washington

This city differs from many in that it lacks a modern produce terminal house for the handling of perishables. Like some of the other cities, Washington has no central market district. There are two markets of importance; one known as the Patterson Tract, the other known as the Southwest Market.

From the information available it appears that the districts are of equal importance. Each seems to have a proportional share of the patronage of the dealers. Each claims to be well located with respect to consumer trade.

The Patterson Tract Market is operated by the Union Terminal Company and is served by the B. & O. Railroad. The railroad does not enter the tract. Its facilities are conveniently located at the Eckington yard a short distance away. The yard is equipped with team tracks for handling produce and several tracks have been set aside for handling this special class of goods.

Not far from the tracks served by the B. & O. siding are the warehouses of several large food distributors. Among this group are Sanitary Grocery, Atlantic and Pacific and the American Stores, Inc.

The Southwest Market is not operated by any specific agency. Rail service into the market is furnished by the P. R. R. The district is fairly close to many of the larger hotels.

Switching

No switching agreements exist between the B. & O. and the P. R. R.

Time in transit

The approximate time required for shipments to reach Washington is two or three days, depending upon the originating carrier, location of shipping station on the line of a carrier, routing, etc.

Routings

The following list of routings is illustrative of the combination of carriers for giving delivery.

B&M origin

B&M:NH:B&O
B&M:NH:PRR
B&M:D&H:PRR

NH origin

NH:B&O
NH:PRR

B&A origin

B&A:WS:NYC:D&H:PRR
B&A:D&H:PRR
B&A:WS:B&O

Pittsburgh

Facilities for handling apples at Pittsburgh are adequate. In the produce district, both the Pennsylvania and the Baltimore and Ohio have terminals for handling perishables. Of the two roads the Pennsylvania offers the more complete service. Its terminal comprises team tracks, an auction house and a package delivery house. The B. & O. has only team track facilities.

No regulations govern the receipt or handling of apples at the B. & O. yards; nor are any unloading charges assessed by the railroad. Consignees make sales direct from the car and for that reason do their own unloading.

Pennsylvania Railroad tariff 1472-E (as of date) governs the handling of fresh fruits at its Pittsburgh terminal. It provides, with specific exceptions, that only bulk perishables will be handled at the team tracks; boxed apples must be handled through either the auction or the package delivery house. The owner or consignee may have either the railroad or some other agent unload the car. If the railroad is to perform the service, the consignee or owner must inform the railroad prior to arrival of the car.

Three handling charges apply at the P. R. R. terminal. For unloading a car a charge of 50 cents per ton is made. On a car of 600 boxes this would amount to about \$7.00. If the consignment is to be assorted into marks, grades, sizes, etc., an additional fee of \$2.50 per car is applied. These two are charged by the railroad.

All packages are delivered from the location on the platform to the tailboard of vehicles which cart them away. For this

service the Terminal Delivery Company charges \$5.00 per car. The total handling charge at the P. R. R. terminal will range then from \$12 to \$14.50 per car.

Switching

If, after a car arrives at either the Pennsylvania or the B. & O. terminal, the owner desires to switch to the other, a charge of \$1.00 per ton with a minimum of \$25.00 per car is made. In addition, the reconsigning fee of \$6.30 is added.

Time in transit

Shipments to Pittsburgh are en route about two days. Whether or not they receive second or third morning delivery depends on the point and time of origin.

Routings

The following list of routings is illustrative of the different combinations of carriers performing service on Pittsburgh consignments.

