CONCLUSIONS:

1. Milk vending machines have made milk available at locations where it was not available before.
2. Many of the sales made through the machines are "plus sales," therefore, they increase the consumption of fluid milk and by this means increase the returns of milk producers and milk handlers in the state.
3. Some of the general line vending companies are doing a very successful job of selling milk along with their other products.
4. The vending companies consider milk to be a profitable product because it adds to their line. They also consider it an additional service that they can offer to their customers. This additional service often makes it possible for them to compete with other vending companies for locations that provide outlets for their complete line of products.
5. Vending companies have found that milk is easy to sell through their machines but it is perishable and costs them more than most of the other products they sell. Purchasing and maintenance costs of milk vending equipment are higher than those of most other products sold through venders; therefore, the milk machines must sell a high volume to justify keeping them on a location.
6. Dairies are using milk vending machines to create public good will and to open up new markets for their products.
7. Milk vending machines must be placed in locations where they are convenient to customers and, in the case of drink-size packages, in a pleasant place for relaxation. The machines and the surrounding area must be kept clean and the product must be fresh and cold. The machines must be in good mechanical adjustment so customers are assured of good service.
8. Milk vending will continue to expand in Missouri during the next few years. This growth will be closely associated with the industrial development of the state.
Successful merchandising of a product requires that it be made available at the time and place the consumer wants it. Fluid milk merchandising methods of the past have concentrated on housewives' home supplies and some on the restaurant trade.

There is another facet in making fluid milk available. This is in the realm of snacks, breaks and refreshment periods.

The problem in serving this market is one of providing small quantity sales at acceptable prices. Coin operated vending machines are adapted to this purpose. One person can service machines in several locations where the volume of sales is too small to justify a full time clerk. Sales can be made 24 hours a day. Three crews of clerks would be required to provide this service personally.

Even at points of sale where clerks are on duty, machines can relieve them of handling small items and permit them to spend their time on larger, higher profit items. Vending machines also permit the business man to add low profit items that increase customer good will.

Serving this snack time market may have an indirect effect on public health. Many people in our country who do not consume the quantity of milk they should for good nutrition have enough income to purchase all they need. Their deficiency results from personal habits, and what is available during their social periods can affect their habit patterns.

**Greeks Had Vending Machine 219 B.C.**

The coin operated vending machine is not a new invention. G. P. Schreiber describes in his book, *Automatic Selling*, an automatic device used to dispense holy water in one of the ancient Greek temples. Worshipers dropped a coin through a slot in the top of the machine. The coin fell on a lever. Its weight depressed the lever opening a valve which released water into a vessel held by the worshiper. As the weight of the coin depressed the lever, it reached a position that permitted it to slide off into a coin box and the lever returned to its original position, closing the valve. This machine was built in 219 B.C. and the same basic principle is still used.

Tobacco was sold through machines of this type in public houses in London during the latter part of the 18th century. The beginning of automatic selling in the United States came in 1888 when Thomas Adams had machines designed to sell chewing gum in New York. Schreiber reported in 1954 that two out of every 10 candy bars purchased in the United States were bought from a machine; 16 out of every 100 packs of cigarettes (and this included cartons of cigarettes sold by chain and independent drug stores and super markets); and approximately 25 percent of the soft drinks were dispensed by machines.

*Acknowledgment: The author is indebted to O. E. Allen for assistance in carrying out this study with vending firms of the state.
Growth of Milk Vending
IN THE UNITED STATES

The first milk was sold through coin operated vending machines in the United States in the early 1930’s. These attempts were not very successful and the business underwent little expansion until the late 1940’s.¹ About six major milk vending routes had appeared by 1950.² These routes were concentrated in the large industrial centers of New York, Philadelphia, Cincinnati, and Chicago. A number of smaller operations were scattered through the other industrial areas of the country. The total number of milk and ice cream vending machines in the United States in 1950 was 3,213.³ By 1955 the number of milk vending machines alone had increased to 24,400.⁴ Approximately 2400 of these were outdoor machines vending a quart or half-gallon package and 22,000 were indoor machines selling drink-size packages.