PRR delivery

B&M origin

B&M:D&H:PRR
B&M:NH:PRR

B&A origin

B&A:WS: or NYC:PRR
B&A:D&H:PRR
B&A:WS: or NYC D&H:PRR

NH origin

NH:PRR

B&O delivery

B&M origin

B&M:D&H:DL&W:B&O

B&M:NH:CSD:D&O

B&A origin

B&A:NYC:B&O

NH origin

NH:CSD:B&O

Cincinnati

"The Cincinnati market is a rather split-up affair. The old jobbing section is near the center of the city. They have a nice new auction and office building a mile or so away at the railroad and about half way between are the team tracks - no terminal yet,..." 20

This description indicates that the market is uncentralized with regard to rail shipping there are two districts about a half-mile apart. The fruit auction terminal, to which reference is made above, is owned and served by the Southern Railway. It is operated by the United Fruit Auction Company. Sales of citrus and deciduous fruits are held here. Consignments of local apples could be snapped for sale through this outlet. Consignments not being sold at auction are handled in the team track district. The N. & O., the C.C.C. & St. L. (Big Four) and the Pennsylvania are the principal delivering carriers. For a number of years the Baltimore and Ohio Railroad Plumwood Yard has been a center of trade in fruit and vegetable traffic.

A large volume of fruit is consigned direct to chain store warehouses which are served by private sidings. Deliveries are made to them under reciprocal switching agreements.

Reciprocal switching agreements exist among the carriers so that delivery can be made by the Southern Railway at its auction terminal at no additional cost to the shipper. No switching agreements are in effect among the carriers giving team track service,

consequently any movement of apple shipments among them will be governed by the tariffs in effect at the time. The possibility of a situation of this kind arising is practically nil.

No published unloading or cartage charges exist. Each consignee makes his own arrangements for these services.

Routings

Possible standard routings on shipments to Cincinnati are as follows:

B&O origin

B&O: D. H.: DL&E: B&O
B&O: NYC: Big 4 (C&C&st. L.)
B&O: DAN: PER

NH origin

NH: CED: B&O
NH: PER

The time in transit is about three days. A car might arrive in time for the market of the third day; it certainly would be ready for a fourth morning market.

Cleveland

Cleveland is well equipped with facilities for handling produce. The trading is probably centered at the Northern Ohio Food Terminal which is made up of a market district, an auction building and team tracks. The trade has its offices in the market district, which is composed of four units. The auction building is adjacent to the district and also to the cold storage warehouse.

The N.O.F.T. is served exclusively by the New York, Chicago and St. Louis (Nickel Plate). This line has, however, entered into switching agreements with the Pennsylvania, the B. & O., the W. & L. E., and the Erie so that cars may arrive at Cleveland via these carriers and be delivered to the terminal by the N. K. P. at no extra cost to the shipper. Further details governing car movement at the terminal may be found in tariff I.C.C. 5371, N.Y.C. & St. L., G.F.D. 1243-B or supplements thereof.

In addition to the N.O.F.T., the team track facilities of the N. Y. C. are available to shippers of apples. These are located at the Orange Avenue terminal of the N. Y. C. This location is about one-half mile from the central distributing district.

There is no switching agreement between the N. Y. C. and the Nickel Plate. Cars arriving at Cleveland via the N. Y. C. can be placed at the N.O.F.T. at an additional charge of \$12.50.

Under general conditions routings should be combinations which will give N. K. P. delivery. Because of their reciprocal switching arrangements the P. R. R., B. & O., Erie, or W. & L. E. may be substituted for the N. K. P.

Representative routings are as follows:

B&M origin

B&M:D&H:Erie:NKP
B&M:NH:Erie:NKP
B&M:WS:NKP
B&M:NYC:NKP
B&M:D&H:PRR
B&M:D&H:Erie
B&M:NH:Erie

NH origin

NH:PRR
NH:B&A:NYC:NKP

B&A origin

B&A:NYC:NKP

There are no differential routings which apply at Cleveland. The standard all-rail routing requires approximately three days for shipments from Massachusetts.

The Terminal Company assesses no charge for unloading either at the team tracks or the market district. Since the terminal is not a sales shed, each unit holder is obliged to truck produce consigned to him to his store for sale. On consigned cars, commission men charge shippers from \$15 to \$20 for unloading and trucking the shipment. Insofar as this charge is not fixed, it might be possible for shippers to make more advantageous agreements with the consignee.