IN MISSOURI

A study of Milk Vending in Missouri was made in 1955. The graph pictures its growth from three firms in 1950 to 44 in 1955. These 44 firms operated 802 milk vending machines in 1954, which was over 95 percent of the entire number in the state at that time. Twelve of the machines sold take-home size packages (quarts and half-gallons) and handled a little more than one-fifth of the milk sold through machines. The other 790 machines, operated by 42 firms, vended four-fifths of the volume as drink-size packages.

The 44 firms reported their 1954 sales as follows:

<table>
<thead>
<tr>
<th>No. of Firms</th>
<th>No. of Milk Machines</th>
<th>Quantity Sold</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor</td>
<td>42</td>
<td>790</td>
<td>6,236,651 lb.</td>
</tr>
<tr>
<td>Outdoor</td>
<td>5</td>
<td>12</td>
<td>1,702,800</td>
</tr>
<tr>
<td>Total</td>
<td>44*</td>
<td>802</td>
<td>7,939,451</td>
</tr>
</tbody>
</table>

*Three firms had both indoor and outdoor machines.

If all of these sales represented “plus sales”—sales of fluid milk in addition to that regularly used by families—they gave dairy farmers an additional income of $97,655. This figure is based on the fact that milk used for bottling purposes returned producers an average of $1.23 more per cwt. than that used in dairy manufacturing—$1.23 x 79,394 hundredweights = $97,655. Usually, the milk purchased at outdoor machines is used in the home. Excluding this volume, and assuming that only 75 percent of the remainder represented plus sales,⁵ the additional income for Missouri farmers from vending machine sales would be $57,000.

While milk sold through vending machines was only 1.6 percent of Missouri milk sales in 1954, it represented added profit on what was already produced and the potential of vending sales is probably far from being reached.*

NUMBER OF FIRMS VENDING MILK IN MISSOURI EACH YEAR FROM JANUARY 1, 1950, THROUGH JULY 1, 1955. FROM THE FORTY-FOUR FIRMS THAT CONTRIBUTED DATA FOR THIS STUDY.

*County Extension Agents reported a 48 percent increase in the number of Milk vending machines in Missouri in 1956 as compared with 1955. It is believed that this is a good indication of the present growth.

-4-
The following analysis is based on a 1955 Missouri study and research results available from other sources at the time of writing. Milk vending research is still sketchy; more complete answers will be found as work continues.

INTEGRATION WITH OTHER ACTIVITIES

Most milk vending operations are carried on in connection with other enterprises—either selling milk by other methods (in the case of dairies) or selling other products through vending machines (in the case of vending companies). Getting milk vending activities to fit in with other operations of a firm presents problems. This, apparently, is one of the major obstacles to increasing sales of milk through vending machines.

A study published by the University of Wisconsin in 1950 suggested that dairies were in a better position to handle milk vending than companies specializing in vending all types of products.

Both dairy and vending companies have achieved considerable success in integrating milk vending with their other operations since 1950. The table below indicates vending companies have been more successful in Missouri. This may be due, partially, to special knowledge of mechanical vending machines and vending machine customers. Another factor may be the locations that have become available to them through other vending operations. The fact that vending companies already have machines selling other products on many industrial locations, and have contracts with the management, probably gives them considerable advantage in placing milk vending machines.

Of the 44 Missouri firms vending milk, 37 were dairies and seven, vending companies.

<table>
<thead>
<tr>
<th>DRINK-SIZE MILK PACKAGES VENDED IN MISSOURI (1954)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy Firms</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Firms</td>
</tr>
<tr>
<td>No. Machines</td>
</tr>
<tr>
<td>Machines per firm</td>
</tr>
<tr>
<td>Packages Milk Dispensed per Month (Avg.)</td>
</tr>
<tr>
<td>Packages per Machine per Month (Avg.)</td>
</tr>
<tr>
<td>Pounds Milk Sold per Month</td>
</tr>
</tbody>
</table>

One important point doesn’t show in the table: Twenty-eight of the dairy firms vended less than 10,000 units per month. The average for these firms was only 3817 units per month but the nine dairy firms with sales volumes above 10,000 averaged 33,644 packages. These nine dairy firms, together with the seven vending companies, made 87.5 percent of all the drink-size milk package sales through vending machines.

Costs range widely for both types of firms. Apparently, in order for milk vending to be successful the operation must either be large enough to justify a trained service crew, or it must be coordinated with other activities so that personnel with this training are available and their labor is not charged entirely against the milk vending enterprise.