Detroit

The city of Detroit is well equipped with facilities for handling and distributing produce. It has two modern terminals, owned by railroad companies, through which practically all shipped-in fruits or vegetables pass. The Detroit Union Produce Terminal was opened by the Wabash in 1929. The Michigan Central Terminal is older but has expanded its facilities to meet the needs of the trade. The plants are about on a parity although the Detroit Union Produce Terminal is the only one having auction facilities.

Each terminal is served by specific carriers. Traffic consigned to the Detroit Union moves over the Union Belt R. R. which is owned and operated by the Wabash, Pere Marquette and the Pennsylvania.

Shipments moving to the Michigan Central Terminal are carried exclusively by the Michigan Central Railroad, a subsidiary of the N. Y. C.

Reciprocal switching arrangements (except between the N. Y. C. and P. R. R.) exist among the carriers insofar as deliveries to private sidings are concerned. No switching arrangements apply among carriers for delivery to the Produce Terminals.

Handling charges are in effect only at the Detroit Union Terminal. A fee of \$11 per car is charged for unloading.

The shortest standard all-rail routings to the Detroit Union Produce Terminal on shipments which originate on the B. & M.

apply for P. R. R. delivery. A car may move either

- (1) B&M:D&H:PRR
- (2) B&M:NH:PRR
- (3) B&M:NYC:Wab. or PM

On cars that originate B. & M. and which are consigned to the Michigan Central Produce Terminal a routing that gives either M. C. R. R. or N. Y. C. delivery may be equally direct. Among the routes over which the shipment might move are:

- (1) B&M:NYC:MCRR
- (2) B&M:NYC(E):NYC(W)

Routings for cars originating on the N. H. and consigned to the Detroit Union Produce Terminal are as follows:

- (1) NH:PRR
- (2) NH:B&A:NYC:Wab. or PM

The time in transit from most points in Massachusetts to Detroit is three days. On differential routings the time is supposed to be twenty-four hours longer.

Summary of Market Analysis

It is possible to draw a few general conclusions about the markets. Among them is the desirability of a beginner's adhering to the established channels. It assures him of the minimum amount of difficulty in consigning his shipments. There may be little need to suggest that it is through the organized channels that the trade in general may best become acquainted with a grower's offerings.

It will be noted that in some markets the produce district is centralized; in others it is broken up. Some markets have one terminal; others two; a few of the larger have several. The terminals may be equally well equipped to serve the trade; or one may have auction, commission sales, and storage units and the other only team tracks.

Storage facilities at the markets have not been considered in detail. The prevalent current opinion is that storage near the place of production is preferable. It enables the grower to exercise a greater and more satisfactory control over his apples, particularly as to the time of sale.

The number of railroads which serve the produce terminals in a market varies. When a grower or shipper has a choice as to which railroad shall be the delivering carrier, the principal consideration should be the relative location of the consignee. It might prove to be most satisfactory if the consignee designated the delivering carrier. Should the shipper wish to become better

acquainted with the services offered by the various carriers in a terminal, he might secure the necessary information from the New England representatives of the delivering carriers. These agents are located in Boston and are very willing to assist the shipper in solving his problems.

Incidental services

Most rail carriers offer shippers a choice of several routes over which a car may move under the through rate. The combinations are fixed and are published in the Routing Guides of the various roads. For delivery at some markets, selection from as many as fifty different routes may be made. Representative standard all-rail routings are listed with the descriptions of market facilities.

A differential all-rail routing may be used on traffic moving to a few cities. The shipments move in part over a Canadian road. The time in transit via this type of routing is supposedly twenty-four hours longer. To compensate for this slower service the rate applicable is lower than over a standard all-rail routing. On apple shipments the rate is commonly 2 cents per hundredweight less.

Table II gives representative differential routings with the differential and standard rate compared.