WHAT MAKES A GOOD LOCATION?

The value of a location depends on five things: Volume of sales; cost of delivering milk to the location; adaptability of equipment; and offering the sizes and kinds of products customers prefer.
Volume of Sales Anticipated

Milk vending machines are most common in large industrial locations, factories, and offices, but they have been placed in college, public school, and other institutional locations with good results.

In Maine, the volumes of milk sold from vending machines located in an office, a cafeteria, a university recreation room, a high school corridor, and a shoe factory stitching room were determined. The machine in the shoe factory stitching room was the only machine that sold a large enough volume to be profitable. Machines in industrial plants in South Carolina had daily sales of 68 units compared with 61 for schools, 50 for office buildings, and 46 for military installations.

In the Missouri study, locations were divided into 2 groups, school and non-school. Of 790 machines offering drink-size packages, 91 were in schools and 699 in non-school locations. The machines in schools averaged 1,964 sales per month, compared with 923 sales per month for those in non-school locations. The machines in schools operated only nine months per year, while most of those in non-school locations were in use 12 months. The higher volume of sales in schools may be due largely to the government school milk program. Machines in schools that did not have a government school milk program averaged fewer sales than those on non-school locations.

Half-pints made up 87 1/2 percent of the sales in schools. The remaining 12 1/2 percent were one-third quarts. In the non-school locations 85 percent of the sales were one-third quarts and 15 percent were half pints.

Representatives of the general line vending companies stated that their milk vending business was most profitable in industrial locations. They reported that some institutional locations were satisfactory, but these locations were too few in number to provide sufficient volume. One company official stated that institutional sales varied more between locations and the volume of sales in each location varied more from month to month than sales in industrial locations.

The manager of a company that had several milk vending machines in schools said that on most of his locations the volume of sales was high for the period immediately after the machines were installed, but that on some of them the volume declined until the location ceased to be profitable and the machines were removed. He pointed out that most of the machines had been placed in the schools after some type of community milk promotion program or campaign. In some communities there was no follow-up on the original promotion, and sales declined. In the communities that continued an active program to encourage students to use milk, sales remained high.

This operator pointed out that the vending company has fewer opportunities to promote sales in schools than in industrial plants. In a school is left to school officials, the parents, and the community. This problem may exist to some degree on any institutional location, but it does not necessarily indicate that there is no way for a vending company to promote sales on such locations. It may only indicate that they have had less experience in developing appropriate means of merchandising on institutional locations than on industrial locations where they have been vending other lines of merchandise for some time.

Several operators discussed the kinds of industrial workers who made the best customer. Their observations differed but there was considerable agreement on three characteristics:

a. Workers who do heavy work are better customers than workers who do light work.

b. Men tend to be better customers than women.

c. Locations where the workers carry a lunch to work are better than places where the workers go out to eat.

Operators reported that it was very difficult to make an accurate statement about the best position for a machine within a particular plant or building. They try to find a place that is both convenient and pleasant for drinking the milk. Both of these factors are considered important. Both the machine and the area around it must be kept clean.

Most vending machine operators find it essential to locate machines where they attract attention of potential customers. At Clemson College in South Carolina a machine placed on a profitable location in the hall of a college men's dormitory was moved 200 ft. into a utility room and a sign, "Mechanical Cow," was placed on the door. Sales dropped 32.7 percent in one week. This decline was attributed to the loss
of impulse sales.\textsuperscript{11}

Martin B. Marshall, a research worker at Harvard, points out that all good vending locations have captive customers.\textsuperscript{3} They are captive in the sense that customers are confined to the area for some purpose other than the purchase of the product that is being vended. He classified locations into transit, recreational, and industrial. He stated that selection of locations is the major problem of vending machine operators. Most of them have been unable to establish satisfactory criteria by which to determine potential sales. Considerable reliance is placed on trial and error. If a location is profitable the machine is left on it. If it is not profitable, the machine is moved.

Two standards have been used in selecting trial sites: (1) The traffic count of captive customers passing a location, and (2) an appraisal of the type of traffic on the basis of what it will buy. The minimum number of captive customers suggested is 80 for a small, manually operated machine and 150 for an automatic milk vender.