Occasionally a grower might find it advantageous in a market where two or more produce terminals operate to switch a car from one to the other. The railroad performs this service under the

TABLE XI

A COMPARISON OF DIFFERENTIAL AND STANDARD RATES AND ROUTES APPLYING BETWEEN SELECTED MASSACHUSETTS POINTS AND SPECIFIED MARKETS

From	Detroit <u>1</u>		Indianapolis <u>2</u>	
	Differential	Standard	Differential	Standard
<u>Group 1</u>				
Northampton	42	44	49	51
Greenfield	42	44	49	51
Charlemont	42	44	49	51
Shelburne Falls	42	44	49	51
Williamstown	40	42	48	49
Amherst	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Orange	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Fitchburg	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Groton	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Sterling	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Shirley	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Littleton	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Harvard	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
<u>Group 2</u>				
Andover	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
<u>Group 3</u>				
Haverhill	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Ipswich	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
<u>Group 4</u>				
West Concord	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
West Acton	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Hudson	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Marlboro	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$
Boston	42	44	50 $\frac{1}{2}$	52 $\frac{1}{2}$

1 Differential - B&M:CV:GT
Standard - B&M: NYC:MCRR

2 Differential - B&M:CV:GT:CI&L
Standard - B&M:D&H:PRR

TABLE XI (cont.)

A COMPARISON OF DIFFERENTIAL AND STANDARD RATES AND ROUTES APPLYING BETWEEN SELECTED MASSACHUSETTS POINTS AND SPECIFIED MARKETS

From	Chicago ³		Cincinnati ⁴	
	Differential	Standard	Differential	Standard
<u>Group 1</u>				
Northampton	51	53	47	49
Greenfield	51	53	47	49
Charlemont	51	53	47	49
Shelburne Falls	51	53	47	49
Williamstown	49	50	46	48
Amherst	52	54	47	49
Orange	52	54	47	49
Fitchburg	52	54	47	49
Groton	52	54	47	49
Sterling	52	54	47	49
Shirley	52	54	47	49
Littleton	52	54	47	49
Harvard	52	54	47	49
<u>Group 2</u>				
Andover	52	54	47	49
<u>Group 3</u>				
Haverhill	52	54	47	49
Ipswich	52	54	47	49
<u>Group 4</u>				
West Concord	52	54	47	49
West Acton	52	54	47	49
Hudson	52	54	47	49
Marlboro	52	54	47	49
Boston	52	54	47	49

³ Differential - B&M:CV:GT
Standard - B&M:NYC

⁴ Differential - B&M:CV:GT:Detroit:D&TSL:Toledo:B&O
Standard - B&M:NYC:CCC&St.L

provisions of tariffs regulating the handling of produce in the particular city. The charge varies with each market. Usually one free movement to a private siding is permitted. Other movements involve at least a reconsigning charge of \$6.30 per car. In the discussion of the markets used as illustrations, the actual switching charge applicable is noted.

If it is desirable to change the delivering carrier after the car is rolling, the car may be diverted. The order requesting diversion should be filed before the car passes the diversion point. The charge for this service is \$2.70 per car. Before requesting diversion, the grower should find out through the local agent where the car is and whether or not it can be diverted under the through rate plus the diversion charge.

The supplementary services of diverting, reconsigning and switching are made available so that growers may market their shipments more advantageously. For growers in Massachusetts the need of these special services is not as great as it is for growers farther from the markets. Their utilization by local producers is apt to be for the purpose of meeting an unusual situation. The railroads are ready to meet the request. The change in orders requires varying degrees of additional work from the railroad. The locating of cars, the changing of billing instructions, etc., are services for which the shipper (grower) should expect to pay.

Appendix B
Glossary

Diversion - a change in routing instructions.

Freight rate - the price per unit for service; quoted by railroads usually in cents per hundredweight.

Freight charge - the price paid for transporting the consignment from the shipping point to the destination (rail).

Off-line agent - a railroad representative who has his office in a city not directly served by his company. E.g.,

Mr. Paul S. Phenix
Baltimore & Ohio R. R.
Boston

Mr. H. H. Young
Pennsylvania R.R.
Boston

Mr. J. E. Campbell
 Erie Railroad
Boston

Reconsignment - a change in consignee.

"Reefer" - trade term for refrigerator car.

Tariff - a published schedule of the current charges, rules, regulations, etc., in effect by railroads.

Routing guide - a tariff listing the combinations of carriers over which a shipment may move under protection of the quoted rates.

Railroad name abbreviations:

B. & A.	Boston and Albany
B. & M.	Boston and Maine
B. & O.	Baltimore and Ohio

D. E. C. & St. L.	Cleveland, Chicago, Cincinnati and St. Louis
C. N. R.	Canadian National Railway
C. E. P. & N. J.	Central Railroad of New Jersey
C. V.	Central Vermont
D. & H.	Delaware and Hudson
D. L. & W.	Delaware, Lackawanna and Western Erie Railroad
G. T.	Grand Trunk
L. V.	Lehigh Valley
M. C.	Michigan Central
N. H.	New York, New Haven and Hartford
N. Y. C.	New York Central
N. K. P.	(Nickel Plate
N. Y. C. & St. L.	(New York, Chicago and St. Louis
P. M.	Pere Marquette
P. R. I.	Pennsylvania
Reading	Reading
Wab.	Wabash
W. S.	West Shore
W. & L. E.	Wheeling and Lake Erie

Appendix C

Selected References

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3. Experiment Station Bulletins

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New Jersey No. 502. The Motor Truck as a Carrier of Fruits and Vegetables to Greater New York, 1930.

4. State Departments of Agriculture publications.

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d. W. H. Youngman, Statistics and Charts of the Apple Industry. 1930.

5. (cont.)

e. Statistical Bulletins. Nos. 7, 19, 25, 27, 30, 35, 38.

f. Yearbook, 1931.

6. Railroad Tariffs.

Carrier tariffs.

B&A	ICC	9191	Joint Routing Guide.
B&A	ICC	9202	Exceptions to Official Classification.
B&A	ICC	12677	Exceptions to Official Classification.
B&A	ICC	A 2690	Local Tariff of Miscellaneous Rules, Regulations and Charges applying at Stations on the B&A.
B&A	ICC	2750	Joint Routing Guide. (From stations on the B&A to stations in Trunk Line and Central Association Territory)
Erie G.O.	2160-F	ICC 18800	Lighterage and Terminal Regulations in New York Harbor and Vicinity.
NYC	Circ. A-800	ICC 15379	Rules Governing Delivery of Freight at New York, Brooklyn and Long Island City, N. Y. and Vicinity.
NY, NH&H	ICC	F3125	Local and Joint Freight Tariff of Charges for Lighterage, Terminal and Miscellaneous Service at Brooklyn, etc.
NY, NH&H	ICC	F3191	Joint Routing Guide No. 2.
NY, NH&H	ICC	F3270	Exceptions to Rules and Ratings Published in the Official Classification.
PRR	1426A	ICC 940	Rules Governing Delivery at Brooklyn, N.Y., Jersey City, N.J., P.E.S.T. and New York, N.Y.
West Shore	Circ. A-700	ICC E.S. 5967	Rules Governing Freight Deliveries at New York, Brooklyn and Long Island City, etc.

Agency Tariffs.

New England Freight Association.

- No. 16 ICC 157 Joint Class Rate Tariff Applying
between Stations in New England,
also New York. (Stations named)
- No. 18 ICC 159 Local and Joint Class Rate Tariff
Applying in Either Direction Between
Stations in New England and New York.
- No. 19 ICC 160 Joint Freight Tariff of Class Rates.
(From Stations in New England to
Stations in C.F.A.)

Trunk Line Tariff Bureau No. 3 B ICC A-310 Rules and
Regulations Governing Storing and
Reconsigning in Transit.

Perishable Protective Tariff No. 6 ICC No. 5 Local,
Joint and Proportional Charges and
Rules and Regulations governing the
Handling of Perishable Freight.....
at, from and to points in the United
States.

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Approved by:

~~Gen. Claus~~

Anderson Maximine

H. N. Geist

Graduate Committee

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