**Cost of Delivering Milk to Location**

The cost of delivering milk to vending machines varies with different locations, servicing arrangements, and equipment. This variation results from at least two kinds of problems. The first group are connected with the physical difficulty of getting the milk to the location and into the machines. They often include: heavy traffic, parking on busy streets, moving milk on crowded elevators, and placing each container carefully in the machines.

A second, and often more difficult group of problems involve personnel and institutional relationships; such things as: contracts and servicing arrangements between venders and dairies, access of route men to location in restricted areas, compliance with health regulations, licenses, franchises and special taxes, working arrangements between members of different unions, and public relations with customers, location owners and company personnel. Milk vending organizations are confronted with a complex of many different problems. Each vender tends to be faced with a different combination of these problems on each location and deals with each location individually. Many individuals and institutions have contributed to the solution of these individual problems. But, the difficulty of servicing is often the decisive factor in determining whether or not to place a milk vending machine on a particular location. Additional solutions to these problems can bring about an increase in the amount of milk sold through vending machines.

**Adaptability of Equipment**

There are two main types of vending machines, fully automatic, and manually operated. Both types are included in this report.

A Cornell study gives the following list of points to consider in selecting vending equipment for milk:\textsuperscript{9}

1. Will it meet with health department approval?
2. What is its capacity?
3. Does it vend fast enough?
4. Is it economical to buy, service, clean, and maintain?
5. Is it adaptable to various containers?
6. Does it handle the desired number of products?
7. Are coin changers available?
8. Is it ruggedly constructed?
9. Is it attractive in its appearance and simple to operate?
10. Will the manufacturer stand behind it?

Out of 790 indoor machines covered by the Missouri study, 449 (57 percent) were automatic. The rest were manually operated.

Two types of automatic outdoor machines were used. One dispensed half-gallon containers and the other quarts. Both used paper cartons.

In his 1955 study, Padgett found that the most widely used machine in South Carolina was fully automatic and had a capacity of 210 half pints or one-third quart units. It had a coin mechanism that would accept pennies, nickles, dimes, and quarters, and offered three products simultaneously.\textsuperscript{7}

No clear relationship was found between the type of vending machine used and either the size of operation or the type of business organization. Several firms were using both types of machines.

The most important consideration seemed to be to select a machine that most nearly fit the location and the operating problems of the owner.

Variations in locations are great enough to require different types of vending equipment.

Missouri operators gave the following advantages for the two types of machines.
Manually Operated Machines:
- The purchase price is less.
- They are easy to clean.
- They are easy to load.
- They require less maintenance.

Automatically Operated Machines:
- They operate faster.
- They require less supervision to prevent vandalism.
- They require cleaning less frequently (fewer cartons are damaged and become leakers).
- They require less floor space.

INVESTMENT IN VENDING MACHINES

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Vending Companies</td>
<td>$376,100</td>
<td></td>
</tr>
<tr>
<td>37 Dairy Firms</td>
<td>147,270</td>
<td></td>
</tr>
<tr>
<td>Avg. per Vending Co.</td>
<td>53,730</td>
<td></td>
</tr>
<tr>
<td>Avg. per Dairy Firm</td>
<td>3,980</td>
<td></td>
</tr>
</tbody>
</table>

Average investment for the 16 firms (9 dairy and 7 vending firms) that sold 87.5 percent of the vended milk was $30,786. Six of these, however, had investments of less than $10,000 indicating that location of the machine can offset number and investment cost of machines to some extent. One firm sold 12,000 units per month through a machine valued at $650. It was located in a public school to dispense milk under the school lunch program.

Sizes and Kinds of Products Preferred

The kinds of drinks offered by vending firms give an indication of what their customers demand.* Drinks offered by Missouri milk vending firms were:

<table>
<thead>
<tr>
<th>Types of Drinks Vended by Different Firms</th>
<th>Number of Firms Offering the Drink(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homogenized milk only</td>
<td>2</td>
</tr>
<tr>
<td>Chocolate milk only</td>
<td>4</td>
</tr>
<tr>
<td>Homogenized milk and chocolate milk or chocolate drink*</td>
<td>33</td>
</tr>
<tr>
<td>Homogenized milk, chocolate milk and buttermilk</td>
<td>5</td>
</tr>
<tr>
<td>Orange drink in addition to one of the combinations above.**</td>
<td>12</td>
</tr>
</tbody>
</table>

* Chocolate milk has minimum butterfat content of 3.25% and chocolate drink, less than 3.25%.
** Orange drink sales by these 12 operators amounted to 12.5% of their milk sales. The orange drink sales were not included in computation of volume of milk sold.

Missouri operators used paper and glass containers in the following amounts. Glass was used chiefly in school locations.

<table>
<thead>
<tr>
<th>Types</th>
<th>Units Sold Per Month</th>
<th>Percent of Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>763,307</td>
<td>89</td>
</tr>
<tr>
<td>Glass</td>
<td>94,280</td>
<td>11</td>
</tr>
</tbody>
</table>

INDICATIONS OF PREFERENCES BETWEEN MILK AND CHOCOLATE MILK BY DIFFERENT GROUPS

<table>
<thead>
<tr>
<th>Vender Location</th>
<th>Source of Figures*</th>
<th>Preference Indicated by Vender Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools</td>
<td>Missouri Study</td>
<td>Showed high preference for chocolate</td>
</tr>
<tr>
<td>Colleges</td>
<td>Utah Study</td>
<td>3 to 1 preference for chocolate</td>
</tr>
<tr>
<td>Military Bases</td>
<td>Utah Study</td>
<td>2 to 1 preference for chocolate</td>
</tr>
<tr>
<td></td>
<td>So. Carolina</td>
<td>2 to 1 preference for chocolate</td>
</tr>
<tr>
<td>Factories</td>
<td>So. Carolina</td>
<td>Slight preference for plain milk</td>
</tr>
<tr>
<td></td>
<td>Mo. Study</td>
<td>Varied from no preference to 9 to 1 in favor of chocolate. In all cases, workers preferred plain milk with lunch, and varying degrees for chocolate for snacks.</td>
</tr>
</tbody>
</table>

* See bibliography for references to study reports.

*Decisions of school officials and school lunch program administrators influence consumption patterns in schools.
Sizes of containers used by vendors also reflect a size preference of customers to some extent. However, the following figures represent a compromise between customer preference and the operator's packaging and pricing problems.*

<table>
<thead>
<tr>
<th>Sizes</th>
<th>Units Sold Per Month</th>
<th>Percent of Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>one-third quart</td>
<td>568,175</td>
<td>66</td>
</tr>
<tr>
<td>half pint</td>
<td>252,312</td>
<td>29</td>
</tr>
<tr>
<td>half gallon</td>
<td>32,500</td>
<td>4</td>
</tr>
<tr>
<td>quarts and pints</td>
<td>4,600</td>
<td>1</td>
</tr>
</tbody>
</table>

SALES VOLUME NEEDED TO BREAK EVEN

A measure often used in evaluating a selling operation is the break even point. This refers to the number of sales required for the returns to equal cost. The unit used in measuring the sales of milk vending machines is the package.

This break even point varies considerably for different operations and different locations. Hugh L. Cook, a Wisconsin research worker, found in a 1950 study that firms in his state required 50 to 100 sales per day per machine to pay expenses. The average break even point was 65. He also pointed out that specialized operators had more machines per firm than dairies that operated vending machines as a side line. Such firms depend entirely on vending machines for income and thus require a larger number of sales to give them enough volume for a suitable income.

Morris and Hopson of the Utah State Agricultural College found an average break even point of 70 packages per day for automatic venders and 35 for the hand operated type in their state. Jerry H. Padgett of the North Carolina experiment station found a range in break even points in 1955 of 35 to 70 packages per day. The average was 55.

Some of the managers interviewed in our Missouri study furnished definite break even points. If the volume of a machine dropped below this point, it failed to meet operating costs. Their break even points ranged from 35 to 70 packages per day.

Factors Contributing to Wide Range in Costs

Things managers listed most frequently as influencing cost of operating vending machines included (1) kind of equipment, (2) cost of servicing, (3) cost of product, (4) commission or rental on location, and (5) number of machines operated.

Operators that have 50 or 60 machines are able to operate them on a lower volume than operators that have only a few. Thus, the larger operators can keep machines on locations that smaller operators cannot afford to service. Many of the machines require considerable adjustment and occasional repair. An operator with a large number of machines is able to employ a skilled maintenance man at a lower cost per machine than one with only a few.

Firms that operated more machines than others made fewer sales per machine. A business man attempts to use the resources at his command in a way that will give him the most income possible. Thus, the firm which operates only a few machines moves a large volume of product through each machine by placing it in the best location available and by keeping it well serviced. As a firm increases the number of machines it operates, it is forced to place succeeding machines in less desirable locations, so sales per machine decline.

The number of milk vending machines placed in operation by the various firms in this study was largely a matter of integration with the overall business. A businessman seeking to secure the largest net return possible, however, will place additional machines on location as long as each new machine adds more to total revenue than it does to total costs.

MISSOURI SALES FIGURES

Average figures on the 1954 sales volume of the 790 machines that vended drink-size packages (half pints, one-third quarts, and a few pints) might be helpful as a rough guide on what to expect in the way of sales to pay for machine rental or purchase.

MONTHLY SALES VOLUME OF MACHINES VENDING DRINK-SIZE PACKAGES

<table>
<thead>
<tr>
<th>Avg. No. Machines per Firm</th>
<th>18.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. No. Packages Sold Per Firm</td>
<td>19,621</td>
</tr>
<tr>
<td>Avg. No. per Machine</td>
<td>1,043</td>
</tr>
</tbody>
</table>
Breakdown by Geographic Areas

These figures were broken down further into geographical areas of Missouri because the marketing patterns and problems differ in different areas. St. Louis and Kansas City were treated separately and the rest of the state was divided into north and south Missouri with the Missouri river serving as the boundary.

The St. Louis firms included dairies and vending companies. Some of them had been in the milk vending business for several years and had more experience in merchandising. Many other firms had started in business in the St. Louis area, but were not operating at the time the data were obtained. Consolidations, mergers, and liquidations have taken place and a few relatively large, successful organizations have emerged.

The most important factors governing sales in the four areas were concentration of population and differences in degree of industrial development. Vending machine company managers point out that the number of workers employed in a typical industrial plant in Kansas City tends to be smaller than the number employed in a St. Louis plant and the number employed by industrial firms in St. Joseph, Springfield, Joplin, and Hannibal tends to be smaller than in Kansas City. These situations influence potential outlets.

Apparently, some additional factors influence the situation in South Missouri. In this area, dairies are using milk vending machines more than in other parts of the state. This may be the result of promotional work that has been done there by the dairy industry. Dairying is more important to the economy of southern Missouri than to that of northern Missouri. It seems reasonable that the people would make more effort and show more response to promotional work in this section of the state than in North Missouri. The fact that a higher percentage of the machines are in schools where the government program has made milk available at 2¢ to 3¢ a half pint also may contribute to the high volume per machine. The school milk program has frequently resulted in a milk vending machine being taken out of a school and the milk being handled some other way. However, in cases where it has been sold through a machine the volume has increased.

WHAT EXPERIENCED OPERATORS SAY

Both dairy and vending company operators seemed to look at the cost of milk vending in relation to the effect that this operation had on overall costs and returns of their entire business.

Vending companies looked on packaged milk as another product to add to their line when this addition resulted in greater overall profit.

One manager summarized his position in this way: "Milk has the highest cost of any product we vend. The equipment costs more to purchase, more to operate, and more to maintain than the equipment for any other product we handle. We also have a lower margin per unit on milk than on any other product. Thus, we can afford to install milk vending machines only on locations where they sell a high volume. However, our customers demand milk. It helps us to get new locations for our more complete line of products. Milk is easy to sell through vending machines. We could sell much more than we are selling now, and expand the rest of our business, if we could find a way to lower the cost so we could afford to put machines on a greater number of locations." This manager expressed the hope that a
new cup type vending machine, then being developed, might lower handling costs enough to make it possible to sell a 5-cent cup of milk. This would put it on an equal price basis with other cup drinks.

Another vending company manager remarked: "Milk venders made only $10 profit for my company last month. However, they paid $120 on overhead cost that we would have incurred anyway, so the company was $130 better off for the month than it would have been if we had not vended milk."

One company official stated that vending companies compete for location by offering as complete a line of services as possible and milk is one of the products customers demand.

Dairies that liked milk vending machines tended to emphasize the increased volume of sales and the advertising that resulted from getting their product before new customers. Dairies that were not completely sold on this merchandising procedure emphasized the extra trouble involved in servicing the machines and the difficulties growing out of customer-employee relations related to the use of machines.

LITERATURE CITED
